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R.A.F. NARRATIVE

(Revised Draft)

THE R.A.F. IN MARITIME WAR

VOLUME III

THE ATLANTIC AND HOME WATERS - THE PREPARATIVE PHASE

JULY 1941 TO FEBRUARY 1943

AIR HISTORICAL BRANCH (1)

AIR MINISTRY

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CHAPTER I

THE EXPANSION AND RE-EQUIPMENT OF COASTAL COMMAND -

JUNE 1941 TO OCTOBER 1942

(i) Introduction

In Volume II was traced the development of Air Power at sea in the early stages of a modern war. It was shown that the potentialities of air warfare, which had increased pari passu with the improvements in aircraft performance during the 21 years since the first German war, had not been turned into actualities. The efficient application of Air Power to the problems of shipping protection against U/Bs and the corollary role - the attack of enemy surface war-ships and shipping - was not immediate. Both had to be developed from very small beginnings owing to limited numbers of aircraft, makeshift equipment and inadequate weapons; moreover the technique of application, so different in the two roles, had to be learnt from the beginning of the alphabet.

We have seen that one of the first requirements was for more aircraft related to the particular roles and the history of this expansion in the strength of Coastal Command forms the theme note of the period covered by this Volume. To change the metaphor, it is a background the description of which is essential in order to provide the perspective in which can be viewed the operations carried out by Coastal Command between July 1941 and October 1942. During this period, the scale and scope of the air war against U/Bs and enemy shipping continued to be strictly conditioned by shortage of available aircraft and inevitable delays in producing the equipment found necessary to keep ahead of enemy counter measures. It was still a period of preparation.

Early Expansion Plans

As recounted in Volume II, Coastal Command had received some re-inforcement during 1940 but the first planned expansion commenced in December 1940 with the agreement between the Air Ministry and Admiralty for the provision of fifteen new squadrons by the end of June 1941.(1)

Vol. II
Chapt. VIII
Section (vi)-(vii)
and Appendix VI

- (1) For the history of the Air Force expansion as a whole and the problems confronting the Cabinet and Air Council on this subject between 1937 and 1941, see the "Outline of R.A.F. Expansion Policy" prepared by A.H.B.I. This work illustrates the serious handicap under which any expansion from the state of unpreparedness of 1937 had to take place because of the serious shortage of training aircraft, training schools and maintenance personnel, and describes the initiation of the Empire Training Scheme in December 1939. It also brings to the fore the hard decisions forced on the Air Council in the allocation of an insufficient total of first line aircraft among the competing claims of an offensive Bombing Force, a Fighter force and Army and Naval co-operation forces. Coastal Command had received, in addition to the 19 squadrons in existence in September 1939, the following re-inforcements. No. 10 Sqn. R.A.A.F. (Sunderlands) in December 1939, the four Blenheim squadrons (Nos. 235, 236, 248 and 254) from Fighter Command in February 1940, the two Blenheim squadrons (Nos. 53 and 59) loaned from Bomber Command in June 1940 and No. 98 (Battles) Sqn. stationed in Iceland from August 1940.

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By the 15 June 1941, the fifteen squadrons had been formed or were in the process of being formed but the increasing demands of strategic requirements in the Mediterranean were neutralising the expansion in the home Command's strength.⁽¹⁾ On this date the strength of Coastal Command, including a Bomber Command squadron on loan and the squadrons at Gibraltar and Freetown, was 35 squadrons of 582 aircraft with an average daily availability of 298. In addition there were two Fleet Air Arm Squadrons under Coastal Command Control.⁽²⁾

The war experiences up to this time had made it clear that numbers alone could not guarantee efficient air co-operation in the sea war - types of aircraft were equally important. In this respect Air Chief Marshal Sir Frederick Bowhill had drawn up a review of the war situation on the eve of relinquishing his office on 14 June to the new A.O.C. in C., Air Chief Marshal Sir Philip Joubert. In his review Sir Frederick stressed the need for the new Mosquito type to replace Hudsons in reconnaissance patrols off enemy coasts, more Beaufighter aircraft in view of the inferiority of the Blenheim fighters and heavy long range bomber types properly equipped and designed for Atlantic anti-U-boats work in place of the heterogeneous collection of Wellington, Whitley and Hudson types.⁽³⁾ Although it was intended to provide Coastal Command with six Beaufort torpedo bomber squadrons, Sir Frederick recommended that three of these squadrons should be armed with Hampden aircraft which with their greater range could operate with the Toraplane⁽⁴⁾ against enemy shipping in Kiel Fjord and other enemy anchorages outside Beaufort range and could alternatively carry out mining in the Kattegat and Western Baltic which were also outside Beaufort range.

One of the first things the new A.O.C. in C., did was to examine this review in order to agree to or modify the views and recommendations it contained. A statement containing the present establishment, future requirements and the Air Ministry expansion programme "Target E"⁽⁵⁾ was sent to the Air Ministry on 14 September 1941. The covering letter

-
- (1) Two newly formed Beaufighter squadrons (Nos. 252 and 272) had gone to Malta in May and June 1941.
 - (2) See Appendix I for Order of Battle, establishments, strengths and availability.
 - (3) During the whole war there was never produced a large long range aircraft specifically designed for action against U-boats.
 - (4) The Toraplane was a naval 18 inch torpedo fitted with stub wings and tail fins which on release glided towards the target in the air and on entry into water behaved like a normal torpedo. The angle of glide was such that release could be made well outside ground defence range. In point of fact, although it was on a high priority for development from the outbreak of war, the Toraplane never got beyond full scale trials. Its use against ships in anchorages and harbours was soon neutralised by the provision of booms and net defence. When tried against targets under way, it proved no better than a normal torpedo. Development work was finally abandoned in October 1942. Reference CC/S.18172.
 - (5) Target "E" provided for a strength by the end of 1941 of 15 flying-boat squadrons, 18 G.R. land plane squadrons, 6 Torpedo bomber squadrons and 10 long range fighter squadrons. Total establishment 698 aircraft. Ref. CC/.S.7010/3/4 Part I encl. 4F.

C.C. file
S.7010/3/4
Part I
Encl. 3A, 4A

ibid
encl. 11A

stated that the requirements had been compiled in order to satisfy two main tasks - close escort of convoys and the sweeping of areas adjacent to convoys to attack or neutralise enemy submarines by forcing them to keep submerged for prolonged periods. In addition to the two main tasks there were the requirements of anti-invasion reconnaissance, shipping reconnaissances and the attack of enemy war and merchant vessels with bomb and torpedo. For these purposes a total of 848 aircraft was considered the minimum.⁽¹⁾ Attention was drawn to the danger of uneconomic use of long range aircraft at the extremes of their range in convoy escort and it was recommended that such escort should not be counted on at a distance of more than 600 miles from base. The endurance remaining over and above the 1,200 miles out and back to be used in useful time with the convoy and any increase in payload which might eventuate with later types should be devoted to increased bomb load permitting of more than one attack on U-boats sighted and not to increased petrol carriage. Stress was laid on the fact that reconnaissance of enemy coasts was being carried out by Hudsons and Blenheims which were suffering heavy casualties by reason of their performance being so inferior to enemy aircraft and that it was desirable that a fast two seater aircraft with good armament and long endurance should be provided. The new Mosquito type was admirably suited for this purpose and a supply of this type was recommended if this reconnaissance work was to continue effectively. Criticism of the Beaufort type for torpedo bomber duties was made on the ground that it was lacking in range and in defensive armament. Finally it was pointed out that the requirements for aircraft on O.T.U. units, for crews to meet even the "Target E" expansion and to provide for aircraft and crew wastage in squadrons already sent or intended to be sent to the Middle and Far East were far above anything that had been envisaged in any target programme.

Broadly speaking this report bore out Sir Frederick Bowhill's review and in addition gave chapter, verse and figures in support of an expansion in the strength of Coastal Command in excess of that already planned.

(ii) Difficulties Hindering Expansion

Personal Minute
M.976

Early in October 1941 the Prime Minister suggested to the First Lord of the Admiralty that, having regard to the fact that U-boats were, probably as a result of air operations

(1) This requirement programme was made up as follows:-

- * 26 flyingboat squadrons - 150 Catalinas and 72 Sunderlands
- 4 long range G.R. squadrons - 32 Liberators and 32 Wellingtons or Whitleys.
- 15 $\frac{1}{2}$ medium and short range - 64 Mosquitoes and G.R. squadrons 180 Hudsons
- 8 torpedo bomber squadrons - 128 Beauforts.
- 10 long range fighter squadrons - 160 Beaufighters.

* Note. Four flyingboat and two G.R. short range squadrons were earmarked for West Africa. Three flyingboat squadrons were earmarked for Gibraltar. Both Target "E" and this Requirement Programme included Gibraltar and West Africa in the Home Command as both were under the operational control of H.Q.C.C.

SECRET

4

C.O.S.(41)
204th meeting

A.M. file
S.6457
encls. 52A and B

confining their activities to more distant waters and in view of the agreed plan for strategic bombing attacks on Germany which required the immediate building up of Bomber Command's strength, it would be desirable to transfer the Whitley and Wellington aircraft at present operating in Coastal Command. The First Lord, in a reply dated 16 October, viewed with alarm the proposed transference amounting to 60 Wellingtons and Whitleys to Bomber Command. In a detailed argument he pointed out that this would amount to the halving of Coastal Command's strength in long range aircraft. This type was of vital value in the U-boat War particularly as the U-boats were increasing their operations in areas outside the range of the medium and short range types; moreover such a transfer would sacrifice the long range A.S.V. now fitted in them and which was prototyped for land types of aircraft. The supply outlook for Catalinas and Sunderlands was poor and an actual decrease in flyingboat strength was inevitable over the winter months so that it was essential to retain such long range planes as the Command possessed until adequate reinforcements of flyingboats were actually received. He advised against the proposed action but was willing to review the situation on the 1 January 1942. This reply was minuted by the Prime Minister to the C.A.S. who stated his agreement to the First Lord's appreciation. This was accepted by the Prime Minister and the decision to transfer aircraft to Bomber Command was accordingly postponed to the New Year.

However, new and future deliveries of long range bomber types were earmarked exclusively for the Bomber offensive either at home or in the Middle East and it was understood at Headquarters Coastal Command that the one Liberator squadron - No. 120 - would be allowed to die out and that it was possible that a similar fate might befall the Wellington and Whitley squadrons.(1) In compensation it had to be accepted that flyingboats would provide the long range effort required for convoy protection and fleet reconnaissance although it upset the balance between land aircraft and flyingboat squadrons.

C.C. File
S.7010/3/4
Part I
encls. 26A, B &
C and 27A

The future for rapid expansion in flyingboats was not rosy. A letter from the Ministry of Aircraft Production dated 13 October 1941 gave a dismal picture of the Sunderland situation. Labour troubles in Belfast coupled with lack of interest in this type, as compared with "Stirling" aircraft, shown by the manufacturing firm had brought Sunderland production almost to a full stop. The new factories at Windemere and Dumbarton were not expected to deliver any boats till 1942 and only four per month were being produced at Rochester. Catalina deliveries from America were

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- (1) On the 14 October 1941 the land plane squadron numbers in Target E" were amended to be 16 G.R., 8 Torpedo-bomber and 8 long range fighter squadrons. This was a net reduction of 2 G.R. squadrons. In the same order the establishment of all land plane squadrons was standardised at 16 initial establishment plus 4 initial reserve in place of 20 I.E. as theretofore. This latter order was to save in numbers of maintenance personnel. Ref. CC/S.7010/3/4. Part I encl. 23A.

C.O.S. (41)
308th and 328th
meetings

becoming ragged though it had been arranged to borrow up to 36 already promised to the Canadian Government for delivery early in 1942. (1)

CC/S.7010/3/4
Part I
encl. 28A

A report on this matter was sent by the A.O.C. in C., to the C.A.S. on 20 October, at the same time drawing attention to the poor deliveries of Catalina aircraft and deprecating the more strongly any diversion of long range land planes from Coastal Command. The C.A.S. replied agreeing that the picture was not pleasant but indicating that production and deliveries, it was hoped, would gradually build up to 15 per month by March 1942.

ibid
encl. 30A

On the 10 December 1941, the A.O.C. in C., wrote to the Air Ministry drawing attention to the preponderance of flyingboats in the small long range force existent in Coastal Command. He again deprecated this policy on the grounds that in many conditions of sea and weather flyingboats could not operate when land planes could; moreover there was already a lack of seaplane bases which made it highly desirable to have a balanced long range force containing a due proportion of land aircraft. (2) It was understood, he stated, that it was still the present policy to allow the Witleys and Wellingtons to die out and not to maintain the one Liberator squadron. He was convinced this was a mistake and, fully realising the importance of the provision of long range aircraft for Bomber Command, he suggested that the manpower production output at present employed at Messrs. Short's Limited on Sunderland aircraft should, instead, be employed in producing Stirlings (3) for Bomber Command and in return an equal number of Liberators from the American delivery pool should be allocated to Coastal Command.

ibid
encl. 35A

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- (1) Up to 14 August 1941 67 Catalinas had been delivered to C.C. of which 7 had been written off. 140 further Catalinas were expected from U.S.A. between this date and June 1942 but most of these were allocated to the Canadian and Dutch Governments. These Governments had been asked to forego the greater part of their quotas. Ref. 14th conclusions of the War Cabinet. On 10 September 1941 there were 26 Catalinas operational in C.C. at home, 9 at Gibraltar and 9 in the Far East. Non-operational there were 9 in O.T.U.s., 3 under repair, 2 in store and 9 had been written off. Only 18 additional Catalinas were expected to be delivered between this date and the end of December 1941. The Canadian Government had been asked to lend us 36 of those allotted to them. - Ref. 15th meeting of Battle of Atlantic Committee.
- (2) At this time the long range force consisted of 8 flyingboat squadrons, 1 Liberator squadron of 9 aircraft and 2 Whitley squadrons. The only Wellington squadron - No. 221 - was under orders to proceed to Malta and the 3 Sunderland squadrons in West Africa and the Mediterranean - Nos. 95, 204 and 228 squadrons - were transferred away from Coastal Command Control and thenceforth came under the A.O.C. West Africa and Mediterranean respectively. Ref. C.C.O.R.B. Appendices for November 1941. The transfer took effect from 22 October 1941.
- (3) The A.O.C. in C., understood that 6 Stirlings could be manufactured for the same effort that was required to produce 3 Sunderlands.

SECRET

6

However, before any reply was received to this letter there arrived at H.Q. Coastal Command the official ruling on the recommendations and requirements advanced by the A.O.C. in C., in his report of the 14 September. This letter, dated 17 December 1941, made disappointing reading for Sir Philip Joubert. Firstly, although the need for additional long range aircraft was agreed to, the numbers were increased by nine squadrons (two for overseas) of flying boats - the very type that the A.O.C. in C. had deprecated - and it was added that there was little prospect of their provision for a very long time; secondly, it was stated that the R.A.F. requirements for long range heavy bomber types were also unlikely to be realised for a very long time and it was therefore impracticable to plan for additional squadrons for Coastal Command. A revised Target "E" programme was given.⁽¹⁾ Thirdly, the request for Mosquito aircraft was refused on the grounds that the penetration of enemy defences for reconnaissance had already been provided for by the Photographic Reconnaissance Unit which had been specially designed for this purpose. No mention was made about the Torpedo bomber situation.

Regarding the unsatisfactory range of the Beaufort torpedo bomber and the increasing deployment of these aircraft to the Middle East, the A.O.C. in C., suggested to the V.C.A.S. that, as the "Hampden" was becoming obsolescent from Bomber Command's point of view, some of them might be handed to Coastal Command for re-arming four of the Hudson squadrons or alternatively to roll up two Beaufort squadrons and create four new Hampden squadrons. As the Hampden aircraft could carry two torpedoes or two mines it would be a good type for torpedo and mining duties in the Bay of Biscay or off the Norwegian coast. However, the V.C.A.S. replied on the 18 December that far from being obsolescent the Hampden was still extremely useful to Bomber Command and the proposal could not be agreed to. In point of fact this suggestion was, in part, adopted. After the departure of No. 22 squadron of Beauforts to the Middle East on 3 January 1942 it was found impossible to allocate 24 Hampdens so as to enable a new Coastal Command squadron - (No. 415) to arm with this type in lieu of Beauforts which were required in the Mediterranean. Further Hampdens were supplied in February 1942 to enable another new squadron (No. 489) - to form during March.

(iii) Forebodings of the Admiralty

The transfers of Coastal Command squadrons and crews to the Mediterranean and the recent transfer of the squadrons in

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- (1) The revised Target "E" programme for the Home Coastal Command was 20 flyingboat squadrons at 9 I.E., 17½ G.R. landplane squadrons, 8 Torpedo bomber squadrons and 8 long range fighter squadrons all at 16 I.E. Total number of aircraft 716. This was two flying boat squadrons less than the number asked for by the A.O.C. in C. for the Home Command.
 - ~~(2) Three squadrons were stationed in West Africa - Nos. 95 and 204 squadrons of Sunderlands and No. 200 squadron of Hudsons. They were transferred away from Coastal Command on 22 October 1941. Ref. C.C.Q.R. Appendices.~~

SECRET

ibid
encl. 36A

ibid
encls. 39A, 40A

C.O.S. (41)
428th meeting

CC/S.7010/3/4
Part I
encl. 46A
A.M. File
S.6457
encl. 69A

West Africa (1) to an independent command deprived the Home Command of their operational use but did not remove the commitment for supplying aircraft and training crews to maintain these squadrons. This remained a burden on the Home Command's training resources. (2) The Admiralty had been examining the A.O.C. in C's September report and his recommendations. On the 22 December the 5th Sea Lord wrote to Sir Philip saying that he had been linking this report with the discussions which had taken place in the last two Admiralty/Coastal Command meetings in which it had been revealed that the Command's strength was steadily falling at home under the drain of Beaufighters, Beauforts and Wellingtons to the Middle East, the burden of providing aircraft and crew wastage to them and the provision of a flyingboat ferry service to the Mediterranean. (3) Under these conditions the training programmes both for torpedo work and for long range fighter co-operation with Fleet units at sea was suffering severely. The net result was uneasiness as to whether Coastal Command could continue to undertake Trade Protection as well as provide "Breakout" patrols or give effective co-operation with the Fleet.

C.C. File
S.7033/2
encls. 37A and
63A

C.C. File
S.7010/3/4
Part I
encl. 41A.

The A.O.C. in C., answered this letter by saying that, for the moment, the whole Command was in an abnormal condition of crew shortage and part worn aircraft as a result of the demands of the Middle and Far East (4) and that, while the situation remained so fluid he felt it would be premature to formulate claims on the Air Ministry.

ibid
encl. 42A

However, the 5th Sea Lord took a grave view and in his reply, dated 2 January 1942, he said that it was now obvious that the strength of the Home Coastal Command was inadequate and that it was riding for a fall to attempt to retrieve our unprepared situation abroad at the expense of efficiency at home. He gave notice that he intended to bring the matter to the Chiefs of Staff level. (5)

ibid
encl. 44A

- (1) Three squadrons were stationed in West Africa - Nos. 95 and 204 squadrons of Sunderlands and No. 200 squadron of Hudsons. They were transferred away from Coastal Command on 22 October 1941. Ref. C.C.O.R.B. Appendices.
- (2) A further burden was added on the 11 December. The Command had to undertake the immediate provision of 36 Hudson crews for the Far East with a monthly backing of 16 crews.
- (3) At this time the establishment of the Home Command was 8 flyingboat squadrons, 1 float plane squadron, 15 G.R. landplane squadrons, 4 Torpedo bomber squadrons and 6 long range fighter squadrons. A total which compared unfavourably with the 39 squadrons established in July 1941.
- (4) Between the end of October 1941 and the beginning of January 1942, 166 crews had been sent overseas. Only 21 of these came from the O.T.U.s. no less than 145 had been creamed off the home operational squadrons with a consequent heavy drop in availability of aircraft. Ref. AM/S.6457 encl. 66A.
- (5) Owing to the recent transfer of four squadrons away from Coastal Command and the despatch of two more squadrons to the Middle East there were, on the 1 January 1942, only 9 Flyingboat and 22 Landplane squadrons in the Home Command apart from the meteorological and P.R.U. flights. The establishment of this force was 420 I.E. plus 197 I.R. and the strength was 469 aircraft. However, such was the drain of the best aircraft and operational crews to the Middle and Far East that during January the average daily availability was only 156 aircraft.

Reference { Air Ministry Operational Squadron States Vol. 7
 { Air Ministry Daily Strength Return Vol. 9

Misunderstanding about Flying Boat Requirements

By the end of 1941 the commitments in the Far East for flyingboat squadrons increased rapidly consequent upon the entry of Japan into the war. The Sunderland production remained in the doldrums and Catalina delivery prospects had gone back considerably. It was quite obvious that the existing Whitley squadrons and the prospective Wellington squadron must be maintained. Supplies of these two types to G.R. specifications were approved at the rate of six and four per month respectively. Meanwhile the A.O.C. in C., had been considering the official ruling by the Air Ministry on his recommendations for the expansion of Coastal Command in the light of events which had taken place since he had made this report in September. The chief modifying factors were:-

(A) The policy of reserving to Bomber Command the priority in those types of long range heavy bombers which the A.O.C. in C., had hoped to obtain for the re-arming of a proportion of his short ranged G.R. force.

(B) The consequent enforced policy of satisfying Coastal Command's long range claims by the exclusive use of flyingboats in spite of the known poor prospects of production in this type and the inadequate seaplane bases.

He embodied his disappointment in letters to the Air Ministry dated 6, 7 and 12 January 1942. In these he stated his disagreement to the proposed increase in the number of flyingboat squadrons for the United Kingdom re-iterating his conviction that flyingboats were of limited value at home compared to multi-engined long range landplanes and stressing the fact that in addition to the reasons already given the construction of flyingboats absorbed more man hours per unit than those necessary to produce a comparable landplane, moreover a large increase in flyingboat squadrons would create serious training difficulties. The Command possessed only one flyingboat O.T.U. which was quite incapable of providing crews and backing for the proposed increase of nine squadrons and apart from the 75 aircraft required for the actual squadrons another 46 would be required to make good deficiencies in the present O.T.U. and provide for a second. On the forecasted production figures it would be 1943 before the new squadrons could be formed, neither was there much hope that Catalina deliveries could be improved. The U.S.A., now at war, would presumably require the majority of those in sight now and the Lend/Lease Supplies were not, due to commence before July 1942. (1)

Letters which the A.O.C. in C., had addressed to the Air Ministry on the subject of Coastal Command expansion had

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- (1) Regarding the low delivery figures at the end of 1941, the Chiefs of Staff had sent a Personal cable on the 1 December to the U.S. chief of Naval operations drawing attention to our shortage of long range aircraft for convoy escort duties and asking for the early delivery of at least 108 Catalinas. This request lapsed a week later when the U.S.A. entered the war. Reference - C.O.S. (41) 404th meeting and paper No. 69B.

A.M. File
S.6457
encl. 58A

C.C. File
S.7010/3/4
Part I
Encls. 45A & B
48A, 49A and 50A

A.M. File
S.6457
encl. 58A

C.C. File
S.7010/3/4
Part I
encl. 53A

ibid
encl. 55A

gone to several different departments and to some degree the reasoning, which caused his final dismay at the allocation of flyingboat squadrons only, had not been universally appreciated. Consequently it was not altogether illogical that, although on 27 January the Director General of Organisation replied expressing approval to the principle of a long range force containing landplanes and that all Fortress aircraft received from America would be allotted to Coastal Command, (1) on the 9 February the D.C.A.S. wrote that it had always been the policy of the Air Ministry for the proportion of long range landplanes to flyingboats to be increased and that the addition of flyingboat squadrons alone had been made as a result of Sir Philip's own representations on 14 September. What was not so understandable was the continuation of this letter in which the D.C.A.S. stated that "Since it now appears that you have revised your estimates, I am to request that you will inform the Air Ministry of any amendments you wish to make".

No doubt this bland remark was in order that the official correspondence could be adjusted to an apparent volte face on the part of the A.O.C. in C., though it seems clear from his original request in September that the comparatively large flyingboat request included seven squadrons for West Africa and Gibraltar and was more than balanced by his expectation at home of 64 long range landplanes including 32 Liberators.

The Admiralty State their Requirements (2)

ibid
encls. 56A
and B

On the same date - 9 February - the Admiralty Staff drew up a memorandum stressing the inadequacies of Coastal Command at home caused by the drain of resources to the Mediterranean and Far East. Attention was drawn to the danger of the rapidly mounting U-boat offensive in the North Atlantic catching us short, not only of surface escort forces, but of the essential co-operation from the air with possible catastrophic effects on our prosecution of the war. In the latter respect it was considered that the substitution of Fortress aircraft in place of the promised Liberators was a retrograde step. Recommendations were made for the loan of four squadrons of aircraft from Bomber Command for the intensification of the offensive against U-boats on passage in the Bay of Biscay. The requirements for long range aircraft necessary to Coastal Command at home and in the Indian Ocean were estimated in detail and when summarised amounted to:-

Home

The addition of 5½ Wellington squadrons, 36 Liberators and 54 Fortress aircraft.

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- (1) No. 220 squadron - Hudsons - were authorised to re-arm with Fortress aircraft on 30 January 1942.
 - (2) It is from this date that a fundamental clash in strategic opinion developed between the Naval and Air Staffs as to the priority to be accorded to defensive security of sea communications and offensive bombing of Germany. The course of this difference is traced more fully in Chapter IX (vi) and here, in this chapter, only such decisions as affected the expansion of Coastal Command will be mentioned.

Indian Ocean

- (i) The transference of two squadrons of long range bomber squadrons from Bomber Command to Ceylon, there to be trained in G.R. duties.
- (ii) The transference of three Catalina squadrons from Coastal Command to the Indian Ocean and the formation of a fourth Squadron for service in this area as soon as possible.

(iv) THE WEAKNESS OF COASTAL COMMAND

Regarding the charge implicitly contained in the Air Ministry's letter of 9 February that the A.O.C. in C. had changed his mind, Sir Philip wrote a vigorous letter, dated 19 February, to the Under Secretary of State for Air in which he counter-charged that, owing to a number of decisions taken by the Air Ministry within recent months, the prospect of Coastal Command being able to work at reasonable efficiency appeared to be becoming more and more remote. The promise of centimetric A.S.V. fitted Liberators had come to nothing, the one Liberator squadron was being allowed to die out (1) and there had been a continuous change of policy in regard to his long range aircraft. The Catalina position in the United Kingdom (2) was worsening under the drain to the Far East and there was no agreed future policy for the building up of any long range force at home or of its equipment with improved A.S.V. which itself was a vital factor in the A/U war. Neither the Sunderland nor the Fortress, still less the Wellington or Whitley, were long range aircraft by the Atlantic War Standards. While fully aware of the importance of a sustained bomber offensive, it appeared to him that, if England was to survive this year in which, we were already losing shipping at a rate considerably in excess of American and British building output, some part of the bomber offensive would have to be sacrificed and a long range type such as the Lancaster diverted to the immediate threat on our Sea Communications.

ibid encl. 59A

- (1) When formed in June 1941 No. 120 squadron were allocated 20 Mk.I Liberators. These were to form the squadrons initial establishment of 9 aircraft and to provide for wastage, loans and allotment of these Liberators during August and October to Ferry Command and B.O.A.C. had by 9 October 1941 reduced the squadron to a total of 10 aircraft with no reserves for wastage except the possibility of two aircraft which were being used for experimental trials. Ref. C.C.O.R.B. Appendices.
- (2) On the 25 February 1942 there were only 28 Catalina aircraft in Coastal Command. 18 of these were under repair, on major overhauls or being fitted with A.S.V. Mk.II. On the same day a personal signal was sent from the V.C.A.S. to the Canadian C.A.S. at Ottawa mentioning the recent agreement whereby 36 of the R.C.A.F. Catalina deliveries had been loaned to the R.A.F. Attention was drawn to the fact that as 7 were already operational with the R.C.A.F. only 29 were available. 9 of these were urgently required in Australia and had, with the concurrence of the Canadian Government, been so allocated. Equally essential requirements would now absorb at least 13 more in the Indian Ocean leaving only seven available for home waters for which the original 36 was itself the bare minimum requirement. Could anything be done to supply the outstanding seven aircraft? Ref. AM/S.6457 encl. 70A.

C.C. File
S.7011/1/7
encl. 67 A
A.M. File
S.6457
encls. 67A, 71A,
73A, 74A and 75A.

ibid
encl. 84A

Proposals and discussions on the worsening situation ensued during the remainder of February and first half of March in the Air Ministry and Admiralty culminating in a decision by the Defence Committee on 18 March to transfer three squadrons of Coastal Command's Catalinas to the Indian Ocean. (1) At the next Battle of the Atlantic meeting - the 27 March - the Prime Minister directed the C.A.S. to report on proposals as to how Coastal Command was to be compensated for the long range aircraft diverted to the Far East. A minute was submitted on the 29 March by the C.A.S. in which he deprecated any allocation of Liberators to Coastal Command on the grounds that the Americans were already restive about the use of Fortress aircraft (2) in Coastal Command on tasks other than high level bombing raids and he considered there would be serious trouble with General Arnold if Liberators were similarly diverted from the bombing role for which they had in the first instance been supplied to the R.A.F. Apart from the above reason the C.A.S. said he was strongly opposed to the transfer of either Liberators or Lancasters from the bomber offensive as the former were earmarked for the Middle East where they would be the only aircraft capable of bombing targets in Tripoli, Italy and the Roumanian oil-fields while the latter was the only aircraft which could carry 8,000 lbs. of bombs to Berlin.

He proposed, therefore, to compensate Coastal Command by the transfer of Whitley aircraft until such time as the Catalina strength reached a figure of 45 aircraft.

ibid
encl. 86A

The Admiralty had been averse to the preliminary proposal on the grounds that Whitley aircraft were no substitute for the much longer ranged Catalinas. However, the Defence Committee of 1 April 1942 effected a compromise and ruled that Bomber Command should transfer one squadron of Whitleys which were to be fitted with A.S.V. Mk.II and that the first eight Liberators of the 22 being prepared for the Middle East should be loaned to Coastal Command until the operational strength in Catalinas at home should reach 45. (3) The claim, supported by the Admiralty, for additional squadrons to strengthen Coastal Command and to prosecute the offensive against U-boats in the Bay of Biscay was left for further consideration by the Prime Minister.

C.C. File
S.7033/1

Arising out of the various conflicting views on the expansion of Coastal Command the A.O.C. in C. put on record, in a letter to the Air Ministry dated 30 March 1942, the fact that his position was rapidly becoming impossible. The Chief of the Naval Staff had raised the issue under the terms of operational control that the A.O.C. in C. had a responsibility to him for seeing to it that the

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- (1) The three squadrons were Nos. 240, 209 and 413. No. 413 squadron had already proceeded to the Indian Ocean by this date. A fourth squadron - No. 205 - was already in the area but required Catalina aircraft with which to re-arm. In addition 4 Catalina aircraft and crews had been taken from No. 202 squadron at Gibraltar in December 1941 for service in the Far East.
 - (2) No. 220 squadron were re-arming with Fortress aircraft.
 - (3) The Whitley squadron transferred was No. 58. The eight Liberators were Mk.II aircraft and not fitted with A.S.V. They were fed into No. 120 squadron whose Mk.I Liberators were rapidly dying out.

encls.
9A and B

Command's strength was adequate to what the Navy regarded as minimum operational requirements. This meant that Sir Philip was not only expected to advise as to the number and type of aircraft required but should be prepared to fight the case against the views of the Air Staff.

ibid
encl. 11A

The reply from the Air Council on 27 April 1942 ruled that the target strength of Coastal Command must be fixed by the Air and Naval Staffs in consultation with the A.O.C. in C. but that any case of major disagreement would be referred to the Chief of Staffs Committee or the Defence Committee. The rate of expansion to the agreed target would be decided by the Expansion and Re-equipment Policy Committee (short title E.R.P.) again subject in case of disagreement to the C.O.S. or Defence Committee. It was pointed out that occasions on which an A.O.C. in C.'s views were at variance with Air Staff opinion were not abnormal and should not give rise to embarrassment in the case of Coastal Command. In cases where the Admiralty view did not co-incide with the A.O.C. in C.'s opinion it was appropriate that the Admiralty case should be stated in the committee concerned by naval representatives.

In spite of this clarification there is no doubt that on occasions during this depressing period in 1942 the A.O.C. in C. Coastal Command was metaphorically, kicked by the Admiralty for not asking enough and blamed by the Air Ministry for demanding impossibilities.

A.M. File
S.6457
encls. 92A & B
93A

The question of further transference of torpedo bomber squadrons overseas and the compensation to Coastal Command was discussed in separate correspondence between the Chiefs of the Naval and Air Staffs. Ultimately on the 12 April 1942 it was agreed that No. 217 squadron of Beauforts should be sent overseas immediately, followed a little later by No. 42 squadron also of Beaufort aircraft. The ultimate destination, either Eastern Mediterranean or further east would be decided while the ground personnel was still on the high seas. In compensation two Hampden squadrons were transferred from Bomber Command with orders to re-equip and train as Hampden Torpedo squadrons.⁽¹⁾

(v) The Strengthening of Coastal Command

So far the various changes and transferances were in order to compensate Coastal Command for the diversion of air forces to the sea war in the Eastern Mediterranean and Indian Ocean. The strengthening of the Command at home had not been dealt with. On the 13 April the Chiefs of Staff gave a decision that Bomber Command should transfer as soon as possible two Whitley and two Wellington Squadrons for A/U duties in the Bay of Biscay and N.W. Approaches.⁽²⁾

ibid
encl. 95A

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- (1) The Hampdens squadrons transferred were Nos. 144 and 455.
 - (2) The squadrons loaned were Nos. 51 and 77 Whitleys and Nos. 304 and 311 Wellington Mk.Ic., none of which were equipped with A.S.V. No. 304 squadron was Polish and No. 311 squadron was Czech personnel. Later on in June, a further temporary re-inforcement was made available under the terms of operation "Cakewalk". Lancasters of Nos. 44 and 61 Sqdns., and finally Whitleys of No. 10 O.T.U. were provided. Details are given in Chapter III section (x)(a).

This transfer was to be regarded as a temporary loan until the long range strength of Coastal Command had been built up.

The Admiralty and Coastal Command Protest.

C.C. File
S.7010/3/4
Part I
encl. 67A

This addition did not satisfy the Admiralty and the C.N.S. in a letter to the C.A.S., dated 8 May 1942, stated that the existing strength of Coastal Command was quite inadequate and there appeared to be no prospects of any appreciable improvement for a long time to come. The situation was examined in detail for each type of aircraft and in conclusion the C.N.S. found little cause for satisfaction in the present or the future prospects. In spite of all the thought that had been devoted to the balancing of home and overseas requirements and the efforts made to adjust the needs of Bomber and Coastal Commands "we are a very long way from having our requirements met".

ibid
encls. 68A
and B

The position regarding the expansion programme was also examined at H.Q. Coastal Command and a summary prepared in respect of each type of aircraft. This revealed that on the Revised Target "E" programme, which matured at the end of June 1942, there was on the 31 May a deficiency in long range fighters of two squadrons, in torpedo bombers of three squadrons, in flyingboats of 10 squadrons but in G.R. landplanes a surplus of $2\frac{1}{2}$ squadrons. However, this surplus was gained by including the four squadrons loaned from Bomber Command and was the more misleading in that shortage of aircraft in G.R. squadrons reduced the actual strength to 75% of establishment figures. Only one fighter squadron was fully operational on Beaufighter aircraft and the only fully operational torpedo bomber squadron - No. 86 - was under orders to proceed overseas. A letter was sent to the Air Ministry to this effect on the 31 May to which a reply was received by the A.O.C. in C., in which it was pointed out that Expansion Programmes, such as Target "E", revised Target "E" and the new one in preparation, must not be regarded as rigid undertakings since the allocation of air forces between commands and theatres of war must change frequently as the general strategic situation developed. The supply situation covering the American types of aircraft which formed such a large proportion of Coastal Command was in a constant state of flux. Regarding the latter, attention was drawn to the recent departure of Air Marshal Sir John Slessor to Washington to discuss future allocations of American aircraft. Finally it was considered at the Air Ministry that the position of Coastal Command compared favourably with the other two Commands. This opinion was not agreed to by the A.O.C. in C., who tabulated the details of the deficiencies mentioned in his first letter and repeated that his Command had not sufficient strength to carry out the tasks in the sea war which had been undertaken in policy agreements.(1)

ibid
encls. 70A, B &
C

ibid
encl. 76A

- (1) During June 1942, on an establishment of I.E. 532 plus 121 I.R. there was an average strength of 545 aircraft but a daily availability of only 373. For the Order of Battle on the 15 June with establishment, strength and average daily availability see Appendix I.

Beaufighter Aircraft as Torpedo Bombers

The use of Hampden aircraft as torpedo bombers was not proving a success. Their adoption was in the first instance a stop gap measure intended to compensate for the despatch overseas of the Beaufort type which had been designed for this role. In one respect the Hampden, with its longer range, did permit of small striking forces or "Rovers" being employed on offensive patrols searching for targets off enemy coasts whereas the Beauforts could only go direct to located targets and had no endurance with which to search. On the other hand the Hampden was slow and unhandy which prevented formation torpedo attacks and it was very vulnerable to enemy fighters. It was not considered that Wellington aircraft would be suitable for North Sea duties and the prospects for the Albermarle, which was suggested as the successor to the Beaufort, were infinitely worse. The search for something better produced during the early Summer of 1942 a proposal to use the Beaufighter for this work. Trials established the feasibility of dropping torpedoes successfully and it was considered that the speed, manoeuvrability and fire power of these aircraft made them an admirable torpedo aircraft for squadron formation tactics. Accordingly on the 1 June the provision of Beaufighter torpedo aircraft was made an Air Ministry requirement. As the Coastal Command fighter squadrons were in the process of re-arming from Blenheims to Beaufighters the dual role of Fighter/Torpedo bomber was temporarily adopted instead of waiting for the formation and training of separate torpedo squadrons and the first aircraft equipped for torpedoes were supplied to No. 254 squadron. They were not operational, however, until November 1942, meanwhile the Command's striking power was limited to the four Hampden torpedo squadrons as they became fully trained and operational. (1)

A New Expansion Programme

Arising out of consideration in the Air Ministry of future requirements a fresh programme was drafted under which it was planned to provide by 1 April 1943 a total of 29 flyingboat squadrons in all theatres, 13 of which would be in Coastal Command at home. It was realised that the deficiency in June 1942 amounting to 120 Sunderlands and 230 Catalinas could not be made good before March 1943 (2) neither could the training of the necessary additional 250 crews be completed before early 1943. Regarding long range landplanes, the negotiations in Washington made it possible to draw up a programme which envisaged the forming by March 1943 of six squadrons of Liberators and three of Fortresses all for Coastal Command at home. (3)

- (1) No. 415 squadron was operational in May 1942, Nos. 444 and 455 in July 1942 and No. 489 in August 1942.
- (2) These figures represented the aircraft required to make good existing shortages in establishment strength, form 11 new squadrons and 1 new C.T.U. and provide for wastages. The flyingboat squadrons in existence at this time - 19 June 1942 - were 10 at home in Coastal Command and 7 overseas not under Coastal Command's control.
- (3) This programme was amended on 10 August 1942 to be four Liberator and two Fortress squadrons. It was expected that three of the Liberator squadrons would be formed by November 1942. Ref. S.6457 encl. 133A.

CC/FBJ/1215/42
in CC.O.R.B. May
Appendices and
A.M. File
S.6457
encls. 99A-101A
and 105B

ibid
encls. 104B
and 107A
and 110A
Appendix "A"

ibid
encl. 110A

The Admiralty Press for Immediate Re-inforcements

Little, if any, increase in Coastal Command's daily operational strength could be looked for until December 1942 at the earliest.⁽¹⁾ The realisation of this caused the Admiralty to draw up a paper on 23 June 1942 stating what they considered to be the requirements in aircraft strength to regain command at sea. This paper was primarily for the C.A.S. and a copy was sent to the A.O.C. in C., Coastal Command. It must be remembered that at this period of the war the U-boat fleet had been sinking an unprecedented tonnage of shipping in the Atlantic, our hold in the Mediterranean was precarious, surface raiders and U-boats were active in the Indian Ocean and the Japanese had been carrying all before them in the Far East and Pacific. A gloomy appreciation, therefore, formed the opening paragraphs of this survey in which it was stated that we had lost a measure of control over the sea communications of the world with all that this meant in the supply of raw materials and food for Great Britain and the ability to take the offensive. Succeding paragraphs outlined the conception of maritime strategy which the Admiralty considered necessary to rectify the situation drawing on examples provided by the course of events experienced in the Pacific War. One major point, it was claimed stood out clearly - ships alone were unable to maintain command at sea. A permanent and increased share in the control of sea communications had to be borne by air forces which must be mobile and must be trained and operated with naval forces in such a manner that they worked as a team. Annexes to the paper were attached which dealt with each theatre of war giving the minimum requirements of aircraft. The comparison between these total requirements and the Air Ministry's new target programme was close. Both revealed a deficiency in the present strength of about 800 aircraft of all types.⁽²⁾ The paper went on to point out that the only outstanding problem was to find a means of fulfilling the agreed requirements as quickly as possible for "we cannot await the fruition of a long term programme when our hopes of even fulfilling that programme are being daily decreased by our lack of command at sea."

Coastal Command
C. in C. File
No. 3
Encl. 3B

In commenting on this paper the A.O.C. in C. said that there was general agreement with the principles and also the figures if there were unlimited aircraft available but, in the light of hard facts of shortage of aircraft in the R.A.F. as a whole, he was against the demand for immediate dissipation of R.A.F. resources in order to strengthen Coastal Command alone. This view was shared by the C.A.S. and the Air Ministry. The position had to be accepted that for the next six months the strength of air forces employed in the sea war at home and overseas would be substantially below the minimum requirements.

ibid
encl. 4A

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- (1) To help in providing short range reconnaissance and minelaying off the coasts of the Low Countries and North France the Admiralty Naval Air Division loaned 4 Swordfish squadrons to Coastal Command. Between June and November 1942 these squadrons operated as follows:-
Nos. 811, 812 and 819 from Bircham Newton and Docking in Norfolk. No. 816 squadron from Thorney Island in Hampshire.
 - (2) The deficiency in the Home Command including Iceland and Gibraltar was about 200 aircraft.

(vi) The Eclipse of Coastal Command's Strike Power

During the Summer of 1942 the enemy re-inforced his fighter strength along the Norwegian and Dutch coasts. Increasing casualties among the Hudson, Blenheim and Beaufighter reconnaissance aircraft drew attention to the fact that such duties could not be performed effectively in the face of Me. 109 and F.W. 190 opposition. For the same reason the Hampden torpedo bombers were unable to operate except during darkness or the twilight hours. Any concerted strike by day against major naval units had to be afforded long range fighter escort. Such escort could, at this time, only be given by one squadron of Beaufighters (1) which were themselves outclassed by enemy single engine fighters. It was beyond the endurance of Fighter Command's aircraft to provide escort to the Norwegian coast. Requests for Mosquito aircraft both for P.R.U. for reconnaissance and as a squadron for long range fighter escorts were again pressed by both Coastal Command and the Admiralty. While agreeing in principle the Air Ministry were unable to satisfy the claim owing to Mosquito production being required for night fighter duties in Fighter Command. (2)

C.C. File
S.15,090
encls. 1A, 2A

ibid
encl. 6A

ibid
encl. 8A

ibid
encls. 3A, 12A

The despatch of No. 248 squadron to Malta in July followed in August by the transfer of No. 86 squadron - the last Beaufort torpedo bomber unit - overseas left Coastal Command with no strike force available during daylight hours. As a temporary measure it was agreed to re-equip the two Blenheim fighter squadrons with the nightfighter type of Beaufighters as they were replaced in Fighter Command by the Mosquito but until mid-November the Command had no force with which to attack the enemy major units in their movements along the Norwegian coast. (3)

ibid
encl. 13A

ibid
encl. 15B

This was a state of affairs which was unavoidable in the circumstances. The adoption of the Hampden as a torpedo aircraft was, from the first, a stop gap to take the place of the Beauforts which strategic necessity required in the Mediterranean. The inevitable lag of production behind requirements prolonged the interval to nearly a year before a suitable substitute could become operational. Coastal Command's needs were fully realised in the Air Ministry and

ibid
encls. 17A
and B

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- (1) Only one squadron of Beaufighters - No. 248 - was available for the North Sea. No. 235 squadron had to be employed in the southwest approaches on interception duties against enemy aircraft attacking our anti-U-boat patrols in the Bay of Biscay. No. 254 squadron was re-arming and training in the torpedo dropping Beaufighter. No. 236 squadron was out of the line while supplying and training further crews for backing up Beaufighter squadrons already in the Middle East. Nos. 404 and 143 squadrons were still on Blenheims.
 - (2) Although the provision of a Mosquito squadron was thus impracticable, the establishment of the P.R.U. was raised for September to 11 Mosquitoes to rise to 22 by December 1942. Ref. S.6457 encls. 137A and B.
 - (3) As these Beaufighter aircraft were fitted with 10 cm. Air interception Radar it was laid down that they were not to be employed on operations near or over enemy territory. This was to avoid the possibility of the Radar Interception equipment falling into the hands of the enemy. The two squadrons were thus limited to patrols in the Bay of Biscay and around the North of Scotland. Ref. S.15,090 Encl. 15B.

ibid
encl. 18A

in September 1942 a programme was drawn up for the building of a thoroughly up to date Beaufighter Torpedo Force consisting of five torpedo fighter squadrons and five purely fighter squadrons which it was hoped would be complete late in 1943.

(vii) Planned Maintenance

To revert to the general situation in June 1942. As limitations of supply and production plainly made it impossible to expand the three R.A.F. commands sufficiently fast to keep pace with fresh requirements the Air Ministry had the unenviable task of allotting aircraft in frugal quantities according to very carefully considered policies having regard to the overall strategy of the War. It was a striking example of having to cut a maximum coat out of a meagre amount of cloth. One proposal at this time was destined to achieve universal adoption. Arising out of a query by the Prime Minister, the Staff at H.Q. Coastal Command had been investigating the reasons for the low rate of operational sorties per aircraft available. The Operational Research Section at Command H.Q., submitted a report on 30 June 1942 in which it was concluded:-

(i) The rate would not be improved by additional pilots per squadron because the pilot's endurance played no part in the low figure.

(ii) The low rate was not due to restriction of individual sorties in order to guarantee a striking force.

(iii) The low rate was due to maintenance problems which restricted flying in order to report a high daily standard of serviceability. The standard aimed at was 70% of the squadron strength.

A.M. File
S.6457
encl. 112B

In this report suggestions were made to so increase and re-organise the maintenance personnel that a large increase in flying hours per aircraft per month would result.(1)

ibid
encls. 112A-114A

The C.A.S. ordered immediate action to be taken to follow up these suggestions because he realised that, as Coastal Command's strength could not be added to, the next best solution was to get more flying out of what existed. It would also go far to relieve the constant pressure by the Admiralty to divert aircraft from Bomber Command. The experiment was accordingly commenced in No. 120 Liberator and No. 210 Catalina squadrons. On the 14 July 1942, the Prime Minister minuted the First Lord of the Admiralty and Secretary of State for Air that, until everything had been done in the direction of increasing the numbers of sorties per squadron by expanding and improving the maintenance organisation, there could be no case for transferring additional squadrons from Bomber to Coastal Command and

(1) These investigations and suggestions were made by Dr. Gordon, a member of the O.R.S. and H.Q.C.C. Dr. Gordon subsequently specialised in the practical application of these measures in all operational squadrons and is identified with the growth and standardisation of Planned Flying and Maintenance in Coastal Command.

ibid
encl. 118A

recommended that the consequent fall in the standard of serviceability should be accepted if a clear understanding were reached that Coastal Command could call on Bomber Command for help in case of a sudden emergency.

ibid
encl. 901 A. B.
& C

The experiment, though not so successful as hoped for in No. 210 squadron on account of continued detachments away from base, did produce more sorties in No. 120 squadron. It was extended in August to the Whitley and Hudson squadrons Nos. 502 and 407 and in September 1942 to the Fortress squadron No. 220. These extensions were highly successful and Planned Flying and Maintenance gradually spread to all Coastal Command squadrons.

(viii) The Expansion in Wellington Squadrons

ibid
encl. 68A

Mention was made in Volume II chapter VIII(xii) and Appendix X to the development of the Leigh Light Wellington. It had been intended that No. 221 squadron - the only Wellington squadron in the Command - should be equipped with Leigh Lights after the successful conclusion of full scale trials with the prototype in 1941. This squadron had however been sent to the Mediterranean at the end of 1941. Pending the formation of a further squadron the Leigh Light had been fitted to a few odd Wellington aircraft which had been formed into No. 1417 flight at Chivenor to continue the training of crews in this very specialised technique. On the 3 March 1942 No. 172 squadron was formed at Chivenor which was slowly built up as aircraft became available. By 2 June four Leigh Light aircraft were fully operational and commenced Sorties in the Bay of Biscay. These were highly successful and are given in greater detail in chapter III (xii). A second Leigh Light Wellington squadron - No. 179 - was formed at Wick on the 1 September 1942.

During 1942 the Germans successfully operated blockade runners into and out of the Bay of Biscay. The need of a torpedo squadron specially trained to work in this area at long range equipped with A.S.V. and to operate in conjunction with shadowing aircraft resulted in the formation of a Wellington torpedo squadron - No. 547 in October 1942 becoming operational in April 1943.

(ix) The Position in October 1942

By mid-October 1942 the expansion of Coastal Command had not proceeded very far in comparison with the position over a year before. Then there was 39 squadrons formed and forming but, owing to overseas demands and difficulties in obtaining aircraft, there were now only 44 squadrons formed and forming. Even this number was only attained by the permanent transfer of the two Bomber Command Wellington squadrons loaned in April (1) and an arrangement whereby No. 10 O.T.U. Bomber Command supplied crews to operate Whitley aircraft in the Bay of Biscay.(2) Of these

- (1) Of the other two squadrons loaned in April, No. 77 Sqdn. Whitleys had returned to B.C. on 5 October and No. 51 Sqdn. Whitleys was under orders to do so on 25 October.
- (2) This was part of an agreement negotiated with Bomber Command called "Operation Cakewalk" whereby sorties were provided by certain Bomber Command units in the Bay of Biscay from June 1942 owing to Coastal Command being so under strength. Full details are given in chapter III section (x)(a).

ibid
encls. 145A
and 146A

44 squadrons, six were forming or converting to new types of aircraft and, as a temporary measure of compensation, four Fleet Air Arm squadrons of Swordfish were on loan to Coastal Command from the R.N.A.S.(1) The long range landplanes force for use in convoy protection was still far from being realised there being only two Liberator squadrons in operation. Although two more Liberator squadrons were forming there was no hope of the expansion to five squadrons envisaged in June being realised by the end of the year. The supply of Liberators to this country from America was far below what had been expected. Efforts to augment the supply formed the subject of negotiations at the highest level and are narrated in Chapter XII section (xi). It was well into 1943 before the Command had four Liberator squadrons operational.

This was the position at the time in the Autumn of 1942 when the U-boat war was increasing in ferocity in mid-Atlantic now that the defences along the eastern seaboard of the Americas had forced them to seaward. It was also approaching the time selected by the Anglo-American Staffs to mount a seaborne invasion of the N.W. African coast in conjunction with the military drive eastwards from Egypt along the north African coast. It was imperative to secure the sea communications of such an expedition and special measures were adopted to provide the necessary air support. The re-inforcement and further expansion of Coastal Command is dealt with in Chapters XI and XII which describe the measures taken to develop a homogenous anti-shipping force and to provide more long range aircraft for the prosecution of the U-boat war.

(1) See Appendix I for the Order of Battle, Establishment and Strength on the 15 October 1942.

CHAPTER II

THE R.A.F., R.C.A.F. AND U.S. FORCES IN THE U-BOAT WAR
JUNE TO DECEMBER, 1941

(i) Introduction

U.S. Naval
Operations in
World War II.
Vol.I.

H.M.S.O.
Cmd. 6224

U.S. Naval
Operations in
World War II.
Vol.I.

On the outbreak of the European War in 1939, the United States organised a Neutrality Patrol. Its object was to report and track any belligerent air, surface or underwater naval forces approaching the coasts of the United States, the West Indies or South America. The patrol area extended from the coastline to a boundary running from the Bay of Fundy eastwards along latitude 45°N to the meridian of 60°W, thence south to latitude 20°N, thence southeastward to a point between Africa and Brazil and thence parallel to the South American coast to position 58°S x 57°W. (See Map I). The patrol forces consisting of ships and naval aircraft were organised into eight units covering the whole area and commenced their duties from the 12 September, 1939. The fall of France and the apparent danger of England caused a policy to be adopted, not only of neutrality and its preservation, but of self-protection against possible aggression. There followed on 3 September, 1940 an official announcement that the United States would transfer to the Royal Navy fifty over-age destroyers and that in return Great Britain would lease for 99 years without charge certain naval and air bases in British possessions in the North and South Atlantic. The spread of the U-boat campaign further into the Atlantic and the increasing number of sallies on to the trade routes by German surface units caused the strengthening of the Neutrality Patrol forces and their organisation on the 1 February, 1941 into the United States Atlantic Fleet under the Command of Admiral Ernest J. King. This fleet, which included naval air squadrons, operated in three sectors - The trade routes to Northern Europe, the Central North Atlantic and the South Atlantic. The sectors still extended only to the limits of the Neutrality Patrol area.

(ii) The extension of the Neutrality Patrols

ibid.

After the signing of the Lease/Lend Act by President Roosevelt on 11 March, 1941 the benevolent "Neutrality Patrols" were extended in the North Atlantic as far as longitude 26°W as a measure of safeguarding the American supplies which were being shipped in increasing quantities in British convoys. (1)

ibid.

At about the same period an "Atlantic Fleet Support Force" was formed and commenced special training at Norfolk (V.A.) and New London (Conn.). It consisted of a destroyer tender ship, 27 destroyers and five squadrons of

- (1) Between the 29 January and the 27 March, 1941, a series of secret staff conversations were held in Washington between the American Chiefs of Staff and a delegation representing the British Chiefs of Staff. Their conclusions, known as "ABC-1 Staff Agreement", contained details of immediate collaboration on the basis of Lease/Lend in the Atlantic and full co-operation if and when Axis aggression forced the United States to enter the War.

Ref. The History of United States Naval operations in World War II. Vol.I. by S. E. Morison.

CC/S.15,068
encls.
1A to 4A

ibid encls.
4B, C and D.

flying boats. Three of these squadrons consisted of 12 P.B.Y's each and two of 10 P.B.M's each.⁽¹⁾ The five Squadrons were under a captain who was accommodated in a sea-plane tender and the whole was known as the "Patrol Wing Support Force". The training of the Patrol Wing continued through the spring of 1941 and was greatly assisted by the attachment of an R.A.F. Coastal Command Group Captain of considerable flying boat experience.⁽²⁾ By June more squadrons had been formed and attached so that it was possible to create two Wings, each with a large aircraft tender.

CC/S.7010/x
encls.
1A to 55A

On the 15 May, 1941 the U.S. Naval forces took over Argentina in south east Newfoundland⁽³⁾ and Patrol Squadron No.52 composed of 12 P.B.Y's was based there using U.S.S. Albermarle as a depot ship.⁽⁴⁾ From early February, inter-staff discussions had been taking place as to the best bases in the United Kingdom from which to operate U.S. destroyers and flying boat squadrons which it was proposed should be sent over if the United States entered the War. These discussions had continued up to June 1941 and, although no firm decision had been reached in view of the impossibility of knowing exactly when the United States would be drawn into hostilities, valuable interchange of ideas, visits and information had taken place between the Naval and Air Staffs of the two countries.

(iii) The Royal Canadian Air Force

A.M./S.6457
encl. 41A

The spread of U-boat operations in the North Atlantic to the westward of longitude 35° West, which had occurred early in May, caused attention to be given to the possible co-operation of the Royal Canadian Air Forces in the Battle of the Atlantic. This was given impetus by a serious attack on convoy HX126 by a pack of U-boats on the 20 May in position 5800 N x 4100 W. The Chief of the Canadian Air Staff suggested that, in view of his lack of long range aircraft, up to twelve of the Catalinas awaiting transfer to the R.A.F. under Lease/Lend should be immediately allocated to the R.C.A.F. and operated from Newfoundland. The loan would be repaid as soon as deliveries were made of the Canadian contract for Catalinas from the U.S.A. Concurrence was expressed in this suggestion by the C.A.S. and C.N.S. and nine Catalinas were accordingly transferred in June.

A.H.B.
IHK/36/60/2 encls.
29 and 33 and
C.C./S.17434 Part I
encl. 19A

To discuss the details of co-operation between the two Air Forces, a conference was held at H.Q. Coastal Command with members of the Canadian Air Force Staff on the 5 June, 1941. It was agreed that, although convoys could receive air escort up to 600 miles out from the United Kingdom and up to 400 miles out from the Canadian coast, the vital area was likely to be the gap of some 500 miles in the middle of the Atlantic. Now that the R.C.A.F. were about to operate Catalina aircraft it was theoretically possible to bridge the gap by basing them in Newfoundland and working a shuttle

ibid
encl. 1B

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- (1) P.B.Y. flying boats were called "Catalinas" and P.B.M. flying boats "Mariners".
 - (2) Group Captain F. J. Fressanges R.A.F.
 - (3) This was one of the British Strategic bases transferred in exchange for destroyers.
 - (4) On the 24 May, 1941 this squadron undertook air searches over a sector extending 500 miles to the south of Cape Farewell, Greenland in order to locate the German battleship "Bismarck" but they were not successful.

ibid
Encls.
1C and 7A

ibid
encl. 3A

ibid
encl. 6A

service between the two countries. To make this practicable, it was essential for the Coastal and Canadian Eastern Air Command headquarters to be in direct touch so as to know in detail the day to day air operations being performed by their respective commands. Suitable communication links were discussed and approved. Arising out of this preliminary meeting a Canadian Air Staff officer - Air Commodore N. R. Anderson - was attached to the Headquarters Coastal Command to study and report on the necessary details for close co-operation in convoy escort and A/U warfare. His report to the A.O.C.-in-C., dated the 4 July, 1941, stressed the value of utilising Coastal Command's experience in A/U warfare and recommended that the R.C.A.F. should adhere to common operational procedure tactics and training. The early provision of a Liberator Squadron based in Newfoundland was considered necessary in order to preserve the continuity of long range escort during the winter months when Catalina flying boats would be forced by ice conditions to retire to Halifax. A similar memorandum was forwarded on the 9 July to the Chief of the Canadian Air Staff, in which Air Commodore Anderson summarised his report on the requirements for co-operation and recommended that the opportunity now afforded for the R.C.A.F. to render valuable and necessary assistance in the winning of the Battle of the Atlantic should receive attention and consideration by the Canadian Air Headquarters prior to that heretofore accorded to training problems.⁽¹⁾

(iv) General Policy in the Sea War - British Strategic Zone

The Air policy against the U-boats had, during the recent months, crystallised under two main headings:-

(A) The Defence of Convoys - which consisted of both close escort to threatened or attacked convoys and more distant support in areas containing one or more convoys in order to attack and frustrate the movements of U-boats on the surface.

(B) Offensive Sweeps and patrols on the U-boat lines of passage in the Bay of Biscay and round the north of Scotland.

CC/S.7010/3/4
encl. 11A

At that time - the middle of June 1941 - when the new A.O.C.-in-C., Air Chief Marshal Sir Philip Joubert de la Ferté assumed command, the main consideration was given to the former.⁽²⁾ Shortage of aircraft and the necessity for a close watch on the German main units in Brest since March had prevented much attention being given to the main U-boat

- (1) At this time the Eastern Air Command R.C.A.F. was operating the following squadrons:-

Type	Convoy escort up to
1 Hudson Sqdn.	200 miles
2 Bolinbroke Sqdns.	250 miles
1 Digby Sqdn.	400 miles
1 Catalina Sqdn.	400 miles - Two of the aircraft had long range tanks for 700 miles escort

1 Stranraer Sqdn. re-arming with Catalinas.

- (2) The A.O.C.-in-C., did not consider there were sufficient aircraft to enable even the former to be carried out effectively within 600 miles of our air bases. The latter had, therefore, to wait until further expansion had taken place in the Command's forces.

SECRET

24

transit area which was across the Bay of Biscay. Similarly, pre-occupation with enemy surface ship movements off Norway in May and June had allowed only sporadic A/U patrols in the area off the north of Scotland against the steady trickle of newly commissioned U-boats outward bound for the first time from Germany.

Regarding the U-boat war as a whole, the A.O.C.-in-C. considered that the key to the situation lay in the Biscay ports. In a letter to the C.A.S., dated the 4 July, among proposals for co-operation between the three R.A.F. commands in the Sea War, he put forward the suggestion that Bomber Command should take each U-boat operating base in turn and reduce it to the condition that Plymouth had been left in after the recent five days' raids by the G.A.F. Sir Philip had previously sent a draft of this letter to the A.O.C.-in-C., Bomber Command who had replied that he was firmly convinced that a better employment for his limited force was on objectives in Germany and, though he realised that his bombing effort must be deflected from their primary role in order to attack the major naval units in Brest, he could not agree to include the U-boat Biscay bases. These views were accepted by the C.A.S. and no further mention of the project was made at a conference between the three Commands under his chairmanship held in the Air Ministry on the 15 July on the prosecution of the sea war. (1)

Arising out of this meeting, (2) at which the V.C.N.S. was present, and in clarification of the discussions between the A.O.C.-in-C., Coastal Command, the Air Ministry and the Admiralty on the role and scope of Coastal Command, a directive was agreed between the Lords Commissioners of the Admiralty and the Air Council. This was issued as a joint document dated the 2 September, 1941.

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- (1) Strange as it may seem, no determined effort was made in 1941 to frustrate the building of bomb proof U-boat shelters in the Biscay ports. Photographic reconnaissance had revealed the start and progression month by month of the foundation and erection of massive concrete pens at Brest, Lorient, St. Nazaire and La Pallice. Work on excavation began in these ports at various dates between January and April 1941. After an interval, further excavations for additional groups of pens were commenced in July and August 1941. The foundation work, done behind caissons which kept the sea water out, was highly vulnerable to blast bombing and the subsequent erection was susceptible to grave delays by air attack until the massive roof was finally in place after which bombing became useless. At this date (July 1941) few roofs were in position and much foundation work was still at the vulnerable stage. By January 1942 the pens at Brest and Lorient and the majority of those at St. Nazaire and La Pallice had passed the stage at which interference by bombing was likely. References. Naval Interpretation Report No. A.53 of 6.12.41 and N.I.D. 1/3/236 of 16.1.42. During the year 1941 only five attacks were made on Lorient and six on St. Nazaire dropping a total of 200 and 120 tons of bombs respectively.
- (2) See Chapter IV Sections (ii) and (iii). The meeting was mainly concerned with measures concerting the attack on German Sea communications.

C.C./S.15080
encl. 4B
and 8A

ibid
encl. 6A

IIK/24/102A
encl. 19A

The directive required Coastal Command, under the operational control of the Admiralty, to fulfil three functions.

- (a) Reconnaissance - divided into Strategic i.e. location of enemy naval and merchant ships in ports and harbours, and Tactical i.e. location of enemy units at sea which included Home Fleet operations, breakout patrols, escort of shipping, A/U sweeps and anti-raider patrols.
- (b) Offensive measures against enemy units. These were to be considered subsidiary to the primary role of reconnaissance and included attacks on U-boats, merchant shipping (in specified areas) and sea mining (also in specified areas).
- (c) Defensive measures by long range fighters against enemy attack on naval units and merchant shipping outside the range of Fighter Command aircraft.

The sphere of Coastal Command activity was limited to those areas of the North Sea, North Atlantic Ocean, Arctic Ocean and Baltic Sea which could be reached by Coastal Command aircraft based on the United Kingdom, Iceland and Gibraltar. Finally it was stressed that the closest possible liaison should be maintained with the other two R.A.F. Commands in connection with all operations over the sea and on the coastlines.

It had been realised that, in view of the continued shortage of long range aircraft, the requirements of reconnaissance for Home Fleet operations and breakout patrols would clash with the requirements for convoy escort and A/U sweeps. In exercise of operational control the Admiralty therefore decided when Fleet Reconnaissance should take precedence of Trade Protection.(1)

(v) The U/boat War - June to September 1941

The sinkings by U-boats for June 1941 were again heavy. 61 ships totalling 310,000 tons with a further six vessels of 12,000 tons by Fock-Wulf aircraft operating in the Atlantic. The majority of the losses to U-boats occurred in mid-Atlantic and around the Canary Islands - out of reach of any air cover.(2) The number of U-boats in commission was rising to 150, of which about 50 were operational, 50 were instructional school boats and 50 were newly commissioned still undergoing training in the exercise areas situated in the

B. d U.
War Diary and
Appendix II

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- (1) See Chapter VII - Introduction.
 - (2) In July 1941, the OB (outward bound) convoys were renamed. Those bound for Canadian and North American ports became ON convoys and those proceeding to South Atlantic destinations were named OS convoys. Although convoys plying between North America and the U.K. received surface escort all the way across, those outward bound for South America and South Africa could only be escorted to mid-Atlantic, after which the ships dispersed or proceeded in company unescorted. It was these who formed the majority of the casualties. Evasive routing of the home bound convoys resulted in fewer interceptions by the U-boat groups.

Western Baltic. In addition there were some 230 at various stages of completion in the construction yards.⁽¹⁾ Some 30 U-boats were at sea of whom 25 were in the central areas of the North Atlantic. Two or three single U-boats were stationed close in to the N.W. coast of Ireland where they occasionally sank stragglers and independently routed ships but their main function was to report outward bound convoys which might then be picked up by the groups of U-boats waiting in mid-Atlantic. The Fock-Wulf aircraft were similarly engaged in reconnaissance to the west and south west of Ireland to locate and report convoys south bound towards Gibraltar or Sierra Leone. This was the beginning of the German policy of using these aircraft almost exclusively in co-operation with U-boat packs disposed between N.W. Spain and the Azores which became such a feature later in 1941 and in 1942.⁽²⁾ The vexed question of air co-operation in the sea war had come to a head in the German High Command a few months later than the same problem had arisen in British circles. However, the amicable and efficient solution which had been applied in the latter case by April 1941 was not found in corresponding German departments. Hitler's solution, though more rapid was not so happy in its results as that by Winston Churchill.

Briefly the story was this. In August 1940, a new G.A.F. Group (I/KG40) had been formed and operated, mostly with F.W.200 aircraft, against ocean shipping in the Eastern Atlantic. This Group had been instructed to co-operate with Admiral Doenitz who was Flag Officer in Command of all U-boats.⁽³⁾ In practice, usually only one and never more than three aircraft were available daily, moreover B. d U. was not able to direct these to suit his requirements. Good personal relations enabled a degree of local co-operation between the commanding officer of this Group and B. d U. but it was difficult to maintain efficiency in view of the divided control higher up and the mutual antagonism between the C.-in-C. Navy (Raeder) and the Head of the G.A.F. (Goering). The numbers of efficient pilots and navigators and, indeed, the whole standard of reconnaissance gradually decreased. Complaints by Doenitz and Raeder resulted in

War Diary of
B. d U.

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- (1) Early in June it was established from photographs that U-boats were building at the following ports. Bremen and Vegesack - 40, Bremerhaven - 6, Flensburg - 8, Kiel - 37, Lubeck - 11, Stettin - 3, Wilhelmshaven - 16, and Hamburg - 78. The numbers at Danzig, Gdynia and further east could not be ascertained.
 - (2) 1.7.41 OG66 shadowed and attacked by 3 F.W.200's in 4817 N = 2008W 18/19.7.41 OB346 attacked by 4 F.W.200's in 5437N x 1653 W - 1 shot down by H.M.S. Wescott.
23/27.7.41 OG69 shadowed by 4 F.W.200's - 1 shot down by Hudson J/233 sqdn. on 23rd - when outside air cover the convoy was attacked by U-boats on the 27th and 10 ships sunk.
2/5.8.41 SL81 shadowed by 4 F.W.200's - 1 shot down by a Hurricane from catapult ship H.M.S. Maplin. Attacked by U-boats when outside air cover and 5 ships sunk.
16/23.8.41 OG71 shadowed by 6 F.W.200's and finally attacked by U-boats. 10 ships were sunk and remnants of convoy took refuge in the Tagus.
 - (3) His full title was Befehlshaber der Unterseeboote, always shortened into B. d U.

Fuehrer
Directives

a decision by Hitler on the 7 January 1941 to transfer the control of I/KG40 to the Flag officer U-boats. (1) However, resentment in G.A.F. circles and the continuing scarcity of long range aircraft brought no improvement. The overall problem of naval control in every form of maritime reconnaissance was raised in High Command Conferences and finally the whole question was dealt with by Hitler in a Directive issued on 28 February 1941. Details of this Directive are in Appendix III. In effect it allocated responsibility for air reconnaissance and operations into areas, some to the G.A.F. and some to the Navy. The most important area - the Atlantic - was made a G.A.F. sphere under an Air Commander (Fliegerfuehrer Atlantik) who was to set up a headquarters at Lorient. A few naval officers were to be attached as liaison for naval requirements.

Admty.
CB.4501
History of
U-boat Policy
page 10

That this decision was made against the advice of Admiral Raeder is clearly shown in a letter written by him to Hitler early in March. In it he stated that he did not agree with any combined policy for two sections of the Armed Forces but wished for a single undivided offensive by all sea forces, in which he included air forces in so far as they operated over the sea and in conjunction with naval forces. Such forces, he was convinced must be under one direction and command. He foresaw great dangers in the new ruling. It gave no authority for air reconnaissance and operations to the Naval Commands who were responsible for certain areas. In others, the division of responsibility between two authorities could lead to serious friction and loss of efficient operation. In view of the importance of air reconnaissance to U-boat warfare in the Atlantic, he was particularly concerned regarding the arrangement for this area.

Hitler appears to have taken some notice of this warning for, though directing that the orders should become effective on 15 March 1941, he drew attention to certain further important points:-

- (1) The air reconnaissance and escort requirements of the Naval Group Commands were to be met to the fullest extent.
- (2) The above decisions covered only the situation as would prevail in the Spring without being a final settlement of the problem of naval air forces.
- (3) The commanders who carry out reconnaissance for naval as well as for aerial warfare must be aware of their great responsibility with regard to overall warfare at sea and especially with regard to those air forces which were established and trained for the purpose of naval warfare.

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- (1) This Fuehrer Conference was held in Goering's absence and on learning of the decision he attempted to argue Doenitz out of it. However, Doenitz remained adamant and Goering then made it clear that little support could be expected in the future from him. Although realising the necessity for this reconnaissance, he saw in this transfer the resurrection of a Naval Air Force and his objections to this outweighed all other considerations. Ref: Admty. C.B.4523(1) - The U-boat War in the Atlantic. Page 64.

(4) The persons responsible for combined reconnaissance and escort operations must strive to think beyond the limits of only one branch of the Armed Forces, and to regard warfare within their sea areas as one unified operation, for the benefit of which reconnaissance and escort forces operate with changing emphasis.

The failure to bring the Russian campaign to its expected early conclusion, the increasing entanglement of the G.A.F. on the Eastern Front and the consequent heavy casualties prevented any revision in the Directive and it remained the governing factor in German Maritime Air Warfare for the remainder of the war. Admiral Raeder's misgivings were to be amply justified, particularly in the Atlantic area where he most feared friction.

Comparison of the German Directive with the corresponding British document (Volume II Chapter VIII Section (viii) and Appendix VIII) illustrates the characteristic difference in mentality between the two nations when confronted with the same problem. The genius for harmonious team work as exemplified in the British Area Combined Headquarters is absent in the German organisation but the real weakness of the German solution lay in the opportunities for the clash of personalities in high places which were inevitably repeated all the way down and resulted in bad grace co-operation with a feeling by the G.A.F. that duties over the sea were inglorious, irksome and not worthy of whole hearted endeavour.

On the 18 March, a conference was held between the new Fliegerführer Atlantic (Colonel Harlinghausen) and B. d U. to decide the extent of air co-operation with the U-boats and the form it should take. The former officer made every endeavour to give satisfaction, probably on orders to do so from Goering so as to demonstrate the feasibility of air co-operation when arranged under G.A.F. commanders. The liaison so initiated continued throughout the remainder of 1941 but the divided control was not relished by B. d U. who wished for a maritime air reconnaissance branch trained and operated under his own supervision. In spite of the improving co-operation, the shortage of F.W.200 aircraft, which were the only type capable of operating even on the British North/South trade route, made daily reconnaissance and shadowing after contact almost impossible. B. d U. continually stressed the prevalence of geographical errors in aircraft reports, incomplete reconnaissances and inaccuracies in ship recognition which confused his planning and wasted the steaming endurance of his U-boats. To reduce this to a minimum, aircraft position reports were made a secondary consideration and a homing procedure was adopted in July 1941. On sighting a convoy the aircraft started sending long wave homing signals and kept doing so as long as possible. The waiting U-boats picked these up and started closing on them at the same time transmitting to base their own positions and the bearing from them of the aircraft signals. These together with shore D/F bearings of all transmissions were plotted at the U-boat headquarters. The corrected geographical fix of the convoy so obtained was then transmitted by base to the U-boats who adjusted their closing courses accordingly. Aircraft signals rarely lasted long enough to permit the boats to home within sight of the convoy and technical shortages forbade direct W/T or radio contact between aircraft and U-boat.

War Diary of
B. d U.

Coastal Command activities

During June 1941, the Command's A/U activities were devoted to scouring the Northwest Approaches with short range aircraft against the single scouting U-boats, affording air support to those outward bound convoys which the Admiralty Tracking Room intelligence indicated had been reported, and giving close escort, as soon as range permitted, with long range flying boats to those incoming convoys which had been located, attacked and were being followed in by U-boat packs. In the latter cases it was found that the attacking packs broke off from their prey as soon as they were aware that the convoy had reached the outer limits of air support.

See Appendix IV

Out of the 61 ships sunk by U-boats in June 1941, only six were lost inside air cover. It became plain that, when outside this umbrella the safety of Atlantic shipping depended, in the absence of sufficient numbers of surface escorts, on the skill with which evasive routing was employed by the Admiralty Submarine Tracking Room. However, the immunity given inside air cover and the continued skilful convoy evasion technique in the north Atlantic reduced the losses during July and August to 22 and 23 ships respectively - the lowest totals since May 1940.(1)

During August the enemy had concentrated a large number of U-boats in the N.W. approaches between Ireland and Iceland in order to increase his meagre successes. This move had been suspected by the Admiralty Submarine Tracking Room and in addition to air escort being given to convoys in this area, frequent sweeps were made by Wellingtons, Whitleys and Hudsons between north Irish, north Scottish and Iceland bases. These sweeps sighted and attacked many U-boats (2) and undoubtedly frustrated serious shipping losses though only two of the attacks were lethal to the U-boats.(3)

CC/S.7011/1/Z
encls. 55A, 57A
and 57B

This welcome reduction in shipping losses encouraged circles not so close to the U-boat problem as the Admiralty and Coastal Command to believe that the Battle of the Atlantic had been won. A number of official pronouncements and newspaper articles indicated the prevalence of unjustifiable optimism. Fearful of the possible effects on Coastal Command's expansion, the A.O.C.-in-C., wrote a letter to the C.A.S. deploring the false impression which might be created. The C.A.S. replied with an assurance that such rosy opinions were not shared by him and that every effort would continue to be made to build up the strength of Coastal Command.

The Surrender of U.570

August ended with an episode unique in air operations - the surrender of a U/boat to an aircraft. Hudson "S" of

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- (1) The tonnages were 94,000 and 80,000 respectively. The majority of the sinkings were in the triangular area Azores to Gibraltar to a point 360 miles west of Ireland.
 - (2) 22 sightings of which 18 were attacked.
 - (3) U-452 sunk by Catalina J/209 sqdn. and H.M.S. Vascama
U-570 surrendered to Hudson S/269 sqdn.

Coastal Command
Naval Staff Log,
and
C.B. 04050/41
(10) and (11)

No. 269 Squadron based in Iceland (1) while on an A/U sweep on the 27 August sighted a U-boat at 1050 hours at a distance of 1200 yards apparently just having surfaced. (2) The aircraft immediately attacked and from an altitude of 100 feet released 4 - 250 lb. Amatol filled depth charges set to detonate at 50 feet depth. The stick straddled the U-boat while in the act of diving. When the explosion plumes of water and spray had subsided, the U-boat was seen to have resurfaced in a bows-down condition and 10-12 men were gathered on the conning tower and round the gun. The aircraft attacked with M/G fire whereupon a piece of white material was waved from the bridge. Shortly afterwards more of the crew crowded on to the bridge displaying a large white painted board.

The aircraft informed base of the situation and kept patrolling close round and over the U-boat until relieved at 1345 hours by Catalina "J" of No. 209 Squadron. Signals had been sent to the nearest A/S trawlers on patrol to close the position but if none had arrived on the scene by night-fall, the aircraft was instructed to sink the U-boat after giving due warning. However, at 2250 hours the first A/S trawler arrived but the heavy seas prevented a boarding party being sent. The U-boat was ordered to show a white light and a close watch was maintained throughout the night. By 0830 hours on the 28th, six more trawlers had arrived but the state of the sea still frustrated all attempts at boarding or passing a tow and the U-boat was definitely settling by the head. Orders to the U-boat's crew to blow more ballast and oil fuel to regain trim were disregarded until enforced by a burst of M/G fire. At 1350 hours, U.570 was boarded with the aid of a Carley float, the wounded were transhipped and at 1600 hours the U-boat was in tow stern first.

She was finally beached at Thorlakshafn near Reykjavik and afterwards salvaged, refitted and taken into our own Submarine Service as H.M.S. Graph. Being a brand new boat on her first war cruise she naturally provided extremely valuable information on the capabilities of a modern German Submarine.

A further request for the bombing of the Biscay Ports

The retreat of the U-boats to areas outside aircraft range, though flattering to Coastal Command, was not a sign that any strategic victory had been achieved or that the future could be viewed with equanimity. It was merely a question of time before U-boat numbers increased and the "airfree" areas in the Atlantic were fully exploited against us. In a letter dated the 5 September the A.O.C.-in-C., presented this point of view to the Air Ministry stressing that the U-boat Fleet was growing rapidly and, if no drastic steps were taken, we should have to reckon by the summer of 1942 with up to 150 U-boats operating at sea. (3) While a certain amount of harrying was inflicted on them at some points in their sea cruises they could count on complete

CC/P.B.J./555/41

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- (1) Piloted by Squadron Leader Thompson, navigator Flying Officer Coleman.
 - (2) The position was about 80 miles south of Iceland in 6215N x 1835W.
 - (3) For the actual growth of the U-boat fleet, see Appendix II.

B.C./S.46368II
encl. 109A

ibid
encl. 111A

quiet and rest in harbour. He again strongly recommended that these bases be bombed frequently (not necessarily with large numbers of aircraft) so that at least some interference could be made in the smooth working of Biscay Port facilities. The Air Ministry replied that, while fully appreciating the value of harassing attacks on U-boat bases, such attacks would constitute a very considerable and unwarranted diversion from the present planned operations as approved by His Majesty's Government. Periodic attacks had, in the past, been made from time to time but only within the approved strategic plan.⁽¹⁾

The tenacity of this optimistic belief was seen early in October when, in spite of greatly increased September shipping losses,⁽²⁾ the proposition was put forward by the Prime Minister to reduce the landplane squadrons of Coastal Command in order to re-inforce the strategic bombing force on the plea that U-boat sinkings of Atlantic shipping were only taking place in areas outside air range. This proposal was withdrawn after representations by the First Lord of the Admiralty with which the C.A.S. was in agreement.⁽³⁾

WM(41)104th
20 Oct.

C.O.S. (41)
239 (0)

C.O.S. (41)
367th 25 Oct.

Resulting from these pleas for the bombing of U-boat operating ports and the flare up in shipping losses in the Atlantic, the War Cabinet, on the 20 October 1941, invited the Chiefs of Staff to consider whether the position in the Battle of the Atlantic called for a higher priority for bombing attacks on U-boat construction yards or ports used as operating bases. The Admiralty's opinion as circulated the next day by the C.N.S. was clear; both were strongly recommended. The Air Ministry's attitude was to resist the latter and agree to a higher degree of priority for the German Ports especially Hamburg and Kiel. A C.O.S. paper was submitted to the Prime Minister embodying proposals for increased attacks on the main German Ports but only mentioning one Biscay operating base - Lorient - as a diversionary target. This programme was approved by the War Cabinet at the end of October.

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- (1) A minute to the C.A.S. at this time gave the Air Ministry view. It considered that the A.O.C.-in-C., Coastal Command, in common with the Admiralty, had overlooked the long term indirect contribution which the bomber offensive had made and was still making to our security at sea by attacks, not only on the main German Ports, but on the German industrial effort as a whole. This industrial effort supported their naval just as much as their military or other war effort. The Air Ministry had accepted that the bomber force should support the naval strategy more directly when the Battle of the Atlantic was in its earlier and critical stage but there seemed no justification whatever for a return to this defensive strategy now when conditions at sea had so much improved and we were beginning to develop fully the air offensive to which we must look for winning as opposed to not losing the war. Reference.
B.C./S.46368 II encl. 110A.
 - (2) The September losses from U-boat action were 53 ships of 203,000 tons. Three quarters of this total was sunk off S.E. Greenland and in the N.W. Africa to Azores area. Only 3 ships were sunk within 350 miles of shore based aircraft.
 - (3) See Chapter I section (ii).

(vi) The institution of protective escort and patrol by the United States

Meanwhile, in support of the policy of defence against possible aggression and to aid Great Britain within the limits of non-belligerency, the United States Government decided to occupy Iceland and Greenland. On 7 July 1941 there arrived at Reykjavik a U.S. Marine Brigade supported by a naval force of two battleships, two cruisers, 13 destroyers, two seaplane tenders and 12 P.B.Y. flying boats while the flying boat force at Argentina was increased to four Squadrons forming Patrol Wing No. 7.(1) The U.S. Marine Brigade relieved the British Army force in the occupation of Iceland while the naval force was employed in "police observation" duties between America and Iceland. On the 6 August the seaplane tender U.S.S. Goldsborough returned to Reykjavik and laid out moorings for 12 flying boats. On the 9th, six P.B.Y's of No. 73 U.S. Naval Squadron and five P.B.M's of No. 74 Squadron arrived at Reykjavik. Their task was "Neutrality Patrols" in the north Atlantic and protection of U.S. convoys to and from Iceland. They were not available for British convoy escort or British reconnaissance duties. Also on the 6 August arrived at Reykjavik an American aircraft carrier from which was flown off a fighter force consisting of 30 Tomahawk fighter aircraft and three trainers which were to operate under the control of the C.O. of the U.S. Marine Brigade.

The seal was set on all these aids to the British War effort at the meeting which took place on 10 August 1941 off Argentina between President Roosevelt and Mr. Churchill accompanied by their respective service staffs and which resulted in the drafting of the Atlantic Charter.

The immediate measures taken by the United States after this meeting of the Staffs were made known by the American Embassy in London to the Admiralty on the 4 September and were to the effect that the C.-in-C., of the U.S. Atlantic Fleet had been directed to implement the Western Hemisphere Defence Plan No. 4 (W.P.L.51). This required his forces to destroy any German surface raiders which attacked shipping along the sea lanes between North America and Iceland or which approached those sea lanes sufficiently closely to be deemed a threat to such shipping, to insure the safety of sea communications with U.S. strategic outposts and to support the defence of U.S. territory and bases in Iceland and Greenland.(2) The position was publicised in a world broadcast by President Roosevelt on the 11 September in which he stated "From now on, if German or Italian vessels of war enter these waters they do so at their own peril".

- (1) Nos. 71, 72, 73 and 74 U.S. naval squadrons. All were 12 P.B.Y. flying boats except No. 74 squadron which was P.B.M. flying boats.
- (2) There were two other notable alterations in the orders to the U.S. Navy.

(a) They were now to escort convoys which did not necessarily include any vessels flying the U.S. or Icelandic flags.

(b) It was now permissible for the Canadian Navy to escort vessels flying the U.S. flag.

Ref. 93rd conclusions of War Cabinet, 15.9.41.

CC/S.7010/x
encl. 62A and
U.S. Naval Operations in World War II, Vol. I

CC/S.7010/x
encls. 74A
and 79A

ibid
encl. 89A

ibid
encls. 75A-77A

84th Conclusions of War Cabinet
19.8.41

U.S. Naval Operations in World War II, Vol. I

ibid.

See Map I.

CC/S.7010/x
encl. 98A and B.

Commencing with convoy H X 150, which left Halifax on the 16 September 1941, the United States assumed responsibility for the trans-Atlantic trade convoys when to the westward of a line down the meridian of 10° West to latitude 65° North, thence to position 5300 N x 2600 W and thence down the meridian of 26° West.⁽¹⁾ The details of the individual convoy air and surface escorts were worked out by the respective staffs of the three countries concerned and were as follows:-

Mid-Ocean meeting points⁽²⁾ were established south of Iceland between the longitudes of 26° and 22° West. Royal Navy escort groups provided the escorts to the eastward of these meeting points. To the westward United States escort groups escorted the H.X. and O.N. convoys and Canadian escort groups augmented as necessary by Royal Navy vessels undertook the slow S.C. and ONS convoys. Mixed United States and British

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- (1) This line marked the agreed boundary between U.S. and British strategic control in the North Atlantic. West of this line, convoys were routed by the American Naval Operations Department (OPNAV) in Washington. East of it, they were routed and controlled from the Admiralty in London. This procedure and that in the succeeding paragraph appear as British and American directives in January 1942 but they were already working in practice during the latter months of 1941.
 - (2) Short title - Momp. Eastbound convoys received local Canadian escort as far as a position south of Newfoundland. This was known as the Western ocean meeting point (short title - Westomp). Here the American or Canadian Ocean escort took over until reaching the Momp where British escorts took up the task. The Momp was in the vicinity of the strategic control boundary and the date on which the change over in operational control took place (short title - Chop date) coincided approximately with the change to British escorts. For westbound convoys the procedure was reversed.

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escort groups were avoided as likely to complicate the former country's neutrality. (1)

(vii) Air Cover in the North Atlantic

Regarding air escorts, Coastal Command aircraft working from the U.K. and Iceland bases provided air cover and A/U escort as far to the westward as possible. This amounted to cover out to about 600 miles to the westward of Ireland

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- (1) An incident which might have had awkward political repercussions had in fact occurred on the 4 September 1941. Working from an Icelandic base Hudson M/269 Squadron at 0707 hours sighted a U-boat on the surface in very good visibility conditions in position 6255 N x 2800 W. The U-boat had dived before an attack could be pressed home but the aircraft dropped a sea marker on the point of disappearance. While circling the position the U.S. destroyer "Greer" was sighted 20 miles distant at 0810 hours. M/269 reported the situation by visual signal and R/T. The "Greer" closed the position and at 0900 hours reported that Asdic contact had been made on the U-boat and, while not herself permitted to attack, gave precise distances and bearings to the aircraft which enabled M/269 at 1030 hours to attack with 4 - 250 lb. depth charges set to 50 ft. No results were observed and it was plain that the U-boat was too deep for airborne D.C's to damage it. M/269 reported the situation to base and asked for a British destroyer to be sent. Shortage of fuel forced a return to base soon after this and the aircraft informed a convoy some 75 miles away of the U-boat's position on the way home. Another Hudson - K/269 - was diverted to the spot making contact with the "Greer" at 1156 hours. The "Greer" reported still being in Asdic contact and at 1244 hours that she had seen the tracks of at least two torpedoes fired at her. She immediately counter-attacked with 6 depth charges at 1249 hours. At 1340 hours K/269 sighted H.M. destroyer "Watchman" 25 miles away and directed her to the spot. Shortly after, the "Greer" reported losing asdic contact. At 1415 hours the two destroyers established visual and R/T communication and proceeded to hunt the U-boat aided by K/269 who at 1504 hours was relieved by Q/269 and Catalina J/209 squadron. These in turn were relieved by X/269 and H/209. The hunt continued all night, being joined at 2035 hours by 3 British corvettes, and lasted up to 2125 hours on the 5 September. No further trace of the U-boat was found. Although not doubting the original sighting by M/269, an inquiry held afterwards was not convinced that the "Greer" had ever contacted a U-boat or been fired at. The phenomena were held to be caused by shoals of fish. Ref. S.7010/x encl. 99A.
- N.B. In point of fact the U-boat in question - U-652 - did fire 2 torpedoes and reported being hunted until 2130 hours. Ref. Fuhrer Conferences on Naval affairs - 12.9.41 and B. d U. log for 5.9.41.

CC/S.17434
Part I encl. 25C

and some 400 miles to southwest of Iceland. (1) The R.C.A.F. provided air escorts for all convoys passing through the Straits of Belle Isle and for HX, SC and military convoys from the Canadian coast as far out as longitude 55° W. From there they were taken on by the U.S. Naval Air as far as possible to the eastwards. This amounted to about 400 miles northeastward from Newfoundland. (2)

ibid
encls. 22A to D

The project of bridging the gap in mid-Atlantic by using the Catalinas on a shuttle service between Eastern and Western Atlantic bases proved impracticable on detailed examination because the range of the aircraft, when carrying

(1) Aircraft available in the United Kingdom:-

No. 15 Group - Catalinas of Nos. 240, 210 and 209 Sqdns, Witleys of No. 502 Sqdn, a detachment of No. 221 Sqdn. Wellingtons and two Hudson Sqdns Nos. 224 and 233. No. 18 Group - No. 612 Sqdn Witleys, No. 220 Sqdn Hudsons and a detachment of No. 269 Sqdn.

Aircraft available in Iceland:-

No. 204 Sqdn Sunderlands, No. 330 Sqdn of Norwegian manned Northrops and large detachment of Hudsons of No. 269 Sqdn.

On the 1 July the Iceland squadrons, hitherto known as No. 30 Wing, had been renamed "R.A.F. Iceland" and an A.C.H.Q. was formed in Reykjavik with the naval forces under the C.-in-C., Iceland. The air forces were put under the direct control of H.Q. Coastal Command but remained administered by No. 15 Group (see also Vol. II chapter VIII section (xvi)). The A.O.C.-in-C., however, wished the operational control to remain decentralised under No. 15 Group but on the 6 August the Air Ministry considered that, in view of possible conflict between the three tasks of Fleet reconnaissance, Trade protection and the defence of Iceland, only the Headquarters in consultation with the Air Ministry and the Admiralty could decide on the priority of tasks. On the 21 August the A.O.C.-in-C., requested a reconsideration of this ruling, observing that it was necessary for No. 15 Group to co-ordinate the aircraft required for daily tasks in the Northwest Approaches as between themselves, Iceland and No. 18 Group and this would best be achieved by R.A.F. Iceland being controlled by No. 15 Group. This request was refused in an Air Ministry letter of the 8 September on the grounds that any daily adjustment could be effected without putting Iceland under No. 15 Group and on the 15 September R.A.F. Iceland came under H.Q. Coastal Command for administration as well. However, in a policy letter dated the 17 September the A.O.C.-in-C., authorised the A.O.C. No. 15 Group to signal his daily aircraft requirement for convoy protection to Nos. 18, 19 Groups and R.A.F. Iceland. The Groups were to provide aircraft from their own resources under mutual agreement and if any queries arose or reinforcements were required to fulfil obligations the Groups must inform Headquarters. References - C.C./S.7010/23 encls. 180A to 193A.

(2) The bases worked from were as under:-

Gander, Newfoundland - 1 R.C.A.F. Squadron of Digbys.
Botwood, Newfoundland - a detachment of 4 R.C.A.F. Catalinas
Argentia, Newfoundland - U.S.N. Catalinas of Patrol Wing 7 and 6 U.S. Army Fortresses.
Sydney, Nova Scotia - 1 R.C.A.F. Squadron of Bolinbrokes.
Dartmouth, Nova Scotia - 1 R.C.A.F. Squadron of Hudsons and a detachment of R.C.A.F. Catalinas.
Yarmouth, Nova Scotia - 1 R.C.A.F. Squadron of Bolinbrokes.

C.C./S.7010/23
encl. 161A

ibid.
encl. 168A

a useful load of depth charges, was insufficient. On the 14 July the A.O.C.-in-C., Coastal Command requested the Air Ministry for a squadron of long range landplanes, preferably Liberators, for Iceland to take the place of the flying boats stationed there as he stated they would have to leave before the winter set in. He also recommended that the Canadian Eastern Air Command (E.A.C.) should be supplied with a Liberator Squadron so as to link up with the Iceland long range aircraft. The C.A.S. replied on the 30 July that no extra long range squadron could be supplied and provision for one in the future would depend on the flow of American types suitable for such G.R. work. Similarly, it was impossible to give E.A.C. a Liberator squadron. The need for such was fully appreciated but it must come out of Canadian resources.

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C.C./S.7010/x
encl. 105A

To extend the air cover as far as possible with existing resources No. 209 Catalina Squadron was transferred at the end of July from Northern Ireland to Reykjavik. In an attempt to solve this problem, four U.S. Navy Catalinas of No. 71 Squadron operated from Kungnait Bay in south Greenland, based on the seaplane tender U.S.S. Gannet, from the 1 October but weather and sea conditions forced the abandonment of this idea on the 18 October. Another scheme was the use of land planes to work from the U.S. Army aerodrome at Narsarsssvak, (1) also in south Greenland, where limited facilities were available. This came to nothing for the same reasons but it was intended to repeat the attempt in April 1942 when weather conditions might be more favourable. There was thus still a gap in the air cover over the main trade route of 300 miles or more in mid-Atlantic extending in a South Southeasterly direction from Greenland. The Liberator aircraft was the only type which could solve this vital problem and it was to be 18 months before they could be supplied in necessary numbers. During this time the "Gap" became infamous as the graveyard of many merchant vessels from U-boat action.

C.C./S.7010/x
encls. 104A
to 113A

ibid.
encl. 119B

The extension of the United States protective area and the new orders to the U.S. Atlantic Fleet did not, however, alter the mandate previously issued to the U.S. Naval Commander in Iceland regarding the use of the U.S. Catalinas at Reykjavik. (2) This remained limited to providing air protection to U.S. convoys and ships actually bound for or departing from Iceland. Discussions took place throughout September for the closer co-operation between the U.S. Naval and Coastal Command aircraft in Iceland. Agreement in theory as to a common signal procedure and the sharing of the British operation room in Reykjavik was reached by the end of the month but it remained for official sanction to be obtained from the respective Chiefs of Staff in Washington and London. In the meantime the extempore co-operation carried on by liaison methods was revealing weaknesses. The Air Officer commanding the R.A.F. in Iceland - Air Commodore W. H. Primrose - rendered a detailed report to H.Q.C.C. on the 30 September in which he again stressed the necessity of a joint anti-U-boat command using the same A.C.H.Q. and operations room for British and American directing staffs so that fully co-ordinated protection could be given to Iceland and all shipping in the north Atlantic within air range. He also drew attention to the

(1) Code name Blue West I. See Map. I.

(2) In September there were 12 Catalinas of U.S.N. No. 73 squadron.

ibid
encl. 120A

equipment deficiencies of U.S. naval aircraft in that they had no A.S.V. and were armed with bombs for use against U-boats which were so fused that they were ineffective unless dropped from 1,000 ft or over. This report was forwarded by the A.O.C.-in-C., to the Air Ministry and a reply was received on 24 October in which the Director of Naval Co-operation agreed with the points mentioned and felt that the joint action proposed should include all areas in which British and American air forces might be called upon to work together.

ibid
encl. 121A and
123A to 125A.

Conferences in London followed but when representations were made by Vice-Admiral R. L. Ghormley (the special U.S. Naval Observer, in London) to Washington, a reply was received from the U.S. chief of Naval Operations, dated 8 November 1941, stating that it was particularly undesirable to have in London an agency to co-ordinate air activities in the western Atlantic as well as in British home waters "and any departure from the principle that the western Atlantic will be controlled from Washington and Canada must be avoided". This was most disappointing as it missed the point of the original proposal for joint action in the Iceland area and, although the United States were not at war, it revealed an inability to see the vital north Atlantic trade route as a complete A/U problem requiring joint co-ordinated action at every point between the Canadian coast and the British Isles.

C.C./S.15,223
encls. 40A to
42A and 116A to
118A

When the United States declared war on Germany and Italy on the 11 December 1941, no change was made in the existing extempore liaison in the A.C.H.Q. at Reykjavik neither was the limited mandate to the U.S. Naval Air Force in Iceland expanded to include combined action against U-boats other than in protection of U.S. convoys to and from Iceland.(1) In actual practice, measures for all convoy protection and A/U patrols continued in mutual co-operation between the local British and American commanders at Reykjavik. On the 24 December, Rear Admiral J. L. Kauffman U.S.N. took up his appointment as commandant of the newly commissioned U.S. Operating Base in Iceland. Under his direction the co-operation was regularised with U.S. personnel taking their places in the Reykjavik Combined Operation Room. From early in 1942 the operational control of No. 73 U.S.N. Catalina Squadron became merged into that exercised by the Reykjavik A.C.H.Q. over the Coastal Command Squadrons stationed in Iceland.

(viii) The West Africa Station

CC/S.15,266 encl. 7A
and No. 95 Squadron
Form 540

The first aircraft to arrive on this station were two Sunderlands belonging to No. 210 Squadron with orders to

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- (1) On the 20 December, Admiral King was appointed Commander-in-Chief of the United States Fleet (short title - Cominch) and ten days later was relieved as C. in C. Atlantic Fleet (short title - Cinclant) by Admiral R. E. Ingersoll. Cominch continued to exercise many of his former functions because Cinclant, being a floating command, lacked the necessary communications and other facilities to direct so complicated a war as this was to become in the Atlantic Ocean.

commence the formation of No. 95 Squadron. (1) They arrived at Freetown (Sierra Leone) on the 17 and 18 March 1941 respectively, having been preceded by a ground party. Convoy escort and A/U Patrol duties were commenced on the 24 March in collaboration with the naval staff of the C. in C. South Atlantic whose headquarters were at Freetown. Two more Sunderlands arrived from home during April and one in May. Operations were then carried out from Bathurst (Gambia) as well as from Freetown, out to 400 miles from the bases. (2)

CC/S.15, 266
encls. 14A, 25A
and Battle of
Atlantic
Committee
7th, 8th, 9th
and 10th
meetings.

As a result of a big increase in the shipping losses during May (3) it was decided to re-inforce the West Africa station. Six Hudsons from No. 206 Squadron were despatched in June with a ground party to Jeswang, Bathurst to form No. 200 Squadron, another Sunderland was sent out for No. 95 Squadron and the only two available Sunderlands of No. 228 Squadron, then based at Aboukir, were ordered to proceed to Bathurst with sufficient personnel and spares to commence operations immediately on arrival. The rest of the squadron personnel took passage from Egypt in H.M.T. Dumana bound for Bathurst via the Cape.

The Hudsons commenced patrols on the 30 June but engine defects on the flight from Egypt delayed the arrival of the two flying boats and they did not become operational till the 6 August. All the flying was controlled by the Commanding Officer of No. 95 Squadron working from an operations room at the headquarters of the Naval C. in C. South Atlantic which was situated at King Tom, Freetown.

CC/S.15, 266
encl. 52A

While the move of No. 228 Squadron was still going on, it was decided to replace them by a full Sunderland squadron - No. 204 - from the United Kingdom and to repatriate No. 228 for reforming at Calshot. In the first week of August the establishment of No. 200 Squadron was increased from seven to twelve Hudsons, and the S.S. Manela, then depot ship for flying boats in Iceland, was detailed to carry the ground staff of No. 204 Squadron and the necessary increased

- (1) *Single U-boats first made their appearance off West Africa in July 1940. One ship was sunk in this month and one in August. Their next sorties were not till the winter when four ships were sunk in November, five in December and three in January 1941 - all within 600 miles of Freetown. The decision to send Sunderlands to this area and to form No. 95 Squadron was taken on 15 January 1941 but the three Sunderlands detailed from No. 210 Squadron for this purpose were delayed by gale casualties at Gibraltar and it was mid-March before two of them were ultimately able to continue the journey. Three ships were sunk in the area during January but none in February.*

(2) Month	Effective	Effective	U-boats Sighted
	Hours on convoy escort	Hours on A/U patrol	
1941			
March	31	6	
April	53	87	
May	94	178	NONE
June	53	184	

- (3) Renewed attention to this area by U-boats in March resulted in ~~fifteen~~ ships being sunk and ~~ten~~ in April. In May the losses shot up to 32 ships of 186,252 tons within 600 miles of the two air bases.

personnel for No. 200 Squadron to Freetown where she was to remain as additional accommodation for the growing West Africa station. Five aircraft of No. 204 Squadrons arrived, with advance ground personnel, at Bathurst on the 28 August. The transport Dumana also arrived at this time and was retained as a depot ship for No. 204 Squadron. Those members of No. 228 Squadron not absorbed into the other two Sunderland squadrons were sent home in S.S. Oronsay. (1)

Loose Minutes
Nos. 61, 65 and
128 - D. of O.
and
CC/S.15,266
encls. 30A, 34A
and 39A

Discussions had also been proceeding as to the operational control of this station and, on the 22 August, the Air Ministry ordered the formation of an Air Headquarters with an officer of Air rank in command as soon as accommodation at Freetown was available. The necessary R.A.F. personnel (2) embarked in S.S. Manela in the Clyde on the 21 September and sailed the same day. The ship arrived at Bathurst on the 12 October and at Freetown on the 21st. The new A.H.Q. took over control from the C.O. of No. 95 Squadron on the 29 October and thenceforth the West Africa station was an independent command controlled through the A.C.H.Q. at Freetown.

within air range

War Diary
of B. d U.

Meanwhile, with the aid of the aircraft re-inforcements, the operational flying hours increased substantially during the third quarter but no U-boats were sighted. (3) Shipping losses ~~in the area~~, which had dropped to five vessels in June, (4) fell away to one in July, one in August and none in September. This was, however, primarily due to the diversions of independently routed shipping away from the danger area and to naval successes in destroying some of the enemy supply vessels necessary to refuel and provision U-boats operating in areas so far from their Biscay bases. The lack of U-boat successes, either off the coast of West Africa or in the centre of the equatorial Atlantic together with restricted possibilities of refuelling, decided the German Naval Command in October to withdraw these U-boats towards the North Atlantic and only occasionally to send a single U-boat to the area off and to the south of Freetown. (5)

- (1) The two Sunderlands belonging to No. 228 Squadron became due for major overhauls on 21 August and left for the United Kingdom on the 24th.
(2) Including the new A.O.C., Air Commodore E. A. B. Rice O.B.E., M.C.

(3) Month	Effective Hours on escort duty	Effective Hours on A/U Patrol	U-boats	
			Sighted	Attacked
1941				
July	128	171	-	-
August	174	357	-	-
September	147	546	-	-
October	166	728	3*	1
November	215	459	1 ^e	1
December	219	379	-	-

* All sightings were by aircraft on patrol.

^e Sighting was by aircraft on convoy escort.

- (4) In addition, one dredger of 2,879 tons was lost on a mine laid by U-60 off Lagos harbour. The same U-boat laid another small field off Takoradi but no sinkings resulted.
(5) Shipping losses off the West African coast in the last quarter of 1941 were ~~seven~~ ^{seven} ships of which only three were in the Freetown area.

The flying hours during the last quarter were again stepped up. Three sightings of U-boats, in one case followed by an attack, were obtained in October and another attack was made in November but no damage was inflicted in either case. Operations by four U-boats against shipping in the Cape area were planned by the enemy for December but the destruction at the end of November by the Navy of the last two supply vessels caused the recall of all the U-boats taking part. When the United States entered the war a few days later, the whole U-boat offensive was re-cast and no further U-boats were sent to the Freetown area until March 1942.

(ix) Revision of attack procedure against U-boats

The immunity enjoyed by convoys when inside the range of full air cover was due, not to the lethality of air attack, but to the restriction it imposed on the free movement of surfaced U-boats watching for or following up convoys. Although U-boats were being sighted and attacked by aircraft with increasing frequency, there was no corresponding increase in the numbers of U-boats destroyed or seriously damaged by these attacks.(1) In September 1941 the Command's score stood at only ~~one U-boat sunk unaided~~, one surrendered, three kills shared with surface craft and some 10 or 12 seriously damaged in the 245 attacks since the outbreak of war. The use of depth charges, from which increased success had been expected, was by now nearly universal and the continued lack of success pointed to a fundamental weakness in our methods.

The absence of any uniform attack technique had been the subject of examination by the staff at H.Q. Coastal Command since June 1941. In co-operation with the Operational Research Section an analysis was made of all attacks since August 1940 when depth charges were first used. This yielded the information that in spite of depth charge settings having varied between 100 feet and 300 feet, only those attacks made on a still visible U-boat or within 15 seconds of disappearance resulted in damage or destruction being assessed.(2) During this period 35% of the U-boats attacked had some portion visible at the time of release and 15% had disappeared for less than 15 seconds. No evidence of even slight damage followed attacks made at a longer interval than 30 seconds after disappearance. It was therefore suggested that all efforts should be concentrated on attacking the former which were classified as Class A targets and that far less attention should be paid to the remainder.

Coastal Command
Naval Staff
Records

-
- | (1) | <u>1941</u> | <u>Sighted Attacked Sunk</u> | | | <u>Seriously damaged</u> |
|-----|-------------|------------------------------|----|-----------------------------|--------------------------|
| | June | 25 | 17 | - | 1 |
| | July | 13 | 8 | - | - |
| | August | 28 | 23 | 1 surrendered
+ 1 shared | 2 |
| | September | 39 | 32 | - | 3 |
- (2) Combat reports of all attacks were forwarded to the Admiralty Assessment Committee. In the light of experience and various forms of Intelligence these attacks were assessed under categories ranging from "known sunk" to "No U-boat present". Volume II Appendix III gives the early history of this committee.

On the 26 June 1941 the first meeting of the new standing joint committee charged with the consideration of measures for the improved prosecution of the A/U War took place in the Admiralty.⁽¹⁾ It was decided that future meetings should be held fortnightly and discussions would be divided into two headings.

C.C./S.7050/5
Part I encl. 5A

(a) What could be done with existing weapons and resources to improve the killing power of an aircraft attacking a U-boat.

(b) What could be done in the future by producing new weapons or devices to effect further improvement.

Preliminary discussions then took place on the suggestion put forward resulting from the Coastal Command analysis and it was agreed that the implications should be considered at the next meeting.

Coastal Command
Naval Staff
A/U File encl. 21

Meanwhile a detailed report of the twelve most recent attacks (actually carried out between 26 June and 9 July) was made by a member of the Naval Staff at H.Q. Coastal Command. These attacks were most disappointing and revealed wide variations in the methods of approach, in aiming points, in the release of weapons and in the accuracy of the subsequent account of the attack by the pilots and crews.⁽²⁾

C.C./S.7050/5
Part I encl. 11A

This report was considered at the second meeting of the joint committee together with the implications arising from the analysis of attacks. A Sub-Committee was appointed to study the question of weapons and bomb sights and a new standard attack policy was agreed upon. This was embodied in Coastal Command Tactical Instruction No. 15 issued on the 25 July 1941 which laid down:-

(i) The attacking approach was to be made by the shortest path and at the maximum speed.

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- (1) Mention is made at the end of Chapter VIII Volume II of the findings of a joint Admiralty/Coastal Command Committee on A/U warfare. The final recommendation was to the effect that a standing committee composed of Naval and Air Force representatives should be set up under the chairmanship of the Admiralty Director of Anti-Submarine Warfare (D.A.S.W.) to consider measures for the improved prosecution of the war against the U-boats.

This standing committee virtually took over the tactical prosecution of the U-boat War at sea. The Admiralty Trade Protection meetings under the chairmanship of the A.C.N.S. (Trade) continued fortnightly (monthly from September 1941) deliberations on general sea communications and also approved and gave the required impetus where necessary to new measures recommended by the standing A/U Committee. Any matters requiring C.O.S. or Cabinet Sanction were represented to the C.N.S. or the C.A.S. by the chairman or the air representatives.

- (2) Upon this latter depended the value of any reconstruction of the attack and consequently the possible lessons for improvement in future.

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- (ii) The actual attack could be made from any direction relative to the U-boat.
- (iii) The depth setting of all depth charges was to be 50 feet, (1) the spacing between depth charges in a stick was to be 60 feet and all depth charges carried were to be released in one stick.
- (iv) The ideal was to attack while the U-boat or some part of it was still visible. Data was given, however, to enable pilots to estimate quickly how far ahead of the point of final disappearance their stick should be placed if the U-boat got under just before release was possible.
- (v) In cases where the U-boat had disappeared for more than 30 seconds it was pointed out that success was unlikely owing to the progressive uncertainty of the U-boat's position either in plan or depth.
- (vi) The height of release must not be greater than 100 feet until an aiming sight was provided but the restriction against aircraft carrying depth charges at night was modified. (2)
- (vii) Great stress was laid on the need for training and constant exercises so as to attain a high standard of attack and aiming accuracy.

Bomb Sights and Weapons.

As yet there was no standard sight in use for low level attacks. Release of depth charges was effected by the pilot by eye alone. The accuracy depended on practice, experience and any natural aptitude for judging heights and distances. (3) Some squadrons had worked on their own

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- (1) 50 feet was the minimum setting possible with the existing D.C. pistols.
 - (2) The Mark VII 450 lb. D.C., with which the flying boats and larger land planes were armed, tended to break up on impact with the sea if released from higher than 150 feet and at speeds greater than 150 knots. A restriction had been imposed late in 1940 against the carrying of depth charges at night because the insensitive type of altimeter rendered flying at night unsafe when below this height. The Mark VIII 250 lb. D.C., was designed for use in Hudsons and other types of aircraft which could not carry the Mark VII. This lighter depth charge commenced coming into operational use in May 1941 and tests in June had shown that it functioned correctly when released up to 2,000 feet and at speeds up to 200 knots. The night restriction was therefore cancelled for aircraft carrying the Mark VIII but by day the progressive inaccuracy following releases without a sight above 100 feet altitude made it necessary to impose the same limit as for the Mark VII.
 - (3) In actual fact this release from low levels by "airman's eye" was astonishingly accurate. During the war more kills of U-boats were obtained in this way than by the use of a sight. Two types of unofficial hand held sights appeared early in 1942 but the provision of an efficient low level sight, the Mark III Angular Velocity sight, did not eventuate until June 1943.

private ideas by painting lines on the front screen and marks on the fusilage, others by timed release at so many seconds after the target had disappeared under the nose of the aircraft but no officially accepted sight appeared until much later in the war.

C.C./S.7050/5
Part I
encls. 14A, 16A,
18A and B

Regarding the existing depth charges, the third meeting of the joint committee agreed that while they remained the standard weapon against U-boats it was essential that a pistol giving a shallower detonation should be developed as soon as possible. In view of the decision to concentrate attacks on U-boats on or still near the surface the existing minimum of 50 feet was too deep. However, the Weapons Sub-Committee pursued not only this objective but, *pari passu*, investigated the possibilities of other types of weapons notably the small contact bomb and the very heavy anti-submarine type of bomb.

Special measures in Coastal Command headquarters

Coastal Command
Naval Staff
records

Besides the implementing of the new tactical instruction the Headquarters Staff took measures to ensure fuller details and greater accuracy in the combat reports of attacks on U-boats. One member of the Command's naval staff, (1) who had been connected with the A/U work since the beginning of the war, commenced writing up each individual sighting and attack on U-boats as they took place using every scrap of first hand evidence obtainable and analysing the probable result from all the data available. Whenever possible the attacking crews came to the Headquarters which enabled personal corroboration, discussion of detail and practical experience to be effected while the event was fresh. These individual narratives were of assistance to the Admiralty Assessment Committee but their main value lay in exposing mistakes and facilitating steps for improvement in technique. At the end of 1941 some aircraft were fitted with cameras to record the fall of depth charges relative to the U-boat or its diving swirl. Photographic analysis enabled quite an accurate estimation to be made of the distance of the explosions from the U-boat's hull. The theoretical assessments of the result were remarkably close to the ultimate facts as disclosed by subsequent Intelligence reports and finally by post war German records. (2)

White Camouflage

It had, of course, been realised that to achieve the desired attack on a still visible U-boat the question of aircraft camouflage was of the utmost importance. The development of white camouflage to this end is described in Volume II Appendix XII. On the 8 August 1941 this new colour was regularised by the Air Ministry for all

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- (1) Commander D. V. Peyton-Ward, R.N.
(2) By the end of 1941 this naval officer had become specialised in all aspects of Coastal Command's war against the U-boats and for the remainder of the war formed a permanent link between the Headquarters and the Admiralty A/U organisation including close collaboration with the Admiralty Submarine Tracking Room.

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Wellingtons, Whitley and the new Liberator aircraft.(1)
By the Spring of 1942 all Coastal Command aircraft, land and flying boat types, engaged in A/U work were painted in the white camouflage.

(x) Disappointing results in location of U-boats by A.S.V.

Bound up with the camouflaged final approach to a U-boat was the larger problem of being able to initially detect U-boats with A.S.V. Although Long Range Mk II A.S.V. had been introduced into Coastal Command in the autumn of 1940, the equipment of A/U Squadrons was slow in spite of the emphasis laid on this work by the Prime Minister since March 1941. This was owing to production delays and technical troubles. Among the latter was the difficulty of fitting the long range beam aerials in any aircraft but Sunderlands, Wellingtons and Whitleys. This meant that other types had only the forward or homing aerials which gave a shorter range of location and only covered a limited forward looking sector. At the end of June 1941 the position was that out of the 272 operational aircraft most suitable for A/U duties, 127 had homing aerials but only 73 were fitted with the complete long range set.(2)

The operational results of A.S.V. were meagre. Between the 1 March and the 31 July 1941 only four U-boats(3) had been sighted as a result of A.S.V. contacts as compared with 61 sighted by visual look out alone. The appearance in July and August of reports from aircraft that initial A.S.V.

- (1) At the end of June 1941, 20 Liberator Mark I aircraft were allocated to Coastal Command. No. 120 Squadron was formed and equipped with these aircraft. Owing to necessary modifications and fitting of long range A.S.V. the first operational Sortie did not take place until the 20 September 1941. Ref. Coastal Command O.R.B. appendices and No. 120 Squadron Form 540.
- (2) The state of A.S.V. fitting was:-

Date	Numbers Operational	Homing aerials only	Complete long range Set
18 March	119 Hudsons	36	-
	24 Wellingtons	-	2
	35 Whitleys	-	31
	27 Sunderlands	7	2
	6 Catalinas	-	-
30 June	150 Hudsons	87	-
	25 Wellingtons	-	25
	40 Whitleys	-	40
	27 Sunderlands	17	8
	30 Catalinas	23	-

Ref. C.C./S.7011/1/Z

- (3)

Date	Aircraft	A.S.V. range contacted	Range sighted
4 May	Hudson R/220	15 miles	10 miles
5 May	Hudson O/269	8 miles	4 miles
6 June	Hudson H/269	5 miles	5 miles
29 July	Wellington B/221	10 miles	3 miles

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C.C./S.7010/10/6
Part I
encl. 12B

ibid
encl. 21A

ibid
encl. 24C

indications faded out as the position was closed gave rise to a suspicion at H.Q.C.C. that the enemy was listening, on a suitable receiver, to the A.S.V. transmissions and, being so warned, was diving before the aircraft was within visual sighting distance. This matter was brought up at the first meeting of the Air/sea Interception Committee⁽¹⁾ held on the 14 August. It was decided to ask the Operational Research Section at H.Q.C.C. to prepare a paper setting out the evidence. Meanwhile in order to test the validity of the suspicion, Coastal Command ordered A.S.V. silence from the 18 August on alternate weeks for the ensuing 28 days. During the silence period, three visual sightings of U-boats were made. During the normal 14 days, five initial visual, two initial A.S.V. and one simultaneous visual and A.S.V. contacts were made.⁽²⁾ This test, admittedly short, showed that there was no apparent disadvantage involved in the use of A.S.V. Further examination of the evidence on disappearing A.S.V. contacts revealed other possible causes such as waves, porpoises, whales, oil drums and other small sized floating objects and that there was no particular reason to suspect U-boats. A paper with these conclusions, was submitted by the O.R.S. to the 2nd meeting of the Air/Sea Interception Committee on the 11 September and it was agreed that the unrestricted use of A.S.V. should continue on the assumption that it was not being detected by U-boats but that the O.R.S. Coastal Command should endeavour as a matter of routine to accumulate further evidence and keep a close watch on the situation.

The fact that first locations were predominantly made by visual sightings in the A.S.V. fitted aircraft was leading to misgivings as to the practical value of A.S.V. in

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- (1) This committee was formed on the 23 July 1941 to take over the problems of Air Interception of surface vessels and submarines from the existing Interception Committee. The terms of reference were:-
- (a) To review all new developments in the technique of air to sea interception, including developments by the enemy.
 - (b) To recommend research and development in the technique of air to sea interception.
 - (c) To take decisions regarding the adoption for operational use of new developments in technique and to initiate action.
 - (d) To correlate the activities of the various departments and branches of the Air Ministry and Ministry of Aircraft Production concerned with (a), (b) and (c).
 - (e) To examine and report on such other related problems as may be referred to the Committee from time to time.

The D.C.A.S. was in the Chair and represented on the Committee were the appropriate Air Ministry branches, the A.O.C. in C. Coastal Command, the Coastal Command Development Unit, members of the Ministry of Aircraft Production and branches of the Admiralty. Normally this Committee and the Interception Committee met on alternate fortnights. Ref. C.C./S.7010/10/6 Part I, encl. 1A.

	A.S.V. off	A.S.V. on
Flying hours in area	528	541
Initial visual contacts	3	5 + 1 simultaneous
Initial A.S.V. contacts	-	2

Ref. O.R.S. report No. 146.

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ibid
encl. 34E.

spotting U-boats by day. A paper on this subject was prepared by the O.R.S. based on the August/September figures for U-boat sightings.(1) This was considered at the 3rd meeting of the Air/Sea Interception Committee on the 23 October. Various reasons were put forward to account for the poor results among which were the optical fatigue of the operator, his uncomfortable position when on watch and general inexperience in A.S.V. technique. It was pointed out that comparatively little development work was being done on A.S.V. and the Telecommunications Research Establishment (T.R.E.) required a detailed indication of the direction in which the Mk II (1½ metre) L.R.A.S.V. was not satisfactory. After discussion, in which it was suggested that the limit on present lines had almost been reached and any substantial increase in range could possibly only be obtained by developing 10 c.m. A.S.V.(2), the Chairman directed the preparation of a full report on the whole subject.

ibid
encl. 35B.

Accordingly a memorandum was prepared by the Director of Radio giving recommendations for improvement and development of A.S.V. equipment to meet operational requirements. In this report, dated the 16 November, it was stated that with the present Mk II L.R.A.S.V. equipment the theoretical maximum performance could in practice be reached. This, on a fully surfaced submarine, was seven to eight miles from an aircraft at 1,500 feet altitude. Immediate steps were recommended to be taken to improve the general installation and maintenance but no hopes of increasing the optimum range were held out except as follows:-

ibid
encl. 36B.

- (1) An increase in the transmitter power to 100 Kws. which should provide a 30% increase in range on the existing Mk II (1½ metre) equipment but delivery in quantity of this high powered transmitter could not be effected before 9 months.
- (2) A drop in wave length to 50 c.m. should increase the range 100% if used with a 100 Kw. transmitter. Quantitative delivery of this 50 c.m. equipment was estimated at from nine months to one year from approval.
- (3) The development of 10 c.m. or 3 c.m. with plan position display (P.P.I.) would, it was estimated, give ranges of nine to twelve miles besides offering greater

-
- (1) Out of a total of 77 sightings of U-boats by all types of aircraft, 15 had been sighted by non-A.S.V. aircraft. Of the remaining 62 sightings, 49 were sighted visually by A.S.V. equipped aircraft before being detected by A.S.V. and only 13 were detected by A.S.V. before being seen visually.
 - (2) The United States had been supplied with the necessary information for production of 10 c.m. A.I. (Designed for night fighter interception). They had, in April 1941, tried out an A.I. set as an A.S.V. set and obtained satisfactory results. By August, production was commencing in both types for operational trials and experiments. In England, advanced experimental work was pursued so as to keep in touch with and if necessary guide American development. The quantity production of 10 c.m. A.S.V. was left in American hands. It had also been arranged that a Liberator should be fitted with American 10 c.m. A.S.V. at Boston and then brought to the United Kingdom for trials. Ref: S.I.C.6 of 9.8.41 in CC/S.7010/10/6 encl. 12A.

security against enemy interference. Quantitative delivery of 10 c.m. equipment should be possible in about nine months from approval.

ibid
encl. 36C.

Regarding the immediate steps to be taken, it was proposed to form an expert A.S.V. examination party to investigate the poor operational performance of Mk II A.S.V. in Coastal Command. This party would visit selected Coastal Command stations with particular reference to Maintenance, Training, Operational use and Installation.

ibid
encl. 40B.

The memorandum was considered at the 4th Air/Sea Interception meeting on the 20 November and the proposal for a visiting examination party, the recommendation to go ahead with the installation of 100 Kw transmitters and the hastening of 10 c.m. and 3 c.m. development was approved. The Expert A.S.V. Inspection Party spent the next six weeks touring Coastal Command stations and compiled a detailed report which was submitted at the 5th meeting of the Air/Sea Interception Committee on the 15 January 1942. A large number of recommendations were made in this report relative to the equipment, maintenance, training of operators, conditions of watch keeping and details of installation lay out in the aircraft. These contained no radical alterations but were put forward to improve the operational efficiency of the existing Mk II set, and as such were agreed to by the committee. During the next five months the continual supervision by this special party did improve the general standard of A.S.V. upkeep in the Command but the operational results were most disappointing. (1) The installation of 100 Kw transmitters, the provision of radio altimeters to facilitate A.S.V. approach for attack purposes at night or in low cloud by day (2), and the fundamental change over to 10 c.m. wave length (3) did not eventuate until much later in spite of having received the Committee's approval. Further evidence on these points is given in Chapter III (xiv).

ibid
encls. 44F
and 46C.
R.A.F. Signals
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Ch. V.

- | (1) Month | Total Sight-ings by A/U aircraft | Initial by visual | Average range | Initial by A.S.V. | Average range |
|-----------|----------------------------------|-------------------|---------------|-------------------|---------------|
| Aug 1941 | 28 | 22 | 2.5 miles | 6 | 4.7 miles |
| Sept | 39 | 32 | 3.25 | 7 | 4.7 |
| Oct | 28 | 25 | 4 | 3 | 5 |
| Nov | 12 | 11 | 5.2 | 1 | 5 |
| Dec | 17 | 13 | 3.5 | 4 | 8 |
| Jan 1942 | 6 | 4 | 4.5 | 2 | 4.75 |
| Feb | 12 | 11 | 3.2 | 1 | 7 |
| Mar | 10 | 8 | 3.2 | 2 | 5 |
| Apr | 19 | 15 | 6 | 4 | 7 |
| May | 33 | 32 | 5 | 1 | 5 |
- (2) The radio altimeter was a requirement not only for A.S.V. approach tactics in thick weather by day but was at high priority for torpedo attack at night using a flare technique and for the Leigh Searchlight aircraft in low level D.C. attacks at night on U-boats. Both forms of attack were under active development at this time.
- (3) It was not till May 1942 that, after comparative tests, it was decided to go ahead with 10 c.m. A.S.V. in preference to 50 c.m. Quantitative production was hoped for from American sources before the end of 1942 but could not eventuate in this country before February 1943.

(xi) The Genesis of A/U Patrols in the Bay of Biscay and Northern Transit Area

When No. 19 Group was created in February 1941 to carry on the air operations in the S.W. approaches, their strength was only sufficient to provide convoy escorts in the Irish Sea and to coastal convoys round Devon and Cornwall with occasional anti-shipping sweeps off the Biscay coast together with some night bombing of and mine-laying off Brest and Lorient. No harassing of the U-boat lines of passage through the Bay was possible. A further commitment during February and March were patrols to report on the cruiser "Hipper's" movements. This task became intensified from the 21 March by the appearance in the outer Bay of the "Scharnhorst" and "Gneisenau". After the arrival of the battlecruisers in Brest a series of watching patrols were maintained off the Brittany Peninsula with sweeps and patrols in the middle Bay area if photographic sorties failed to obtain confirmation of the continued presence in harbour of these ships.

These sweeps and patrols occasionally sighted U-boats⁽¹⁾ and by June 1941 several established patrols were dual purpose. When the scheme of watching patrols on Brest was revised and standardised early in July, it became practicable, with the augmented number of aircraft in the Group, to fly some purely A/U patrols. The immediate increase in the sightings of U-boats made it possible to design a series of standing patrols more accurately athwart the routes taken by U-boats proceeding to and from their Biscay bases. Such patrols were added to from time to time and by the 8 August amounted to sixteen crossover patrols. By the 12 September, twenty-three of these patrols were standardised and, together with A/U sweeps directed in collaboration with the Admiralty Submarine Tracking Room and ad hoc operations against located U-boats, formed a rising offensive. The much more frequent sightings enabled regular U-boat routes to be plotted⁽²⁾ and a schedule to be computed of their progress for the night and day periods on these routes. This latter was of importance because it enabled the patrols to be placed where most likely to sight U-boats during their daytime positions in the middle Bay area.

No Night attacks on U-boats

Planned operations against U-boats on transit (or in fact in any area) were limited to daytime action because, as yet, no method of accurate night attack was practicable.

(1)	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Aircraft sightings in the Bay.	1	3	5	9	5	13	14	11	4
Total U-boat traffic across the Bay.	21	29	22	39	47	59	55	60	78

- (2) At this period the U-boats were making their passages through the Bay on the surface day and night. They only dived when sighting aircraft. There were two main routes - one to the north westward for boats operating off Greenland and Iceland, the other to the west south westward for boats operating in the Azores to Morocco area. See Map II for the standard A/U patrols in September 1941.

No. 19 Group
O.R.B.

Coastal Command
Naval Staff A/U
File.
encls. 23, 25,
26 and 27.

Although long range Mark II A.S.V. had by now been fitted in all Whitley and Wellington aircraft the altimeters were insufficiently sensitive to permit an attack at less than 500 feet at night. This forbade the use of the Mark VII D.C. and, pending full production in Mark VIII D.Cs, the Whitley aircraft had been restricted to 500 lb. A/U bombs for nightwork but the over-riding reason for failure to attack by night lay in the difficulty of identifying the nature of an A.S.V. contact and in illuminating the target sufficiently to attack it. In volume II Appendix X is described the development of an airborne searchlight designed by Squadron Leader Leigh to solve both these problems but at this time the searchlight aircraft was still at the prototype stage and there was still doubt in the mind of the new A.O.C. in C. as to whether this or the Helmore Turbinlite was the best solution. It was not till November 1941 that the choice was unequivocally made and the Air Ministry was requested to contract for 36 sets of the Leigh Light for fitting in Wellington aircraft.(1)

Pending the arrival of this solution, the attempts to illuminate by flares were continued. For nearly a year this flare problem had baffled experiment and development. The insuperable difficulty was to provide a flare of high intensity lasting sufficiently long to allow of identification being established and an attack being made from below about 1,200 feet in the interests of accuracy yet above 600 feet because of the insensibility of the existing altimeters but delivered quick enough after ignition of the flare before the U-boat had time to dive.

C.C./S.7050/5

Part I

encls. 21A to 55B

The whole question of night attack was studied by a sub-Committee set up for the purpose which met at H.Q. Coastal Command on the 22 September and again on the 10 November. It was decided and confirmed in the main A/U Committee that:-

(a) Although the problem of suitable flares should be pursued, the real solution lay in the Leigh Light aircraft fitted with radio altimeters(2) and efficient exhaust flame dampers. These would permit of an unseen approach and immediate low level attack.

(b) To avoid duplication of weapons for different aircraft and restriction in type for night attack, all A/U aircraft by day or night should carry the maximum number of Mark VIII 250 lb. Depth Charges but priority must be given to the production of a pistol giving detonation at 25 feet depth.

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- (1) The only Wellington squadron in Coastal Command was No. 221 and they were accordingly designated as the first Leigh Light squadron. However, to satisfy demands for the rapid build up of air squadrons in the Middle East, this squadron was sent to the Mediterranean at the end of December 1941. The difficulty of providing any more Wellington aircraft further delayed the operational appearance of this all-important weapon.
- (2) The radio altimeter, in the process of being developed, being on an entirely different principle from the existing barometric pressure type, was much more sensitive and was unaffected by changing weather conditions during a sortie.

(c) To continue research in the provision of a standard low level sight and, on a lower priority, to develop a flare technique of attack using existing types of medium level bomb sights and a heavy A/U bomb.

(d) Until the arrival of the Leigh Light with its concentrated beam no attempt should be made to operate against U-boats near a convoy at night on account of the risk of illuminating the ships by flares.

These decisions cleared up a number of restrictions and anomalies hitherto in force and permitted Coastal Command to train for a single object - low level attack with a standard weapon on all occasions. One Squadron - No. 502 Whitleys - was detached to St. Eval to augment the day A/U effort in the Bay area and to carry out a limited amount of night flying for the development of night attack by the aid of flares.

The effect of the initial offensive in the Bay

From June 1941, when the initial offensive may be said to have started, the sightings and attacks on U-boats in the Bay area were, up to December, all effected during daylight hours. Like the attacks made on U-boats sighted on the convoy routes they were largely innocuous. However, under the influence of the new attack procedure they became slowly more accurate and from September were mostly made on U-boats in the Class A category. Between the 1 September and the 30 November, 31 sightings were obtained during the 3600 effective flying hours in the operational area. Five of the 28 attacks carried out in this period were assessed as likely to have caused damage sufficiently serious to compel a return to base for repairs.⁽¹⁾ The general effect on the U-boat tactics of this rising day offensive became apparent in December. The sightings fell suddenly to four of which three were at night although only 176 hours of effective night flying was carried out as against 540 hours by day. It was plain that the U-boats on passage were diving during most of the daylight hours.⁽²⁾ The consequent retarded passage through the Bay meant that at least five days less could be spent in the operating area. This modest result was not to be despised but it did bring out in sharp relief the necessity for an efficient method of night attack before a really effective offensive could be launched.

Operations in the Northern Transit Area

After the climax in No. 18 Group's operations against the pocket battleship "Lutzow" in the middle of June 1941 routine tasks were resumed. These comprised reconnaissance off the Norwegian coast and both A/A and A/U protection to coastal convoys around Scotland. A few sorties were available to conduct intermittent sweeps and occasional

C.C.O.R.S.
Report No. 187.

C.C./S.7050/5
Part I encl. 55A
and Part II
encl. 4A.

- (1) U.81 was seriously damaged in the Bay on the 30 October by Hudson H/53 squadron. U.206 was sunk when outward bound in the Bay of Biscay on the 30 November by Whitley B/502 squadron and U.563 was seriously damaged and forced to return to Lorient by Whitley T/502 squadron on the 1 December. The increasing danger to U-boats from aircraft attack in the Bay of Biscay is noted by Admiral Donetz in the B. d U. War Diary.
- (2) Although no direct order to dive during daylight hours can be found in B. d U.'s War Diary or other German source, an examination of the logs of fifty U-boats crossing the Bay during this period establishes the fact that they were so doing from mid-November onwards.

Ref: Admiralty Historical Branch - Foreign Document Section.

No. 18 Group
O.R.B.

patrols against the newly commissioned U-boats outward bound north of Scotland from Norwegian and German ports.⁽¹⁾ In the latter half of June a few sightings were obtained to the southward of the Faeroe Islands but H.Q. Coastal Command considered that more regular patrols should be carried out to the north and westward of the Shetlands round which the U-boats had to pass. Accordingly on the 5 July four cross-over patrols were instituted in this area⁽²⁾ although intermittent sweeps were continued between Scotland and the Faeroes.

No sightings at all were obtained and on the 23 July a scheme of co-operation with our own Submarines was inaugurated to locate possible U-boat traffic round both Shetlands and Faeroe island. A diving patrol by our own submarines was established off the northeast corner of the Faeroes so that warning could be passed to them of any U-boats sighted by the air patrols off the Shetlands and a submerged attack be delivered as the U-boat made a landfall to pass round the Faeroes. Again no sightings were obtained by air or submarine and from the 11 August⁽³⁾ the Voe patrols were replaced by a closer spaced set of cross-over patrols covering the whole possible route round the Shetlands and Faeroes.⁽⁴⁾ After a week's continuous flying with no sightings it was thought that the U-boats might be approaching the northern point of the Faeroes more directly from the east. Accordingly, from the 18 August, another series was introduced to meet this possibility.⁽⁵⁾ Still no sightings resulted although persevered with until the 15 September. From the 16th an additional patrol was tried still further to the north of the Shetlands⁽⁶⁾ but in view of the continued failure to hit on the precise U-boat route the whole scheme was abandoned on the 26 September.

Coastal Command
Naval Staff Log.

The onset of winter conditions with bad flying weather, the lengthening nights and lack of aircraft to maintain a sustained effort caused the postponement of a further planned offensive in this transit area until the Spring of 1942.⁽⁷⁾

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- (1) It was known from the frequent D/F of U-boat W/T transmissions that many new U-boats were making this passage but the D/F positions were not sufficiently accurate to decide the precise route. Post war evidence establishes that the actual number of new U-boats making the outward journey were 6 in April, 7 in May, 15 in June, 14 in July, 16 in August, 9 in September, 5 in October, 9 in November and 7 in December.
 - (2) These patrols were called Voe A, B, C and D. (CC/G1/5/7/41). See Map III.
 - (3) 290 flying hours had been spent on these patrols since the 23 July.
 - (4) These were called Nose I to VI. (CC/G1/10/8/41). Up to 18 August 74 hours were flown.
 - (5) These were called Fate I to V. (CC/G1/17/8/41). Up to 15 September 88 hours were flown but shortage of long range aircraft made the cover intermittent.
 - (6) This was called Cast. (CC/G2/13/9/41). It was only flown on the 16 and 19 September.
 - (7) Over the whole Northern Transit area the effective flying hours from June to December inclusive were 2,168 resulting in ~~three~~^{nine} sightings and ~~seven~~^{seven} attacks.

(xii) Difficulties of long range aircraft meeting their convoys

Mention has been made in Volume II, Chapter VIII, Section (xx), in connection with the air co-operation round convoys, of the difficulty aircraft had in meeting the convoy they were detailed to escort. The convoy's position, particularly incoming shipping, could rarely be accurately predicted and air navigation was not an exact science despite painstaking efforts to obtain frequent and accurate wind measurements. Long range Mk. II A.S.V. was not yet fitted in many Sunderlands or in any of the few Catalinas in Coastal Command and the only other aid to locating the convoy was W/T homing. When the monthly sinkings in the Atlantic were at their worst, during March to June 1941, strict W/T and R/T silence had been imposed on all convoys and independently routed ships. However, even in May the Director of A/U Warfare had stated in an Admiralty Trade Protection meeting that he thought radio silence was defeating its own ends in that it resulted in many escorting aircraft never finding their flock and, even when met, the R/T silence hampered co-operation with the surface escorts. In this opinion he was backed up by the then A.O.C.-in-C. Sir Frederick Bowhill.

From June onwards an increasing number of Catalinas became available to provide escort further and further out into the Atlantic and the navigational problem of meeting convoys became proportionately more difficult. About 30% of such long range sorties during June and July failed to meet their convoys or independent ships and, although much useful work was done in sighting and keeping down U-boats in the neighbourhood of the convoys searched for, it was plainly not the carrying out of the appointed task of air escort.

Previous instructions on the meeting of convoys were reviewed and in August it was regularised that all aircraft on contacting their convoy or independent ship should make a signal to base giving the position as a bearing and distance from a pre-arranged datum point. If after two hours search a location had not been made the signal "Not met" was to be made. On receipt at base of a "Not met" signal the C. in C. Western Approaches decided whether or not the circumstances justified the convoy escort vessels breaking W/T silence to effect a meet. If it was decided to break W/T silence, the senior officer of the escorting vessels was ordered by W/T to transmit on 385 Kc/s at a specified time his call-sign and dashes of five second duration alternately for three minutes. The aircraft was similarly instructed to listen on this frequency at the specified time and to home on to the convoy by means of its D/F loop. The restrictions on R/T were relaxed when east of longitude 8°W and south of latitude 58½°N but anywhere to the westward it was only to be used in emergency. The onus of initiating R/T was placed on the Senior officer of the escorting vessels and guidance was given in Western Approaches Convoy Instructions as to when it could be used.

Weather conditions in the Atlantic naturally played a large part in failures to meet but W/T homing was acknowledged to be the most reliable means of ultimately ensuring a meeting. It depended, of course, on permission being granted to break W/T silence which was inevitably conditioned by the intensity of U-boat operations in areas within reach of air escort. The proportion of "Not met" sorties

A.M./S.88156/1/
Air encl. 17A.

No. 15 Group
Operational Instr.
Pages 29 and 30.

was slightly higher in August⁽¹⁾ and very much higher in September when U-boats inflicted increased shipping losses. It dropped again in October and November but rose in December and in January and February 1942 mainly on account of winter weather conditions.⁽²⁾

It was felt, however that the existing homing procedure left much to be desired. During April 1942 an alternative procedure was introduced whereby the aircraft sent its call-sign and the five second dashes on 385 Kc/s and the escort vessel or ship concerned took a bearing and transmitted it to the aircraft. This method was known as Procedure B and proved much superior in its results and entailed a minimum of W/T signalling from the convoy. A policy was agreed upon with the C. in C. Western approaches as follows:-

No. 15 Group
Operational
Instructions
Amendment No. 6

(a) When any convoy was being shadowed by Fock-Wulf aircraft or U-boats the homing procedure should in general always be employed.

(b) In the case of SL, OS, HG, OG and other southbound convoys which were not being shadowed the homing procedure should not be employed in normal circumstances when the convoy was south of latitude 52°N.

(c) In the case of trans-Atlantic convoys the homing procedure was to be used as a matter of routine.

(xiii) High frequency direction finding (HF/DF)

There remains one other development in the tactical war against the U-boats to be described. It was one which took sometime to come to fruition but it ultimately increased the effective co-operation of aircraft with surface craft in the protection of ocean convoys. This was HF/DF.

(1) <u>Month</u>	<u>Convoys escorted</u>	<u>Sorties which met</u>	<u>Not met</u>	
			<u>sorties</u>	<u>and Percentage</u>
June	40	147	45	23%
July	49	202	59	22½%
August	50	253	82	25%
September	47	227	116	34%
October	54	200	48	20%
November	47	103	27	21%
December	52	66	32	33%
1942				
January	51	62	28	31%
February	53	79	32	29%
March	52	103	24	19%
April	50	113	15	12%
May	53	169	21	11%
June	43	228	12	5%

Reference H.Q.C.C. O.R.S. records.

- (2) A.S.V. was, by this time, more generally fitted in the long range escort aircraft. The average range obtainable on a convoy (about 25 miles - C.C.T.M. No. 23), although of great assistance in the final location of a convoy, was not the solution when searching for it. The idea of equipping escort vessels with an A.S.V. beacon, which was being considered at the end of 1941, gave promise of much greater ranges but production of these did not eventuate until the latter half of 1942. Meanwhile W/T homing remained the only practical solution.

It was an essential part of the U-boat attack control scheme built up by Admiral Donetz that each U-boat contacting a convoy must report the fact by W/T to base in addition to numerous shadowing reports being made by the contact keeper. This meant that, prior to the attack, there was an increasing W/T traffic. These signals were of course D/Fed at shore bases but the range was such that this gave only an indication of which convoy was threatened. The ideal in view was the local D/Fing of these signals either by the surface or the air escorts to the threatened convoy which would provide bearings (and possibly distances) from the convoy accurate enough to detach forces to hunt individual U-boats within 30 miles or so of the convoy and so not only stifle their attack but destroy them.

HF/DF in Ships

In the summer of 1940 the Admiralty had sent into the Atlantic a merchant ship specially equipped with radio interception instruments to find out what radiations were emitted by U-boats. The operators in this ship had reported a very great deal of W/T signals to and from U-boats. This had started a determined drive to equip destroyer convoy escorts with HF/DF. From this point (late 1940) the delays in fitting were due to the difficulties in solving two technical problems.

- (a) The reduction to acceptable proportions of the errors caused by unfavourable siting of the equipment in destroyers after the best sites had been used for the equally important R.D.F.
- (b) The provision of reliable sense finding (Direction and distance).

AM/S.88156/1/Air
encl. 18A.

Admty.
C.B.04050(42)4
and (44) 9

In May 1941 the C. in C. Western Approaches had stated, at a Trade Protection meeting, that relatively low orders of accuracy in bearings were acceptable for escort duties and, as the above technical difficulties were being solved, fitting programmes were undertaken at full speed. The first convoy action in which any newly fitted destroyer took part was in August 1941.⁽¹⁾ However, the results from the few ships that were fitted during the remainder of 1941 did not give much encouragement. Gradually, as the new technique was learnt and applied, successes became more frequent and by April 1942 HF/DF was accepted as an essential part of the equipment of escort craft. It was still not yet fitted in all of them moreover the correct interpretation of these D/F bearings required specially trained personnel and this took time to train and expand. It was not till November 1942 that full advantage commenced to be taken of this valuable ally to R.D.F. Thereafter it proved indispensable for initiating counter attacks by surface craft and for directing the escort aircraft to attack U-boats shadowing at a distance.

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- (1) The destroyers concerned were the "Gurkha" and "Lance". From August 1941 convoy rescue ships were being fitted with HF/DF. These ships were allocated to convoys primarily for assistance to torpedoed ships. Their equipment with HF/DF was to compensate for the impracticability at that time of fitting both R.D.F. and HF/DF in ordinary escort vessels.

HF/DF in aircraft

CC/S.7010/10/6

encls. 12B and 21C

ibid

encls. 24C, 35B
and 40B.

ibid

encl. 46C

ibid

encl. 97C

CC/S.15,142

encl. 3A

ibid

encl. 19C

The question of D/Fing and homing on these U-boat signals with aircraft was taken up in August 1941 at the first meeting of the newly set up Air/Sea Interception Committee.(1) These problems were actively pursued during the next three months. It was decided not to proceed with the homing problem in view of the fact that this could only be hoped for on enemy medium frequencies (MF) and U-boats did not use this band with sufficient freedom to warrant further research. In November an allied committee was set up in the Admiralty working in close conjunction with Coastal Command. During December 1941, a Catalina was fitted with trial equipment for practical HF/DF tests at sea against U-boats. No results were obtained and improved but still interim type sets were designed in January 1942 for installation in six Catalinas, based at Sullom Voe and Pembroke Dock, whose duties brought them into U-boat signalling areas. However, technical delays in production and the fact that the U-boat offensive shifted to the American seaboard prevented any trial operations against enemy transmissions during the spring and summer of 1942. Even after the return of the U-boats to mid-Atlantic in August the production delays continued to holdup delivery of any of the sets contracted for and a depressing report on this subject was made at the September meeting of the committee. To cap everything the original Catalina with the experimental equipment was lost at sea during the month. New prototype sets were installed once more in a Catalina and a Sunderland which in October carried out successful though artificial trials against transmissions by H.M.S. St. Adrian. Once more faults appeared in the sets under construction and final dates for the earliest full scale production made it impossible to envisage any operational equipment of long range aircraft until after May 1943. By this time the U-boat pack attack method in the Atlantic had been decisively defeated and the requirement for airborne HF/DF lapsed. Contracts were cancelled and the project finally petered out.(2)

(xiv) The U-boat War on the trade routes - October and November 1941

During September the neutrality measures, which had been taken in the North Atlantic by the U.S.A. since the outbreak of war, took a more decided turn against the Axis powers. U.S. forces had occupied Iceland in July 1941 and a protected sea lane between that island and America was declared. In a world broadcast on the 11 September President Roosevelt stated that "From now on if German or Italian vessels of war enter these waters they do so at their own peril". From the middle of September the United States provided escorts for trans-Atlantic trade convoys when westward of longitude 26° west and, although

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- (1) At the 31st Meeting of the Interception Committee it was decided to form a new committee in order to deal exclusively with problems of air interception of surface vessels and submarines. This committee was formed on 23.7.41 and given the name of Air/Sea Interception under the chairmanship of the D.C.A.S. Membership included the A.O.C. in C. Coastal Command, certain Admiralty divisions, M.A.P. representatives and Air Ministry branches.
- (2) This subject is fully described in the ^{R.A.F.} Signals Monograph, ~~Narrative~~ Volume VI.

not at war, the U.S.N. Catalinas based in Iceland became available to operate against U-boats to the southwest of Iceland where they had been particularly active earlier in the month.

Even in the face of this stretching of neutrality to the extreme limits of non-belligerency Hitler reaffirmed to Admiral Raeder his previous order to avoid at all costs any incidents against U.S. forces. At the same time he insisted that U-boats should be sent into the Mediterranean to attack the British sea communications to North Africa and protect the Italian army's supply line.

Fuhrer
Conferences 1941
and B. d U.
War Diary

These directions resulted in the immediate despatch of six U-boats to the Eastern Mediterranean⁽¹⁾ and the withdrawal of the North Atlantic U-boats to positions to the westward of Ireland. The large 750 ton U-boats continued to be employed off the west coast of Africa and, with the aid of supply ships, their operations extended nearly as far south as Capetown.

War Diary
of B. d U.

In October, Donetz noted that there was a marked increase in the extent westwards of British air escort and reconnaissance and that air attacks on U-boats in the Bay of Biscay were becoming more frequent.⁽²⁾ To deal with the latter he requested much more long range fighter support and to avoid the former the North Atlantic U-boats were re-disposed into the western half of the area and off Newfoundland. However, at this time two new demands were made upon B. d U. by the German High Command. One was the institution of U-boat patrols in the Faeroes area against a possible British expedition to Norway, the other was a standing requirement for U-boats to act as escorts to incoming blockade runners, auxiliary raiders and supply ships. Both were resisted in vain by B. d U. who foresaw the throttling of his Atlantic campaign against British shipping.⁽³⁾

War Diary
of B. d U.

On the 1 November, although there were 46 U-boats at sea in the Atlantic, only ten were operational near the North Atlantic trade route and six to the west of Gibraltar across the West African and Gibraltar trade route.⁽⁴⁾ Early in the month, four more boats were ordered into the Mediterranean and on the 13th, two of these succeeded in

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- (1) One was en route from a Biscay Port by the 17th, three more by the 24th and two at the end of September. All six had entered the Mediterranean by the 10 October.
 - (2) On the 30 October, U.81 was attacked and very seriously damaged by Hudson H/53 squadron and Catalina Z/209 squadron in the Bay of Biscay. Donetz records that he had not a single heavy fighter at his disposal to send out against the British aircraft.
 - (3) The October shipping losses in the Atlantic fell to 31 ships of 153,053 tons.
 - (4) Of the remaining 30 boats, 8 were to the westward of or returning from Freetown, 6 were engaged on escort duties, 4 were patrolling in the Faeroes area, 4 had just sailed from and 5 were returning to Biscay Ports while 3 were on their first passage out from Germany. Ref. War Diary of B. d U.

ibid

torpedoing H.M. Fleet Carrier "Ark Royal" just east of the Gibraltar Strait. Encouraged by this U-boat success and anxious to hamstring the British Army's sea communications, (1) the German High Command ordered another ten U-boats into the Mediterranean and required B. d U. to operate additional boats to the west of Gibraltar. The resulting dispositions brought operations in the North Atlantic to a stop while the sinking of two supply ships in the South Atlantic by the British Navy forced the recall of the large U-boats operating off West Africa. (2) By the 8 December there were only 27 U-boats at sea in the Atlantic. Twelve were operating to the west of Gibraltar and the remainder either returning to Biscay ports or detached on special missions. Twenty U-boats had, up to the end of November 1941, been ordered into the Mediterranean. Fifteen succeeded in making the passage. Of the remainder, one was sunk and one badly damaged en route in the Bay of Biscay by Whitley's B. and T. of No. 502 Sqdn. respectively, one had to return early with engine defects and two were forced to return damaged by night attacks in the Strait of Gibraltar by F.A.A. Swordfish aircraft.

ibid

Admiralty
C.B.04050/41(10)
pages 12 to 14
and
C.B.04050/41(11)
page 50

The co-operation between F.W. 200 aircraft and U-boats athwart the trade route to Gibraltar and the south Atlantic, which had commenced in July, continued to increase during August and September. The enemy had a shrewd estimate of the cycle of these convoys and, using this as a datum, directed intensive reconnaissance by F.W. 200 aircraft at the appropriate times to the west of Ireland and Gibraltar. As soon as a convoy was sighted by one of these aircraft, the German homing procedure as outlined in section (v) was carried out but reliefs to the initial sighter were rarely available so that consistent shadowing was seldom possible. However, successful co-operation was occasionally obtained resulting in a number of attacks on convoys using this route between July and October 1941. (3) Evasive routing theoretically difficult on this route, was in practice impossible and convoys had to accept almost certain attack. As usual, the actual pack attack tended to wait until air escort had ceased and to break off as soon as it was again forthcoming. In order to keep at extreme range from Fock Wulf bases the convoys were routed further and further to the westward but this meant an ever increasing gap between air cover provided from bases in the United Kingdom and that available from Gibraltar. (4) In an endeavour to counter the unwelcome

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- (1) The offensive against the Italians in Lybia was opened by the British Army on the 18 November.
 - (2) The November shipping losses in the Atlantic fell still further to only eleven ships of 55,168 tons.
 - (3) Merchant ships lost on this route numbered 20 in August and 23 in September. The convoys concerned were OG69 in July, SL81-OG71-OS4 in August, OG74-HG73-HG74 in September.
 - (4) No. 200 Group based at Gibraltar consisted at this time of No. 202 Squadron equipped with Catalina flying boats and a few Swordfish aircraft. The Group had in June 1941 been placed operationally under Coastal Command though up to October it was still virtually operated by the Vice Admiral Gibraltar. On the 4 October a Group Captain was appointed in command and a directive was issued to him placing No. 200 Group in the same position vis a vis Coastal Command headquarters as the other Groups and acting in co-operation with the Vice Admiral Gibraltar. Reference - IIK/24/102A encl. 20A.

attentions of the F.W. 200, convoys included, whenever possible, a catapult ship and, from mid-September, the auxiliary aircraft carrier H.M.S. Audacity(1) equipped with **Marlet** fighters.

During October and November the deteriorating weather which hampered the F.W. 200 reconnaissance, the enforced delay in sailing convoys on this route until escort craft reinforcements could be attached and the special efforts made by the enemy to pass U-boats into the Mediterranean combined to reduce losses in these convoys to a total of six vessels in October and nil in November.

(xv) Operations from Gibraltar

Following the appearance of U-boats on both sides of the Straits of Gibraltar and the attack in mid-November on H.M.S. Ark Royal, steps were taken to stiffen the air and naval defences at Gibraltar in an endeavour to prevent further U-boats from penetrating into the Mediterranean.

After consultation between the Admiralty and the A.O.C. in C. Coastal Command, a small mission of experts went to Gibraltar at the end of November to examine the extent of co-operation between the naval and air forces and to co-ordinate joint action.(2) It was found that, lacking a combined operations room and with their headquarters some distance apart, the liaison between the Navy and R.A.F. was not as close as it should be, neither had up-to-date procedure for convoy protection and joint action in U-boat hunting been assimilated from the Home Commands. A meeting with the Vice Admiral Gibraltar and the O.C. No. 200 Group was held in the Naval Base on the 29 November. It was decided that a properly constituted Area Combined Headquarters must be set up at an early date. It was agreed that the Home policy of conservation of air escort sorties should apply to the Gibraltar Command.(3) No escort would be provided for convoys in areas judged to be free of U-boats so as to be sure of more adequate support to those E. barred or in dangerous areas. An immediate plan of action was drawn up to deny access to the Mediterranean to the U-boats known to be lying to the westward of the Straits. For the execution of the plan, convoy HG 76 was delayed for 14 days so as to collect the maximum

H.Q.C.C.
Naval Staff
A/U File.
encl. 29A

ibid
encl. 29B

- (1) This ship was the former German merchant ship "Hannover" 5,537 tons. She had been taken in prize by a naval patrol in March 1940 and since reconstructed as the first auxiliary aircraft carrier. Her first operational trip was with convoy OG 74 in the latter half of September 1941.
- (2) The party consisted of the Director of the Admiralty Anti-submarine Division, Professor Blackett of the Operational Research Section and the Naval Staff Officer from H.Q.C.C. who had specialised in Air anti-U-boat operations (Commander D.V. Peyton, Dard R.N.).
- (3) This was especially desirable as, at this date, No. 202 Squadron was still the only squadron in No. 200 Group. It consisted of eight Catalinas, three Swordfish float planes and three Swordfish land planes loaned from the F.A.A. Between the 23 and 30 September, a detachment of three Hudsons of No. 233 sqdn. were operating in the Group. Early in October, dawn and dusk patrols by F.A.A. Swordfish and Fulmars were instituted east and west of the narrowest part of the Strait.

number of surface A/U craft and to utilise the whole of the air forces available. (1)

ibid.

The smaller surface craft were disposed between Tarifa and the coast of Africa. To the westward of this band were three sectors extending to the line Cape Spartel/Pointe Camarinal in which the destroyers patrolled. Over the western part of these sectors two or three Catalinas patrolled by day keeping in R/T contact with the destroyers. The poor performance of the short range A.S.V. carried by the flying boats precluded their employment during the dark hours, moreover there was no means of illuminating any contacts which might be made. The night effort was performed by F.A.A. Swordfish of No. 812 Squadron, who were equipped with reliable Mk II A.S.V. which, aided by good vision from open cockpits and using illuminating cartridges, enabled night attacks to be made. They maintained continuous night patrols between Cape Spartel and Cape Trafalgar. As a kind of long stop, an Admiralty Type 271 R.D.F. set was mounted above Europa Point to cover the narrows across to Ceuta. This plan was put into force on the 27 November.

These measures constituted the first co-ordinated plan to deny the passage of U-boats through the Strait of Gibraltar. Hitherto, between September and the 26 November, all the U-boats which sailed on this mission (thirteen in number) had succeeded in getting into the Mediterranean. Subsequent to the 27 November, the Gibraltar Defences started to have a deterrent effect. Enemy tactics were influenced to the extent that U-boats were forced by the outer ring of defences (air and surface patrols) to dive by day so far to the westward that any continuous submerged passage of the Strait was impossible. Surfacing during the night in the narrows was obligatory and it was here that the Swordfish night patrols had some success. U.96 and 558 were so damaged by these aircraft that they had to return to port. U.562 and 652 did, however, succeed in getting through. (2)

During the first half of December 1941, the defences were not so good as five more U-boats made the passage safely. A sixth boat - U.208 - ~~was sunk westward of the Strait on the night of the 11-12 by a convoy escort, (3) vanished from cause unknown. (3)~~

On the 14 December, the much delayed convoy HG 76 sailed and the scale of effort in the Straits fell. The waiting U-boats followed the convoy and the ensuing battle is described in the next section. Although the sailing of HG 76 reduced the surface forces at Gibraltar, the blocking plan

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- (1) For the operation there were, in addition to No. 202 Squadron, two Catalinas of No. 209 Squadron and nine Swordfish of No. 812 F.A.A. Squadron. The latter had been flown off H.M.S. Ark Royal before she sank. From the 1 December, the R.A.F. were re-inforced by a Hudson detachment from the United Kingdom.
 - (2) Of the remaining three which sailed in the latter half of November 1941, U.206 was sunk and U.563 seriously damaged by Whitleys of No. 502 Sqdn. in the Bay of Biscay. U.71 returned to port early owing to engine defects. Ref: War Diary of B. d U. for all U-boat details.
 - (3) These boats were U.372, 374, 375, 453 and 568. U.208, ~~also attempting the passage, was sunk just west of the Strait on the night of the 11-12 December by H.M.S. Bluebell who was escorting convoy OG 77. who left Brest on 3 December bound for the Mediterranean, was never heard of again.~~

H.Q.C.C. O.R.B.
and
CC/S.15055
encl. 130B

was continued with increased air availability. Under the pressure to build up the flying boat squadrons in the Far East, four Catalinas of No. 202 Squadron had been withdrawn for this assignment on the 8 December but in place of these, two Sunderlands of No. 10 Squadron and one of No. 201 Squadron were loaned and a detachment of seven Hudsons from No. 233 Squadron were sent to Gibraltar between the 1 and 4 of December.

U-boats continued to be sighted and some were attacked in the Straits for the remainder of December after which contacts ceased. During this period from the middle of the month it is known from German records that ten more U-boats were instructed to go into the Mediterranean. At the time, one of these (U.451) was known to have been sunk. This occurred on the night of the 21-22 December and was effected by a Swordfish of No. 812 Squadron in the westerly approaches to the narrows. It is confirmed from the War Diary of the Flag Officer U-boats that three others had to return damaged to Biscay ports and six succeeded in making the passage.⁽¹⁾

CC/S.15350
encls. 50A
to 63A

Acting on the reports made by the special mission, the re-organisation at Gibraltar was carried out during December by joint action between the Vice Admiral and the A.O.C. No. 19 Group who went out especially for this purpose. An Area Combined Headquarters was set up in the naval dockyard and, on the 17 December, Air Commodore S. P. Simpson took up the appointment as A.O.C. R.A.F. Gibraltar. No. 200 Group was disbanded and all R.A.F. flying at Gibraltar came under the control of the new A.O.C. who was directly responsible to the A.O.C.-in-C. Coastal Command. The A.C.H.Q. was, later, transferred to a tunnel in the Rock behind the dockyard.

(xvi) Convoy HG 76

It was known that, in addition to a number of U-boats awaiting their opportunity to rush the Straits of Gibraltar, there was a concentration lying to the westward in wait for the next homeward bound convoy. This convoy - HG 76 - was purposely delayed in the Gibraltar roads for a fortnight while suitable preparations were made to collect an extra strong escort and the operations described in the previous section were being conducted to close the Straits against U-boats. The aircraft establishment at Gibraltar had been strengthened by a detachment of Hudsons of No. 233 Squadron from the United Kingdom and more Swordfish of the Fleet Air Arm. The convoy sailed on the 14 December. It consisted of 32 merchant vessels with a double escort of surface craft

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- (1) The three damaged in the Strait and forced to return to port were U.432, 569 and 202. The attacks on them were made at night by Swordfish of No. 812 Sqdn. and took place in the case of the first two boats on the 15-16 Dec., and 19-20 Dec. for U.202. The six making a successful passage were U.74, 77, 83, 133, 573 and 577. They did so on nights between the 16-17 and 21-22 Dec. Up to the end of 1941, 26 U-boats had got clear into the Mediterranean. Of the other ten detailed, three had been sunk, six returned damaged to port and one put back early owing to engine trouble.

Subsequently, in the first week of January 1942, three more boats were detailed. Two succeeded in mid-January (U.73 and 561) and one (U.572) gave up the attempt on the 19th owing to the strength of the Strait defences. No more were detailed for this task until September 1942. Ref: War Diary of B. d U.

Admiralty
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Page 10

for the first two days and thereafter two sloops, three destroyers, seven corvettes and the auxiliary carrier "Audacity". It was fully intended that the convoy should be fought through the known concentration of U-boats to the southwest of Portugal.(1)

War Diary
of B. d U.

The convoy was reported at 2305 hours by two U-boats then entering the Straits on passage into the Mediterranean. Gibraltar based Swordfish aircraft sighted and attacked one on the beam of the convoy just before midnight on the 14 and again a few hours later astern of the convoy. The other was sighted and also attacked at 0537 hours on the 15th. These two U-boats then disengaged and continued their passage eastwards. During the 15 December, air escort to the convoy was provided by the Audacity's Martlets and Hudsons from Gibraltar between 0815 and 1855 hours but sighted no more U-boats.

No. 200 Group
December O.R.B.
and
B. d U. War Diary

However, one of the U-boat group waiting off Cape St. Vincent was sunk by H.M.A.S. Nestor during the day. At 1150 hours on the 16th, a F.W. 200 aircraft spotted the convoy although the enemy aircraft was not seen by the Catalina of No. 202 Squadron which escorted the ships from 1052 hours to 1930 hours. The first U-boat directed thither as a result of the Pock Wulf signals reported the convoy at 1731 hours on the 16th. Two others were close to it during the night but could not penetrate the escort screen. By daylight the convoy was out of air escort range from Gibraltar and dependent for this on the few Martlet aircraft carried in the "Audacity". Thereafter at least nine U-boats closed in and for the next four days a continuous battle was fought. The numerous attacks and counter attacks made by both sides resulted in the destruction of four U-boats, two F.W. 200 aircraft and the sinking of H.M. Ships "Stanley" and "Audacity" with severe damage to the "Stork" but only two merchant vessels were sunk. At 1054 hours on the 22 December the convoy was met in 4505 N x 2000 W, a distance of 750 miles from base, by Liberator "L" of No. 120 Squadron. A shadowing F.W. 200 was driven off by "L" and at 1245 hours a U-boat was sighted and attacked just after diving about 10 miles to the northward of the convoy. The relief aircraft, W/120 squadron, met the convoy at 1620 hours after having sighted and put under two U-boats to the northeast of the convoy. At 1940 hours another U-boat was sighted astern of the convoy but again it dived before an attack could be delivered. This air cover caused the remaining U-boats to lose touch with the convoy. It was not regained by dawn on the 23rd and, in view of the heavy U-boat losses already sustained with small prospect of further success, B. d U. abandoned the chase. No further attacks took place on the convoy which came under more continuous air cover from the 23rd until arrival in the United Kingdom.

No. 15 Group
December O.R.B.

War Diary
of B. d U.

Summary

The marked reductions in the shipping losses during the last three months of 1941 were thus mainly the result of German strategic decisions but the heavy casualties inflicted on the U-boats around Gibraltar convoys and on passage into the Mediterranean were an encouragement to our anti-submarine efforts and a correspondingly depressing factor to the enemy. In fact, the German Command realised that U-boat operations against adequately escorted shipping were rapidly becoming

(1) The escorts were under the command of Commander, afterwards Captain, F. J. Walker, R.N. in H.M.S. Stork, who was to become the most famous U-boat killer of the war.

less and less profitable. It was natural, therefore, that on the entry of the United States into the war, the U-boats should be directed against the soft spot confidently expected to be found on the American eastern seaboard.

(xvii) The situation in the Western Atlantic and the entry of the United States into the War at the end of 1941

At the end of 1941, the air situation in the North Western Atlantic was one of routine patrols and escorts to the trans-atlantic convoys. The Canadian Eastern Air Command (E.A.C.), with headquarters at Halifax, had under its control seven main stations. Four of these were in the Nova Scotia area and three in Newfoundland. The latter were formed into No. 1 Group with a headquarters established at St. John's, Newfoundland.⁽¹⁾ Also in Newfoundland was the United States air base at Argentia, consisting of two squadrons of naval flying boats and six U.S. Army Fortress aircraft.

Air patrols were carried out in the Canadian Coastal zone and escort was occasionally provided to the convoys on the North Atlantic route out to about 350 miles northeast of Newfoundland. A few U-boats had appeared in the latter half of 1941 in the eastern part of this area and two attacks had been made by aircraft in October. Neither inflicted any damage. However, all U-boats were withdrawn in November in connection with Hitler's orders to re-inforce the Mediterranean. South of the Canadian zone, shipping was of course running along the United States seaboard under peace-time conditions and only occasional air observation sorties were undertaken in the Sea Frontier areas.⁽²⁾

This absence of U-boat menace after October 1941 inevitably resulted in a falling standard of operational efficiency in the Canadian zone. The A.O.C.-in-C, Coastal Command drew the attention of the Director of Plans, Air Ministry to this undesirable state of affairs in a D.O. letter dated the 8 January 1942 in which evidence in support was quoted. Although current information and experience on A/U work had been

(1)	In Nova Scotia	Halifax Dartmouth	No. 5 Sqdn. - Re-arming with Cansos A. (Canadian built amphibian Catalinas). (No. 116 Sqdn. - Catalinas re-equipping with Cansos (Canadian built Catalinas). No. 11 Sqdn. - Hudsons. F.A.A. base - For servicing and repair of carrier borne aircraft and C.A.M. ship fighters.
	In Cape Breton Island	Yarmouth North Sydney Sydney	No. 119 Sqdn. - Bolinbrokes. No. 5 Sqdn. - detachment. No. 119 Sqdn. - detachment.
	In Newfoundland	Gander	No. 10 Sqdn. - Digbys.
		Botwood	No. 116 Sqdn. - detachment.
		Torbay	No. 11 Sqdn. - detachment.
		Argentia	U.S. Navy Catalinas and Mariners. U.S. Army Fortresses.

- (2) The Sea Frontier areas were organised by Admiral H. R. Stark U.S.N. when Chief of Naval Operations in July, 1941. Map I shows the location of these zones of command.

R.C.A.F.
NARRATIVE

C.C. S.17434
Part I
encls. 34A,
35A and 39A

sent over at frequent intervals it seemed to the A.O.C.-in-C. that the Eastern Air Command would be quite unable to cope when the expected re-deployment of U-boats took place. He was, he said, sending two experienced officers from his own staff⁽¹⁾ to try and get a proper system of combined operational headquarters established throughout the zone. The absence of unified control in the North Atlantic was again referred to and the A.O.C.-in-C. requested that his earlier suggestion of a combined committee be re-opened in order to standardise and control all A/U measures in this vital area.

ibid
encl. 36A

The Air Ministry reply gave the information that the Canadian representatives in London were aware of the situation and were doing all in their power to initiate remedies. They would welcome a visit to Canada by trained crews in addition to the advice on staff organisation. Regarding the question of unified control, it was recognised in London that this was the only logical solution but there were many political difficulties inherent in a question affecting American, Canadian and United Kingdom units.

The entry of the United States into the War

Resulting from the unprovoked attack on Pearl Harbour by the Japanese on the 7 December, the United States declared war on Japan on the 8th and against the other Axis Powers on the 11 December.

B. d U.
War Diary

At this time the U-boat operational fleet numbered 86.⁽²⁾ Of these, 18 were in the Mediterranean, 12 were grouped to the west of Spain and Gibraltar, 6 were on detached missions in the Atlantic, 9 were returning from sea to base and the remainder were in harbour. Now that unrestricted action against the United States and the Pan-American zone was permitted B. d U. proposed the immediate use of twelve Type IX (750 ton) U-boats for operations on the American coast observing that these large boats were unsuitable for the Mediterranean and Gibraltar areas. However, in view of the considered importance of these latter areas, the High Command would only release 6 Type IX boats for the American Seaboard. It was planned to operate them between Halifax and New York leaving French ports between the 16 and 25 December. B. d U. bitterly regretted that more were not allocated so as to "strike a spectacular blow on this unprotected coastline".

Following the costly attack on H.G. 76 and the losses in penetrating the Straits of Gibraltar, B. d U. summed up the situation at the end of December and made certain proposals.

ibid

(a) The British had detected the complete withdrawal of U-boats from the Atlantic trade routes thereby being able to reduce the escorts and strengthen their defences in the Gibraltar and Mediterranean areas.⁽³⁾

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- (1) Wing Commanders P. F. Canning and S. R. Gibbs.
 - (2) A further 150 U-boats were in commission but were still on test or working up to war efficiency in the Baltic.
 - (3) The December shipping losses in the Atlantic were ~~ten~~ ~~thirteen~~ ships of 52,206 tons though the global total was swelled for the month by ~~eight~~ ~~eight~~ ships in the Mediterranean of 31,964 tons and ~~eight~~ ~~eight~~ of 39,900 tons in the Far East by Japanese U-boats.

SECRET

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(b) There were 23 U-boats in the Mediterranean. (1) Three had been lost in making the passage, six more had been forced to turn back with bomb damage and four had been sunk inside the Mediterranean.

(c) Seven U-boats had been lost in operations to the west of Gibraltar and Spain against Gibraltar/United Kingdom convoys.

(d) To make good these losses and maintain the numbers required in these areas by the Naval War Staff would necessitate at least 17 more for the Mediterranean and 10 for the area west of Gibraltar.

He therefore requested an investigation as to whether the value of these operations justified the high losses or the detraction from the main task of the West Atlantic offensive against Allied trade. He appended the following proposals:-

- (1) To send only two or three more boats into the Mediterranean which now contained all the most experienced U-boat personnel.
- (2) To maintain only three boats to the west of Gibraltar observing that it was useless to continue full scale operations in an area so heavily defended.
- (3) To withdraw the other eight boats to an area^a around the Azores and, together with the six en route to America, re-open the Atlantic offensive with sustained operations on the American coast.
- (4) To send one U-boat into the North Atlantic with orders to make dummy W/T traffic signals in order to give the impression of a re-distribution in that area.

These proposals were approved but, on Hitler's instructions, the Naval War Staff insisted that at least three boats must be provided for the protection of the Norwegian coast between Bergen and Trondheim and a patrol maintained in the Faeroes area against a possible British expedition. Such was the position in the opening days of 1942.

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- (1) The Mediterranean German and Italian U-boats had sunk three merchant vessels in September, two in October, one in November together with H.M. ships, Barham, Ark Royal and Parramatta and five in December in addition to H.M. Ships Galatea and Salvia.

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CHAPTER III

THE U-BOAT WAR SHIFTS TO THE COASTS OF AMERICA -
JANUARY TO JULY 1942

(i) Introduction

The six large 740 ton U-boats, which left Biscayan ports between the 18 and 30 December, 1941, were directed to the Nova Scotia area with orders to penetrate the northern end of the United States coastal route. They arrived in the second week of January, 1942 and scored immediate successes, the first merchant ship being sunk on the 12 January about 180 miles south of Halifax. These U-boats and their successors, working their way down the American coast, found exactly the soft spot in the Allied defences that Admiral Donetz was looking for. The morale of the U-boats crews, which had been diminishing progressively with the increasingly effective counter measures by surface escorts and the harassing tactics of Coastal Command aircraft in late 1941, now rose under the stimulating conditions of defenceless shipping on the American Eastern Seaboard. The German problem at this time was not so much one of U-boat construction but the manning of them with confident crews and it was most unfortunate that the morale which was falling at the end of 1941 should have had the opportunity to recover. The demands of the war in the Pacific and commitments in transatlantic escort contributed to the American lack of preparedness for the U-boat offensive on the Atlantic Seaboard. The forces available to counter these enemy activities were untrained and inexperienced. With the limited number of anti-submarine craft, both surface and air, it was impossible to start a convoy system and the long coastwise route could only be sparsely covered by patrol. By the end of the month 40 ships of 230,000 tons had been sunk between Newfoundland and New York. (1)

The concentration of the U-boat offensive in the subsequent months on the American Atlantic seaboard resulted in the virtual absence of attacks on the North Atlantic trade route and to that extent relieved the pressure on British surface (2) and air escorts and air sweeps over such shipping. This permitted increasing air attention being given to the U-boat transit areas in the Bay of Biscay and round the Shetland islands not only to harass the U-boats in the only areas within our reach but to slow down their passage and thus curtail the time available for active operations on the American Coast. This was the only means whereby we could mitigate the severity of shipping losses until the United States could develop adequate coastal trade protection.

(ii) Dispositions and plans made by B. d U. and the German Naval Command

Before describing the transit area offensives, it is proposed to narrate the course of the U-boat war on shipping

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- (1) The losses for January 1942 from U-boat action were augmented by the sinking of a further 7 ships of 42,000 tons in other parts of the North Atlantic, one ship in the Arctic and 14 ships of 50,000 tons in the Pacific from Japanese U-boats. In all, the total was 62 ships of 327,357 tons. For Allied Shipping losses during 1942 due to U-boat action see Appendix IV.
 - (2) In February, 24 anti-submarine trawlers and 10 corvettes were loaned from the Royal Navy for service on the American eastern seaboard. See Section (iv).

War Diary of
B. d U.

ibid

off the American coast. The despatch of the six type IX 740 ton U-boats to the Canadian-American Coast was in the nature of an armed reconnaissance. Of the other U-boats at sea in the Atlantic at this time, six type VII 500 ton boats were patrolling between the Azores and Gibraltar, five were scattered in purely scouting positions to the west of the British Isles and five new boats, on their first war cruise, were rounding the Shetlands and Faeroes en route for the Bay Ports. (1) By the middle of January, the W/T reports from the first six boats on the American coast were so encouraging that Admiral Donetz ordered the immediate recall of all U-boats from the west of the British Isles and, after servicing in the Bay ports, their despatch to the new area. Three of the Azores group, all 500 ton boats, were diverted to the Nova Scotia/New York area and five 740 ton boats from Lorient were sailed to operate in the Aruba - Curacao - Trinidad area with special emphasis on the oil tanker shipping. Further re-inforcement of the Mediterranean area was cancelled. By the end of February it was found quite effective to operate the type VII 500 tonners in coastal waters down to Cape Hatteras but their limiting factor was fuel endurance. Orders were therefore given to any 740 ton boats which had quickly expended their torpedoes, to transfer surplus fuel to those 500 tonners which still had torpedoes remaining before themselves returning. (2) Apart from the relatively few Type IX boats available and the fuel limitations of the Type VII there was another factor which hampered Donetz in his full exploitation of this profitable area. Hitler was still obsessed with the danger of a British invasion of Norway and, in addition to the concentration of heavy ships planned for Norwegian waters, insisted on the maintenance until further orders of a protective screen of U-boats to the east and southeast of Iceland and the permanent basing of at least four U-boats in Trondheim and Bergen. From the 1 March, 24 U-boats were thus immobilised out of the operational total of 80 boats in the Atlantic Command. (3) This was noted by Admiral Donetz in his log as most regrettable as the maintenance of this force had to be done with U-boats otherwise available for the American area.

In partial compensation he decided to press on with arrangements to refuel U-boats actually in areas off the American coast. The initial scheme of transferring fuel between operational boats was proving difficult in the prevalent adverse weather conditions. However, on the 14 March, the ex-Turkish 1,000 ton boat - UA - sailed from Lorient to act as a refuelling tanker. During the next

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- (1) During December 1941, 21 new U-boats had been commissioned and 14 sailed on their first war cruise after completion of training exercises. On the 1 January, 1942, there was a total of 249 U-boats in commission. Of these, 91 were operational (64 based in the Atlantic - 23 in the Mediterranean - 4 in the Arctic), 100 were brand new boats on test and exercises in the Baltic, and 58 U-boats formed the permanent training force for new personnel. See Appendix II for the rate of growth of the U-boat fleet.
 - (2) During February, an average of 7 boats were operating off the eastern seaboard between Halifax and Charleston, 2 boats off Florida and 3 in the Caribbean Sea. They sank 70 ships (including 23 tankers) of 417,000 tons off the American coast. Only 2 ships were sunk in the rest of the Atlantic. These losses were the highest monthly total since the outbreak of war.
 - (3) On the 1 March there were 111 operational U-boats - 80 Atlantic, 21 Mediterranean and 10 Arctic.

month she refuelled and provisioned three 500 ton U-boats in the western area. On the 29 March, U-459, a 1,600 ton type XIV boat fitted out as a supply tanker sailed from Heligoland. During her subsequent cruise in American waters she supplied fuel and provisions to 13 U-boats in their operational areas thus adding 15 days to their effective time over there and thereby increasing the endurance of a 500 ton U-boat at sea from an average of 47 days to 62 days, which was equivalent to the normal cruise of a 740 tonner. (1)

(iii) Steps taken to combat the U-boats operating off the American seaboard

The entrance of the United States into the war did not result in any change in air policy in the Western Atlantic beyond a slight increase in the coastal flying and the linking of the Eastern Sea Frontier and the Canadian E.A.C. headquarters on a twenty-four hour communication watch basis. The first U-boat attacks were on the Canadian seaboard and developed from the 12 January, 1942, quickly spreading down into the Eastern Sea Frontier area. The U-boats avoided the North Atlantic convoys which were well defended by surface and air escort and attacked the independent shipping to the southeast of Newfoundland and Nova Scotia which suffered severely. During January the R.C.A.F. air patrols sighted and attacked four U-boats but no damage was inflicted on any of them.

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For the next three months the main U-boat offensive was concentrated in the Eastern Sea Frontier and Caribbean Sea Frontier West. The forces available to combat these enemy activities were relatively untrained and inexperienced. With the limited number of anti-submarine craft, both surface and air, at its disposal the U.S. Navy was unable to start convoying coastal shipping immediately. Instead, the attempt was made during the first four months of 1942, to cover the long coastal route by patrols. These produced a number of attacks on U-boats but failed to prevent extremely heavy losses of shipping sailing unescorted along the coast. (2)

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In January, the Commander of the Eastern Sea Frontier had few naval planes at his disposal capable of searching far out to sea. (3) Offshore air patrol was therefore undertaken by the Army Air Force's First Bomber Command. Three short range bombers at each of three Army bases in the Frontier area made two daylight sweeps every twenty-four hours. That was all. During the next two months, re-inforcements of both Army and Navy aircraft were fed into this vital area where unprecedented sinkings were taking place and by the 1 April there were 84 Army and 86 Navy aircraft operating from eighteen bases along the Eastern Sea Frontier. Both the Navy and Army squadrons were equally inexperienced in A/U warfare and although co-operation was secured in theory there were many honest differences of opinion between the Army and

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- (1) This meant a great deal to U-boat Command planning as there were at this time 90 Type VII 500 ton U-boats in the front line as opposed to only 29 of the Type IX 740 ton boats.
 - (2) For details of shipping losses see Appendices IV and XXXV.
 - (3) In January 1942, the following were the dispositions of the U.S. Navy Air F/B Squadrons in the Western Atlantic: Two at Argentia (N.F.), one at Norfolk (Va.), one split between Jacksonville and Key West (Florida) and one split between San Juan (Puerto Rico) and Trinidad. One naval Hudson Squadron was based at Bermuda.

Navy commanders in the frontier areas which kept alive the basic rivalry between the two Services and resulted in a continual contest for control of anti-submarine air forces. No coastal convoys had yet been started and the loose system of air patrols allowed much unco-ordinated haphazard flying with the U-boats always one or two jumps ahead. Sightings of them were obtained but the attacks were, with two exceptions, wild and inaccurate.⁽¹⁾ Much the same conditions had obtained earlier in the War over on the eastern side of the Atlantic and similar correctives were applied in this new theatre. Both the Admiralty and Air Ministry gave what help they could. Captain G.E. Creasy (Director of A/S Warfare) and Air Vice Marshal G.R. Bromet (A.O.C. No.19 Group Coastal Command) gave their experienced advice in Washington and New York on how best to create adequate surface and air forces co-operating in standardised A/U measures in accordance with a common A/U doctrine. The two R.A.F. wing commanders advising on combined operation procedure in Canada were moved to the United States and sent to various headquarters to influence and familiarise American authorities with the type of operational control evolved successfully in the U-boat war on the eastern side of the Atlantic. Further assistance was provided by the loan of an Operational Research expert and a Flying Control officer.

C.C.
S.17434 Part I
Encls. 42A, 44A
and 53A

On the 2nd March, an Anti-submarine Warfare Unit (Asdevlant) was set up in Boston for analysis purposes. Closely integrated with it was a civilian scientist Operational Research Group (Asworg).⁽²⁾ Standard A/U doctrine was laid down and attack methods were regularised. In April, the head of Asdevlant in Boston - Captain W.D. Baker U.S.N. - was directed by Cominch to set up an A/U Section in Washington to be responsible for material, supply, development and personnel training.

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(iv) The first coastal convoys

It had been realized during the first months of 1942, that convoying was the basic solution to the heavy losses off the Atlantic coast. To help provide the necessary escorts, twenty-four British A/S trawlers were allocated for service on the American coast and ten British corvettes were turned over to the U.S. Navy. Further, the whole system of trans-atlantic escort was recast and all escort forces (U.S. Navy, Royal Canadian Navy and Royal Navy) were pooled in a single cross-Atlantic convoy scheme. This resulted in a certain economy and released a limited number of U.S. destroyers. With the forces thus available and with the increased production of anti-submarine vessels in the United States it became possible in May to commence coastal convoys in the Eastern Sea Frontier section of the coast.⁽³⁾

ibid

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- (1) In March, some U-boats had filtered back into the Canadian zone. Three attacks during the month by Canadian aircraft were indecisive but aircraft of No.82 U.S. Naval Hudson Squadron, operating from Argentia, succeeded in sinking U-656 and U-503 off the southeast corner of Newfoundland on the 1 and 15 of March respectively.
 - (2) The corresponding Army Air training and research centre for anti-submarine warfare was not set up until June, 1942 when the War Department created the Sea search Attack and Development Unit (SADU) at Langley Field, Virginia.
 - (3) On the 15 May, the Convoy and Routing Section under the Chief of Naval Operations became another section of Cominch's headquarters at Washington.

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The effect was immediate. The sinkings in the Eastern Sea Frontier zone fell as the U-boats shifted south to easier hunting grounds in the Gulf of Mexico, Panama and Caribbean zones but in these areas their depredations against the still unescorted traffic resulted in a new high level in total shipping losses. Thus the process was commenced of eliminating soft spots one by one, often with the painful result of seeing shipping losses rise proportionately in neighbouring areas as the U-boats followed the line of least resistance. Not the least of the reasons for the slow growth in overall protective measures were the results of the inevitable division of the vast area into Sea Frontier zones.⁽¹⁾ Each commander tended to become a local rajah with his own ideas on how to conduct operations, his own local difference of opinion with the Army air authorities and to maintain a jealous hold on any forces allocated to him isolated as he was at first with indifferent operational communications with his neighbours.

(v) German plans in view of the growing strength of American defences

Fuehrer
Conference
13 and 14 May
1942

During May, Hitler had modified his opinion regarding the imminence of an invasion of Norway and the 20 U-boats employed on protective patrols were transferred to the Arctic Command for use in operations against the British convoys to and from North Russia. With the exception of the 20 U-boats in the Mediterranean, Admiral Donetz could now employ the growing operational fleet in American waters. The daily numbers of U-boats at sea in the Atlantic rose from 22 in January to 58 in May. Between 30 and 40 of these were always on the long transatlantic passage route in order to maintain 10 to 15 boats permanently operating between Boston and Trinidad. In support of this policy and in spite of the long journey entailed, the results were considered highly satisfactory. Donetz, in his report to Hitler quoted figures for Allied tonnage sunk per U-boat per day at sea in the Atlantic which had risen from 209 tons in January to 412 tons by the end of April and were even higher in May. German losses in this area averaged less than two U-boats per month. He intended to continue operations in American waters as long as they were so profitable but warned that the day was not far distant when the Americans would organise coastal convoys with adequate escort and develop efficient air defence. If and when the coastal areas became unprofitable, he intended to resume warfare against the North Atlantic, convoys with the much larger number of U-boats than had been available in 1941. In the latter half of 1941 the most difficult part of this warfare had been the location of ocean convoys but, he said,

(1) Number of ships sunk in the various American Sea Frontiers - Jan. to July 1942.

Month	Eastern Sea	Bermuda	Gulf Sea	Panama Sea	Caribbean	Brazilian
Jan.	14	2	nil	nil	nil	nil
Feb.	18	4	4	1	23	nil
Mar.	31	13	3	nil	17	nil
Apr.	25	12	3	nil	13	3
May	8	13	42	2	36	2
June	13	15	22	12	35	2
July	5	3	17	1	20	nil

ibid

the increased numbers of boats at sea would make the task easier. At the same time he pressed for better air reconnaissance equipped with more efficiently manned and longer ranged aircraft. Admiral Raeder, in laying this report before Hitler on the 14 May, observed that when the present Air Ministry had been established there was an excellent naval air force but it had since been stifled. Hitler approved the U-boat report but remarked that it was impossible to build up a naval reconnaissance force during this war.

The U-boat successes for May proved to be easily the best so far attained and, during the first half of June, Donetz continued his single minded policy against the American coast. Two more tanker U-boats came into service and three Type VII boats laid mines in Boston, Delaware and Chesapeake Bays. Mindful of his U-boats' reports just commencing to stress the more difficult conditions off the American seaboard, Donetz decided, in the middle of the month, to re-open the offensive against the Gibraltar convoys and to use the F.W. aircraft for location purposes. Convoy H.G.84 was so picked up, the U-boat group was homed on and five merchant ships were sunk. Further U-boat success was hampered by the British air escort and for this reason the attack was broken off early. On the 21 June, Hitler once again intervened in the prosecution of the U-boat war. This time he ordered an operational group of U-boats to be held at readiness against a possible Allied landing in Madeira or the Azores. Donetz protested in vain that this was contrary to the express objective "which is to sink merchant ships quickly where they can be found now". He pointed out that such diversions produced no worth while return and, together with the hold ups in commissioning new U-boats caused by the shortage of dockyard workers, would result in fewer U-boats being in the profitable areas with a consequent drop in the merchant ship sinking figures. He requested Admiral Raeder to inform Hitler on these points. However, the sinking figures for June were, to the U-boat Command's surprise, well up to the estimated May figure. This was mainly owing to some boats on their way out to the Caribbean area coming by chance on a stream of independently routed ships in the open sea.

Although Admiral Donetz was already thinking in terms of fresh operational areas, it was not because of casualties to his U-boats but the increasing extent and density of air cover off the American coast was seriously restricting their mobility and freedom of action. That this would inevitably lead to heavier casualties he clearly foresaw but up to this time neither surface nor aircraft attacks had seriously incommoded the U-boats themselves off the American seaboard. During the first four months of 1942, there was a monthly average of 12 air and 20 ship attacks on U-boats rising to 45 and 60 respectively during June. The first sinking of a U-boat off the American coast did not occur until the 14 April while the first successful air attack in these waters was not till the 30 June. (1)

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- (1) On the 14 April, the U.S. destroyer Roper sank U-85 off Cape Hatteras. Two more U-boats were sunk by surface craft, one on the 9 May near Cape Hatteras and the other on the 13 June in the Gulf Sea Frontier, before the air success by a Catalina of No. 74 U.S.N. Squadron who sank U-158 off Bermuda. Thus during nearly six months of operations only six U-boats were accounted for off the Canadian and American seaboard.

(vi) Extension of the convoy system

ibid

During June the total shipping losses in American waters continued to be just as high. In spite of a marked improvement in the Gulf Sea Frontier, due to the special efforts of the newly appointed commander, (1) losses increased again in the Panama and Caribbean zones. In July the convoy system was greatly extended and the Convoy and Routing Section at Washington assumed full responsibility for all merchant shipping and troop convoys in the U.S. Strategic Area. Convoys in the southern frontiers now ran between Trinidad and Key West via Curacao, between Panama and Guantanamo (Cuba) and in the Gulf of Mexico. There was still however, a large amount of shipping out of convoy in the Gulf Sea and Caribbean zones but the corner had at last been turned, for the total losses in the U.S. coastal areas showed a substantial fall, being in fact less than half those recorded for June. (2)

The convoy system with adequate surface and air escorts was primarily responsible for this welcome change. Contributory also was the improved general air coverage in the Eastern Sea, Gulf Sea and Panama Sea Frontiers by more numerous and better equipped aircraft conforming to the tactics developed and standardised in the anti-submarine research centres at Boston and Langley West. During July, over 100 attacks were delivered in American Sea Frontiers. Three U-boats were sunk, one by air attack and two shared between air and surface units.

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(vii) Air equipment in U.S. aircraft

The weapons used by the U.S. Air Services were standardised in two types of depth bomb - the 350 lb. Mark 17 and the 650 lb. Mark 29. During the first half of 1942, all depth bombs were filled with T.N.T. and fuze to explode at 50 feet depth. Later in the year, Torpex filling was introduced for the Mark 17. By the end of 1942, the 25 foot depth setting was universal and depth bombs were made with a flat nose to avoid excessive ricochetting and to limit the carry forward under water after entry.

The larger types of American aircraft were fitted with metric A.S.V. during this period. When the Army Air development Unit (SADU) was set up at Langley Field in June, 1942, trials with centimetric A.S.V. were conducted. From these experiments a 10 centimetre set was developed and installed during the autumn in the Liberator aircraft forming the first Army Anti-submarine squadron. (3)

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- (1) The new commander was Rear-Admiral J.L. Kauffman. Since the 23 December 1941, he had been commandant of the U.S. Naval Operating Base at Reykjavik. He brought to the Gulf Sea Frontier much experience of U-boat warfare round Iceland and an intimate knowledge of the air co-operation in those waters with the R.A.F. Coastal Command. His immediate application of this experience resulted on the 13 June, in the destruction of U-157 after a combined hunt by surface and aircraft.
 - (2) 48 ships of 212,000 tons as opposed to 101 ships of 528,000 tons.
 - (3) This subject is expanded in Chapter XII. The sets were known as SCR-517 and SCR-717. One Liberator aircraft fitted with the first 10 centimetre set using a plan position indicator (P.P.I.) was sent over to Northern Ireland in May for experimental trials there. This was the Liberator mentioned in Section (XIV) later in this chapter. 10 centimetre A.S.V. was not fitted in U.S. Navy aircraft until March, 1943.

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Regarding the supply of aircraft, the U.S. Navy received all production of seaplanes while the Army Air Force controlled almost the entire supply of landbased aircraft. The latter had never expected to include anti-submarine warfare amongst its duties. Arising out of the claims of the Navy to landbased aircraft, General Marshall, the Army Chief of Staff, consented on the 7 July, to a re-allocation of production that promised the Navy a fair share of Liberators and other long range bomber types. For some further months, however, the landplanes and seaplanes continued to be under separate services.⁽¹⁾ Thus the air coverage was still below possible effectiveness because the two services had different communication systems and lacked a central command organization, moreover each Sea Frontier held fast to what it had instead of sending aircraft where the need might be greater.⁽²⁾

(viii) The Canadian Coastal area

R.C.A.F.
narrative

Turning to the Canadian zone, the R.C.A.F. had, since March, opened up new stations, expanded squadrons, re-equipped with up-to-date aircraft and were carrying out the fitment of metric A.S.V. In Newfoundland, No. 1 Group with the American squadrons at Argentia were concerned with the routine escort to transatlantic convoys to the eastward. U-boats were avoiding these and few sightings were obtained. The squadrons stationed in Cape Breton Island and Nova Scotia maintained air patrols in the coastal zone and consequently had better opportunities for attack as single U-boats were constantly probing these defences for a soft spot. After the first two disastrous months of the year when 44 ships were sunk in Canadian waters, the flood of U-boats swept southward and from March to August comparatively few operated north of Boston. However, they kept the Canadian forces fully extended in their coastal zone and exacted a steady average of six merchant ships per month between the 1 March and 31 July.⁽³⁾ During April, May and June a total

- (1) For example at the end of July, 1942, the Army had 141 aircraft in the Eastern Sea Frontier and the Navy 178 seaplanes. The total number of aircraft engaged in anti-submarine work in all frontiers was 580.
- (2) As a solution, General Marshall created the 1st Anti-submarine Army Air Command in October, 1942, to absorb those elements of the First Bomber Command engaged in the war against U-boats. The aircraft, when detailed to specific areas, were under the operational control of the naval sea frontier commanders but the allocation was controlled by the War Department in order to concentrate them in the most dangerous areas. The C.-in-C. Navy (Cominch) had no intention of permanently sharing with the Army what he considered a naval responsibility i.e. the protection of shipping. So, as fast as the Navy obtained landbased aircraft and trained pilots, they were moved into the Sea Frontiers to relieve the Army Air Force of this special duty.
- (3) Number and tonnage of ships sunk in the Canadian Coastal Zone.

January 1942	24	124,042 tons
February	20	121,539 tons
March	9	50,977 tons
April	5	20,572 tons
May	7 (of which 2 were in the St. Lawrence)	24,706 tons
June	4	20,074 tons
July	6 (of which 4 were in the St. Lawrence)	28,541 tons
August	6	34,025 tons

R.C.A.F.
narrative

of eleven sightings were made by aircraft, followed by ten attacks. None of these were lethal though in two cases slight damage may have been caused. In July, five air attacks were delivered and include the first R.C.A.F. kill which was made on 31 July off Nova Scotia.(1)

By August 1942, the increased efficiency of air cover and co-operation with surface forces had compelled the U-boats to retire from the U.S. seaboard. They were being re-disposed in the north to mid-Atlantic and in the south to Caribbean/West African latitudes where B. d U. hoped for more freedom of movement. The re-opening of the mid-North Atlantic battle is the subject of Chapter XII while the further account of U-boat operations in Canadian, South American and African waters is given in Chapter XIII.

(ix) The West African Coast

War Diary
of B. d. U.

Early in February 1942, German radio intercepts and agents' reports indicated a brisk movement of traffic in the Freetown area. As no U-boats had been sent to the West African coast for some months, Donetz considered that it might be profitable to operate one or two boats now that the restrictions of 1941 were no longer in force concerning the American ships engaged in taking supplies to West African ports. Also, he had a shrewd idea that, as the U-boat offensive was developing on the American seaboard, the British independently routed shipping was keeping over to the African side of the central Atlantic. He requested permission to send two 750 ton boats forthwith to exploit this possible soft spot in the British defences. The request being approved, U.68 and U.505 sailed from Lorient on the 11 February, arriving in the Freetown area on the 27 February and 4 March respectively. Escorted convoys were avoided and only single ships were attacked. During March and up to the 19 April, eleven ships of 64,391 tons were sunk before the two U-boats had to start their return passage.

A.H.Q. West
Africa. O.R.B.
Appendices

Flying hours on convoy escort and A/U sweeps, which had diminished during the first two months of 1942, were increased during this active period (2) but only two sightings were obtained. These were by Hudson V/200 Squadron who, during an A/U sweep on the 28 March, sighted and attacked U-505 and Sunderland C/204 Squadron who when escorting convoy SL107 on 18 April attacked the same U-boat. In neither case was any damage inflicted.

Having stirred up trouble and obtained a satisfactory dividend on his foray, Donetz sent no more U-boats into the area for the next two months. During the first half of June two Italian U-boats were stationed between the Cape Verde Islands and Freetown. They sank four single ships totalling 20,000 tons. In July, a group of six German boats were operating between the Azores and the Canary Islands. On the 20 July, five of these U-boats(3) received orders

- (1) U-754 sunk by S/Ldr. N.E. Small in a Hudson of No.113 Sqdn. in 4302N x 6452W.

Month	Hours on convoy escort	U-boats		Hours on A/U patrol	U-boats	
		Sighted	Attacked		Sighted	Attacked
Jan.	253	-	-	291	-	-
Feb.	162	-	-	261	-	-
Mch.	343	-	-	397	1	1
Apr.	335	1	1	325	-	-

- (3) U-130, 201, 582, 572 and 752.

from Donetz to operate singly in areas to the south of the Cape Verde Islands and also close up to Freetown and Lagos. Between the 22 July and the end of the month they sank seven ships of 49,203 tons. Once again the escorted convoys were avoided and the sinkings were all of independently routed ships.

As before, the flying in the area was not very productive and only one U-boat was sighted.⁽¹⁾ This occurred on the 25 July when Hudson Q/200 Squadron on A/U patrol sighted a U-boat on the surface about seven miles away from the S.S. Winchester Castle. An attack was delivered while the stern of the U-boat was still visible and a straddle was claimed but the depth charges were set to explode at 50 and 100 feet depth instead of the normal shallow setting. Neither of the U-boats in the area (U.201 and U.752) reported the incident so presumably no damage at all was inflicted. However, the Winchester Castle may well have been saved from an impending attack.

The further operations of these boats and the subsequent intensification of effort against shipping in the equatorial latitudes of the Atlantic is continued in Chapter XIII - Part II.

(x) The Transit Area offensives against U-boats

(a) The Bay of Biscay

The operational results of December flying had indicated that U-boats were diving by day when east of about longitude 13°W. To cope with these new tactics it was considered that most of the daytime flying effort should be directed to areas west of 12°W. and that the scale of night flying must be increased in the middle areas of the Bay. Unfortunately No. 19 Group had not sufficient long range aircraft available for sustained day patrols in the outer Bay and an increase at this time in the number of our own

(1)

Month	Effective Hours on Convoy escort	U-boats		Effective Hours on Patrol	U-boats	
		Sighted	Attacked		Sighted	Attacked
May	316	-	-	386	-	-
June	274	-	-	443	-	-
July	306	-	-	392	1	1
Aug.	309	-	-	518	-	-

By mid - 1942, the dispositions in the West Africa Command were as shown in Appendix V and on Map IV.

A.H.Q. West
Africa.
O.R.B.
Appendices

O.R.S. Report
No. 170

CC/S.7050/4
Part I encls.
25A, 26A and
41A

H.Q.C.C. Naval
Staff A/U file
encls. 32 to 38.
and
H.Q.C.C. O.R.B.
for February
and March 1942

ibid

submarines, also engaged on A/U patrols⁽¹⁾, effectively prevented the intensification of the night air effort. The only area clear of them was the Inner Bay fairly close to the Biscay coast which contained large numbers of French fishing craft. A.S.V. indications on these were indistinguishable from U-boats and the effectiveness of any A/U flying was much impaired. Personal contacts between the A.O.C.-in-C. and the C.N.S. and the excellent liaison between H.Q.C.C. Naval Staff and the headquarters of F.O.S. resulted by April in mutual arrangements to adjust the lines of passage and patrol areas of our submarines so as to give the maximum freedom for aircraft operations.

The shortage of aircraft, both long and medium range, was not so easily solved. Memoranda were put forward by the Coastal Command Staff pointing out that, in face of the rising U-boat successes off the American seaboard and the slackening of their effort on the North Atlantic trade route, the only counter that the Command could offer was active prosecution of the offensive against their lines of passage. By far the most important of these was the bottle neck in the Bay of Biscay. The minimum re-inforcement required, so as to be in a position to wage even a modest day and night offensive, was 60 long range and 60 medium range aircraft. More specifically this amounted to three squadrons of each of the types of Liberator, Sunderland and Whitley or Wellington and one squadron of Catalinas, all fitted with long range Mk.II A.S.V., particularly the Whitleys or Wellingtons for night work. In view of the recent despatch of the only Wellington squadron to the Middle East⁽²⁾, the proposed despatch of three Catalina squadrons to the Far East and the difficulty of obtaining Liberator aircraft from the United States, it was, in the opinion of the A.O.C.-in-C. and Admiralty, a matter for serious consideration by the Cabinet as to whether some of the Lancaster squadrons should

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- (1) Our own submarines had been employed on diving patrols from time to time since March 1941 either watching Brest or on the U-boat lines of passage. The increased U-boat traffic and the rising tension regarding the imminent move of the Brest Group had resulted in more of our submarines being stationed in the Bay. To safeguard them against attack by our own aircraft, restrictions against bombing or depth charge attack were instituted along their lines of passage and in their patrol areas by the H.Q.C.C. Naval Staff in consultation with the Admiral Commanding Submarines (F.O.S.) The particular class of restriction was known as a Submerged Bombing Restriction. All submarines seen on the surface by day in the area designated could be attacked but no action could be taken against periscopes, swirls, oil slicks or other indications of an already submerged submarine. By night, when our submarines had to surface to charge batteries, no submarine at all was allowed to be attacked. It was thus perfectly feasible by day to carry out A/U patrols by aircraft in the same area as our own submarines but quite impossible at night. In addition, if it was necessary for submarines to proceed on passage on the surface by day anywhere within range of shore based aircraft, they were always protected by the institution of Total Submarine Bombing Restrictions. This meant that in the area designated no submarine of any kind was allowed to be attacked by day or night.
- (2) No. 221 Squadron of Wellingtons were scheduled to be equipped with the Leigh Searchlight. Their despatch to the Mediterranean further delayed the advent of this long awaited and vital requirement for night operations.

be transferred from Bomber Command so as to develop an adequate weight of attack in the outer areas where U-boats were surfacing both day and night. Discussion at high level took place during March and on the 1 April the Defence Committee approved the transference to Coastal Command of one Whitley squadron - No.58 - and eight Liberator aircraft to make good the wastage in No.120 Squadron.

Operation "Cakewalk"

In the opinion of the Admiralty, this transfer was not a sufficient compensation either for the loss of Coastal Command long range squadrons to the Far and Middle East or to enable more adequate measures to be taken against the U-boats in the Bay of Biscay. As a further compromise, the Chiefs of Staff agreed to the temporary loan of four medium Bomber Command Squadrons in order to prosecute the Bay offensive. However, representations during May by the Admiralty and the A.O.C.-in-C., Coastal Command to the effect that these temporary loans provided no long range aircraft to extend A/U operations to the Outer Bay and the convoy routes resulted, early in June, in agreement between the Chiefs of the Air and Naval Staffs to divert Lancaster aircraft to this duty. On the 11 June, six Lancasters of No.44 Squadron were temporarily placed under Coastal Command control for long range patrols in the Outer Bay and ocean convoy escort.⁽¹⁾ Towards the end of June, direct negotiations between the headquarters of the two Commands produced a scheme whereby anti-submarine patrols could be augmented with heavy and medium Bomber Command aircraft provided no large scale bombing operations were being carried out. Such re-inforcements were to be provided under the code name of "Cakewalk". Operational instructions were issued by both Commands which explained the purpose and gave the execution orders. On the 13 July, No.61 Lancaster Squadron was loaned under the "Cakewalk" procedure for extended A/U Patrols in the Bay of Biscay.⁽²⁾

In addition to these temporary detachments, a proposal by the Air Ministry to allocate sorties in the Bay of Biscay on a more permanent basis by aircraft and crews from a Bomber Command Whitley Operational Training Unit was approved by the Chiefs of Staff on the 13 July. Instructions were sent to the two Command headquarters to co-ordinate arrangements direct with each other and to report the daily results to the Air Ministry. Nine Whitley V aircraft of No.10 Bomber Command O.T.U. arrived at St Eval on the 14 July but the radical difference between the nature of the A/U patrols and the type of training received in a Bomber O.T.U. necessitated modifications to the aircraft and special exercises for the crews before commencing operational sorties. A

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- (1) In effect they were merely replacements for five Liberators which had been detached from Coastal Command to the Middle East. These six Lancasters commenced operations from Nutts Corner (N.Ireland) on the 12 June and also operated from Predannock (Cornwall) from the 15th. They reverted to Bomber Command on the 7 July.
 - (2) No.61 Squadron arrived at St Eval on the 14 July and operated under No.19 Group in the Bay offensive until the 26th when they were recalled to Bomber Command for a special duty. ~~Four aircraft of the~~ The squadron returned to St. Eval on the 3 August and were employed on long range duties in the Bay until the 21 August after which they reverted to Bomber Command.

See Chapter I
Section (iv)

See Chapter I
Section (V)

C.C./S.7010/3/4
Part I
encl.67A to 76A

C.C./S.7050/4
Part I
encl.56A
62A, B and C
and 66A

B.C.O.1. No.63
C.C.O.1. No.106

C.C./S.7050
encl. 23A
and
C.C./S.7050/4
Part I
encls.73A to 76A

ibid
encls. 77A and
89A

B.C.O.1. No.64

fresh Operational Instruction was issued by Bomber Command and patrols in the Bay actually commenced on the 12 August. (1)

Operations in the Bay of Biscay

CC/G2/23/1/42

PL/G6/11/8/41

No. 19 Group
O.R.B.

Meanwhile operations against U-boats had been conducted in the Bay as best they could with the limited resources available, though the watching patrols round Brest occupied most of No. 19 Group's forces until the escape of the German major naval units in the middle of February. On the 23 January a new series of six crossover patrols, known as Brass Nos. 1 to 6, had been instituted between latitudes 48.30 N and 46.00 N from longitude 0330 W to 0800 W which together with the existing Patrols (AS Nos. 4 to 13) were to constitute the area of the night offensive. However, the shortage of medium range aircraft necessitated a compromise whereby the Whitley and Sunderland squadrons combined to carry out both the night sorties in the Middle Bay areas and the day flying as far west as range would permit while the short ranged Hudsons were employed in the Inner Bay. In order to cover as much water as possible, the set crossover patrols were abandoned and frequent sweeps in the areas were substituted. The even more acute shortage of long range aircraft, Catalinas and Liberators, allowed very little flying in the Outer Bay area west of 12°W during the first quarter of 1942.

The night flying was disappointing as, although a few promising A.S.V. contacts were made, only two resulted in positive sightings of U-boats. The flares for this purpose still proved unsatisfactory and the two sightings were actually made by unaided eye on light nights. These results for the first three months of 1942 (2) gave little

- (1) By this date a detachment of 20 Whitley V aircraft were based at St. Eval. The aircraft were still painted black and had no A.S.V. 25 crews from the O.T.U's in Nos. 91 and 92 Groups were attached to St Eval in rotation as they neared the completion of their O.T.U. training. An average of 35 sorties a week was maintained for the next twelve months, when the arrangements under "Cakewalk" terminated in July 1943. In spite of the fact that individual crews left just as they were becoming proficient in A/U warfare, the contribution by No. 10 O.T.U. squadron was very valuable. In all they made over 1800 sorties and flew ~~17,000~~ ^{17,000} miles in the Bay. During this time 89 U-boats were sighted of which 55 were attacked, one U-boat being destroyed and four damaged. On leaving the Command, the squadron received a special message of appreciation from the First Sea Lord. Reference July 1943 issue of the Coastal Command Review.

1,700,000/

(2) A/U patrols and sweeps	January	February	March	Total
Daylight flying hours west of 12°W.	60	87	80	227
Sightings made	1	1	1	3
Daylight flying hours east of 12°W.	110	113	407	630
Sightings made	nil	1	nil	1
Night flying hours	170	400	300	870
Promising A.S.V. contacts	2	4	2	8
Sightings made	nil	1	1	2

Ref. O.R.S. Report No. 187.

cause for satisfaction to Coastal Command and few worries to the U-boats.

Of the six U-boats sighted, five were attacked but no damage was inflicted on any of them. From the figures of flying hours and positions of sightings, it still seemed that more U-boats were surfacing by day in the Outer Bay than anywhere else and that the Middle Bay areas continued to offer good opportunities for attack on U-boats at night if only the promising A.S.V. contacts could be turned into positive sightings. Here the lack of success remained mainly in the inability of the aircraft to illuminate the source but there was also too low a standard of operational skill in using the A.S.V. equipment.

During April and May, the re-inforcements mentioned previously were coming into the operational front line and the flying hours, both east and west of 12°W, were stepped upwards sharply by day.(1) No. 19 Group instituted a system of standardised sweeps fanning out over the Bay from Bishop's Rock in the Scilly Islands for use by the medium range aircraft. Selected sweeps were flown according to intelligence from the Admiralty Tracking Room or on actual sightings obtained by aircraft. Whenever available, the Liberators operating from Nutts Corner in North Ireland, carried out patrols in the Outer Bay to 20°W. Sightings of U-boats increased accordingly but in May the proportions showed unmistakably that they were surfacing by day all through the Bay of Biscay though not with quite the freedom with which they had travelled in the September/November 1941 Period(2). The reason was not far to seek. Of the 17 U-boats sighted by day, 15 had been attacked but, from the German records, only two had suffered any damage.(3)

Since December 1941, therefore, the aircraft attacks had been almost harmless.(4) The night flying was even less productive than during the first quarter and it was plain that only the Leigh Searchlight could put teeth into night operations.

(1)	April	May	Total AP/MY	Total since 1 January
Daylight flying hours west of 12°W.	241	160	401	628
Sightings made	4	1	5	8
Daylight flying hours east of 12°W.	541	776	1317	1947
Sightings made	4	8	12	13
Night flying hours	245	214	459	1329
Promising A.S.V. contacts	6	6	12	20
Sightings made	1	nil	1	3

Ref. O.R.S. Report No. 187.

- (2) During this period, 3600 flying hours east of about 13°W had produced 31 daylight sightings.
- (3) These were U.590 attacked by Whitley M/502 Sqdn. on 14 April and seriously damaged, and U.432 attacked by Liberator A/120 Sqdn. on 3 May and slightly damaged. Reference - War Diary of B. d U.
- (4) During the five month period January to May 1942, the U-boat traffic across the Bay of Biscay amounted to 265 boats. Of these, 21 had been sighted by day and three by night.

O.R.S. Report
No. 187

FL/G9/15/4/42
and Map V

No. 19 Group
O.R.B.

(b) The Northern Transit Area

At this period the passage route was rightly considered to lie round the north of the Shetlands and then southwestward between the Shetlands and Faeroes. The area was defined as from longitude 0° to 10°W between latitudes 62° and 58°N. Since the operations carried out in the autumn of 1941, the short winter days and lack of aircraft fitted with L.R.A.S.V. for night work had limited the A/U effort in the area to infrequent daylight sweeps by Hudsons based at Wick. No. 18 Group, in whose area the route lay, was primarily concerned with reconnaissance off the Norwegian coast and Scottish coastal convoy escort so that few sorties could be spared for A/U patrols. Towards the end of February, No. 15 Group stationed a Hudson squadron at Stornaway near the Butt of Lewis. These aircraft carried out daily sweeps in the southwestern part of the transit area while the Wick Hudsons operated in the northeastern portion paying particular attention to an area called "Slips" which lay between latitudes 60° to 61°N and longitudes 6° to 9°W. Consequently in March the daylight flying hours increased sharply but very little night flying was possible. This was unavoidable but most unfortunate because the U-boats habits in this northern transit area differed radically from those in the Bay of Biscay. The traffic was almost entirely one-way and consisted of new U-boats on their first cruise out from Germany and usually bound for Biscay ports. They were in no particular hurry and were inexperienced so that there was no urge to defy the air by day. Naturally they submerged most of the daytime and made the passage on the surface after dark.⁽¹⁾ The results for the first quarter of 1942 were, therefore, not impressive.⁽²⁾ Of the four U-boats sighted, two were attacked inconclusively.

Ro/G2/2/3/42

CC/S.15,094
encls.44A and B
and 47A and B

Ro/G5/17/4/42
See Map VI

LV/Ops.2/20/5/42
See Map VI

In the early part of April, with the advent of much shorter nights, it was thought that the U-boats would remain on the surface more by day. The northeastern portion of the transit area was divided into the patrol areas Slips I, II, III, and IV and No. 15 Group's aircraft helped to intensify flying in these areas as well as carrying out sweeps in the southwestern part. In May, the "Slips" areas were replaced by a series of crossover patrols which covered the whole transit passage from the north of the Shetlands to the Butt of Lewis. These patrols were named Longslips I to VI. The intensity of flying was again stepped up by Nos. 15 and 18 Groups which gave more sightings but the ratio to flying hours expended was below the Bay of Biscay results. This was, of course, inevitable not only because of the thinner traffic but because of the difference in U-boat habits and

- (1) Reference to Appendix II will show that during this first quarter over 40 newly commissioned U-boats made this passage.

(2)

	Jan.	Feb.	Mch.	Total Jan/Mch
Daylight flying hours	309	341	576	1,226
Sightings made	1	1	1	3
Night flying hours	3	13	25	41
Sightings made	nil	nil	nil	nil

the absence of effective night location.⁽¹⁾ Here also the standard of attacks was not high. On the nine U-boats sighted during these two months six attacks were made but in only one case was even slight damage considered likely.⁽²⁾

(xi) Weaknesses in the Transit Offensives

The experience gained during the first five months of 1942 in the two transit areas emphasized two weaknesses. Firstly, the ineffectiveness of night flying unless the aircraft carried L.R.A.S.V. which itself was vitiated by the absence of an illuminant to turn promising A.S.V. contacts into positive sightings followed by attacks; and secondly, the falling off in the standard of day attacks. It was universally agreed that the only early solution to the first was the Leigh Light aircraft. Regarding the second, there were two lines of thought. One considered that the weapon itself - the 250 lb depth charge - was at fault and the other that the aiming of the depth charge stick was not as accurate as it should be. Improvements along both lines were actively pursued.

A new explosive called Torpex, having a 30% increased power over the same weight of Amatol, was developed during 1941. Stocks took time to build up and the rival claims of other weapons had to be considered by the Admiralty Mining Department. Torpedo war heads had absolute priority and the filling of the new "Hedgehog" projectiles⁽³⁾, A/A shells and R.A.F. depth charges came after. During the first three months of 1942 priorities were agreed and the production of Torpex was hastened by every means. The filling of R.A.F. Mark VIII depth charges commenced late in April at the rate of 150 per week and the first batch were dispatched to selected Coastal Command stations at the end of the month.

Closely bound up with the provision of a more powerful explosive was the development of a pistol which would give certain detonation of the charge at a shallow depth. This had been stressed as a necessity in September 1941 soon after the policy was adopted for aircraft to concentrate their efforts on attacking U-boats which were visible at the moment of release. A depth of 25 feet had been stated as the ideal to be attained. Much experimental and development work had been expended to this end but even in May 1942 the latest

(1)	April	May	Total Apr/May	Total Since 1 Jan.
Daylight flying hours	802	1,059	1,861	3,087
Sightings made	1	11*	9	12
Night flying hours	93	205	298	339
Sightings made	nil	nil	nil	nil

* Four of these sightings took place between 1828 hours on the 22nd and 1133 hours on the 23 May and were probably the same U-boat. In other words, only eight separate U-boats were sighted in May.

- (2) The U-boat traffic through the Northern Transit area during the five months January to May amounted to 65 boats.
- (3) The "Hedgehog" was a naval anti-U-boat weapon in course of development. It was a mortar capable of throwing ahead a volley of small projectiles fitted with contact fuzes.

Minutes of the
13th to 24th
Meetings of the
Admty/C.C.
Standing
Committee on
A/U operations
Jan. to June 1942

ibid

pistol, the Mark XIII Q, still only gave a mean depth for detonation at 34 feet⁽¹⁾. The first Torpex attack on a U-boat took place on the 16 May by Whitley V/58 Squadron in the Bay of Biscay while the stern of the boat was still visible. Photographs from the mirror camera⁽²⁾ established that a straddle was likely and the subsequent behaviour of the U-boat, confirmed by further photographs, indicated severe damage. On this occasion the depth charges were fitted with the earlier type of Mark XIII pistol and probably detonated at more than 34 feet. However, the results were considered most promising for the new explosive.

ibid

The other line of thought maintained that it was not the weapon at fault so much as the attacks which were not as accurate as often made out to be by the visual evidence of the rear gunners⁽³⁾ and that this explained the falling off in damaging effect since the end of 1941. The measures taken to improve the standard during the first five months of 1942 included increased time given to practice attacks, the provision of targets simulating disappearing U-boats, the allocation of submarines as realistic targets for practice bombs and the development of a reliable bomb sight. By the summer, a variety of experimental sights were in existence for trials in different squadrons⁽⁴⁾ but the Angular Velocity Low Level sight, which was easily the most promising, was

- (1) The Mark VIII 300 lb Torpex filled depth charge had an estimated lethal radius of 19 feet which was equal to the old 450 lb Amatol filled depth charge. At this depth of detonation it was still not fatal to a fully surfaced U-boat. Further experiments with nose spoilers, break-off tails and an improved Mark XIII* pistol had, by July, attained the desired ideal. Both the standard Mark VIII, with these refinements, and the new Mark XI depth charge with a concave nose denoted at 20 ± 5 feet. A stick straddling the target was, therefore, theoretically lethal to all U-boats attacked between a fully surfaced condition and down to 45 feet submergence.
- (2) Towards the end of 1941, many aircraft had been supplied with a handy form of camera for recording phases of attacks on U-boats. By November, it was realised that fixed backward firing or mirror cameras were a more reliable way of obtaining the desired evidence of the fall of depth charges relative to the target. A requirement to this effect was approved but, naturally, production took time to develop, and it was late in 1942 before all A/U aircraft were fitted. Ref. C.C.T.I. No. 17 and A.M./C.S.14561 encl. 9B.
- (3) In the majority of attacks, the rear gunner was the only member of the crew who was in a position to photograph or note the fall of depth charges relative to the U-boat. Should he be too occupied with his normal duties to take photographs with the hand held camera, his untrained and approximate visual evidence was the only criterion of the so-called accurate attack. A series of such "accurate" attacks would hide the true reason for absence of results and throw suspicion on the weapon. To obviate this tendency, the fitting of fixed mirror cameras was advocated early in Nov. 1941 but even in May 1942 many A/U aircraft were without them.
- (4) The Mark I Low Level Handheld Sight, the Low Level Mark II O sight, the Standard Mark XIV Sight adapted to Coastal Command uses, Flying Officer Cave's bombsight, Flying Officer Secord's Handheld sight, and Group Captain Williamson's Swirl Sight for attacking U-boats just after disappearance. Ref. CC/S.7050/8/2 Part III encl. 80A.

(xii) The coming of the Leigh Light squadron and its effect on the Bay offensiveC.C./S.18329
encl. 24A

ibid encl. 25A

ibid encl. 27A

ibid encls.
30A and 32AH.Q.C.C.
O.R.B.CC/S.18329
encl. 34A

The Leigh Light was the most striking innovation in the air war against the U-boats since the introduction of A.S.V. Each was dependent on the other for making night operations effective, - a vital requirement for the prosecution of transit warfare. The story of the development of the Leigh Light since its inception at the end of 1940 is given in Appendix X of Volume II. In the autumn of 1941, Air Ministry approval had been obtained to supply and fit six Wellington aircraft with the Leigh Light equipment. Further demonstrations in November with the old prototype aircraft had resulted in representations to the Air Ministry by the A.O.C. in C. for an increase in the contract to 36 sets to enable No. 221 squadron of Wellingtons to be fitted. The increase was refused on the ground that trials and operational experience must be awaited from the six aircraft then being modified. Satisfactory trials were completed by C.C.D.U. in December⁽¹⁾ and the A.O.C. in C. again sought approval for an order for 30 searchlight installations and for 30 Wellingtons aircraft to be allotted for this purpose⁽²⁾. In answer the Air Ministry contracted for a further 20 sets over and above the original six but maintained that the equipping of any additional aircraft would have to await further results and experience. Early in January 1942, No. 1417 Flight was formed to receive the six Wellingtons on completion and to commence crew training in the new searchlight technique. The Flight was based at Chivenor in North Devon. On the 8 February the first operationally fitted Wellington arrived at Chivenor, followed a week later by the second and third. The A.O.C. in C. wrote that much delay was being already experienced in the delivery of the first six aircraft since approval in the previous autumn and that operational experience against U-boats was therefore unlikely in the near future. He pointed out that unless it was possible to allocate 20 Wellingtons forthwith, the continuity of fitment work would be broken and months elapse before the 20 sets of equipment on order could be installed and the completed aircraft delivered. Accordingly, on the 28 February, the Air Ministry ordered No. 1417 Flight to be expanded into No. 172 Squadron of 16 plus 4 Wellington Leigh Light aircraft and requested M.A.P. to allocate aircraft as and when they became available.

Unfortunately the aircraft did not become available and the fears of the A.O.C. in C. were fully realised during the next three months. Despite repeated pressure there were, on the 21 May, still only five aircraft serviceable in the squadron. On this date the A.O.C. in C. wrote to the Air Ministry expressing his concern as to the disappointing progress made in producing searchlight aircraft and drawing attention to the meagre allocations envisaged in the future.⁽³⁾

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- (1) These trials were held off Lough Foyle on the nights of the 14 and 15 December against a surfaced submarine under way. The weather was moonless, very dark, strong S.W. wind and bumpy conditions, with rain showers on the second night. The results were very satisfactory. Ref. CC/S.15238 encl. 6A.
 - (2) In the interval between these two letters, the only Wellington squadron in Coastal Command (No. 221) had been ordered to the Mediterranean. Hence the request for Wellington aircraft.
 - (3) Six aircraft in June, six in July, four in August and thereafter three a month.

ibid 35A

He urged most strongly that production should be stepped up immediately to at least 20 per month and that sets be fitted in other squadrons engaged in A/U warfare. The Air Ministry replied on the 3 June that, after careful consideration the Air Staff were of the opinion that sufficient evidence of the operational success of the Leigh Light equipment had not yet been obtained to justify trial installations in other squadrons but steps would be taken to improve the production of Leigh Light Wellingtons. As it was plain that nothing except the location of a U-boat would convince the sceptics, the A.O.C. in C. decided to use the few Leigh Light aircraft that were available without waiting for the whole squadron to complete. On the 4 June there were four serviceable aircraft and they were, accordingly, detailed to take part in that night's operations in the Bay.

No. 19 Group
O.R.B.
Appendices

The results from these first four sorties were most gratifying. Although three of the aircraft located no U-boats, the high standard of A.S.V. operation attained during the special training with the Leigh Light was most apparent in the ease with which they located and illuminated contacts even though these turned out to be but small fishing vessels. The fourth aircraft - F/172 Squadron - contacted, homed on and successfully illuminated a large U-boat on the surface which fired a two star recognition signal and made no attempt to dive. An accurate depth charge attack was then delivered by F/172 from 50 feet altitude. While circling to examine the position of attack, another U-boat was contacted in the vicinity and illuminated. This proved to be a smaller U-boat, also making no attempt to dive and, when the searchlight was switched on, it fired a multi-starred recognition rocket. Having no depth charges left, F/172 carried out two machine gun attacks before having to leave the scene. The first U-boat was the Italian "Luigi Torelli" which sustained severe damage causing her commanding officer to make direct for the Spanish coast at a much reduced speed.⁽¹⁾ When nearing the coast three days later, this U-boat was located and attacked on the surface by Sunderlands A and X/10 Squadron who inflicted further damage and forced the "Luigi Torelli" to take refuge in Santander where she was beached.

These four Leigh Light aircraft continued to operate in the Middle Bay area for the remainder of June whenever weather and availability permitted. In all, seven U-boats were sighted by them during their 235 flying hours in the area. Three of these U-boats were attacked with depth charges, two of which were seriously damaged.⁽²⁾ Although a fifth aircraft became operational towards the end of June, it crashed in the sea during a sortie and the month ended

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- (1) On the 6 June, the A.O.C.-in-C. wrote to the Air Ministry pointing out that the successful location of a U-boat had now been accomplished followed by a promising attack. He again urged that early action should be taken to increase the rate and extent of the fitting of Leigh Lights. Re. CC/S.18329 encl. 36A.
 - (2) A possible further two attacks after illumination were frustrated by the lack of radio altimeters. The indicated height of the aircraft on the approach as given by the old type altimeter was greatly in excess of the actual height.

The War Diary
of B. d U.

with only the original four being available. (1) In addition to the Leigh Light aircraft, the night flying Whitleys with flares had carried out 195 hours in the area without obtaining a single sighting confirming that both the standard of A.S.V. operation and the flares were at fault. The searchlight aircraft had proved their superiority and the night was no longer safe for the U-boats. This fact played into the hands of the day offensive which was intensified during June. 14 day sightings were made of which 12 were attacked. (2) Among these were three that call for special comment. The first, by Sunderland U/10 Squadron on the 5 June which inflicted severe damage to U-71; (3) the second by Sunderland W/10 squadron on the 11 June which caused U-105 to seek refuge in Ferrol in a badly damaged condition (4); and the third by Whitley C/58 Squadron on the 23 June which

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- (1) On the 24 June, the A.O.C.-in-C. again wrote to the Air Ministry to the effect that, although the supply of Wellington aircraft had been approved at eight per month for July and August, it was scheduled to drop to three per month from September. He requested that the supply should be increased and that another Leigh Light Wellington squadron should be established. Moreover there was still no decision regarding the installation of the Nacelle type of searchlight already successfully prototyped in a Catalina aircraft. He urged that production of this equipment be put in hand at high priority and that the prototyping of Liberators be proceeded with without further delay. Ref. CC/S.18329 encl. 37A.
 - (2) 2,330 daylight hours gave 14 sightings and 12 attacks - 4 U-boats severely damaged. 235 Leigh Light night hours gave 7 sightings and 3 attacks - 2 U-boats severely damaged. 195 Whitley night hours gave no sightings or attacks.
 - (3) After the attack at 1600 hours, U-71 reported she was unable to dive. U/10 squadron continued to shadow the U-boat and was in W/T touch with the relief aircraft. B.d.U. sent out one F.W. 200 to drive off the Sunderland and detailed two escort vessels to go out to meet U-71. At 1730 hours the U-boat managed to dive shallow and at 1930 the F.W. 200 appeared on the scene. A close action with U/10 squadron followed after which the enemy broke away with the loss of one N.C.O. killed. U/10 did not leave until 2145 hours by which time relief aircraft had arrived. Nothing more was seen of U-71. She was met by the escort vessels at 0325 hours on the 6 June and escorted to La Pallice.
 - (4) After the attack at 0930 hours, U-105 reported severe damage and that she was unable to dive. B.d.U. ordered her to make for Ferrol. At 1130 the U-boat signalled that she was being shadowed and requested fighter protection which, however, could not be provided. W/10 Squadron shadowed until 1215 hours and then had to leave. Relief aircraft could not get to the area until late in the evening and then did not re-locate U-105 before dark. She put into Ferrol early on the 12th where she remained making good defects until the 28 June.

for some hours completely immobilised U-753.⁽¹⁾ Admiral Donetz complained that the Bay had become the playground of English aircraft and without doubt U-boats would suffer damage and losses on a larger scale if adequate air protection was not afforded. He drew attention to the effect of these depressing conditions on the morale of his U-boats' crews and on the 24 June he issued an order that, because of the very great danger from the air, all U-boats were to proceed submerged by day and night while in the Bay of Biscay and to surface only to re-charge batteries.

ibid

The results during July⁽²⁾ were equally satisfactory though the increased caution by U-boats at night became evident as the month progressed. Two searchlight attacks took place on the night of the 5/6 July. In one of these H/172 Squadron sank U.502. Thereafter only two boats were found at night for a total of 370 flying hours. The day offensive, however, continued to give good returns. Out of the 16 U-boats sighted by day, 13 were attacked involving damage to U.86, U.162 and U.106 and the destruction of U.751 by the joint action of Whitley H/502 and Lancaster F/61 squadron on the 17 July.⁽³⁾ Confirmation of the continued success of the Bay offensive is once again forthcoming from the War Diary kept by B.d.U. On the 2 July, he conferred with Goering in the Luftwaffe High Command Operational Headquarters. B.d.U. stated that, although the U-boats were now safeguarded in the operational bases by concrete pens, the enemy had transferred his attacks to the passage route through the Bay of Biscay and was inflicting increasing damage and losses to his U-boats. The English aircraft met absolutely no opposition and he demanded reinforcements to the Luftwaffe Atlantic Command. As a result of this conference, the Chief of the General Staff approved of an additional 24 Ju.88s being transferred to the Fliegerfuhrer Atlantic. Following casualties among surface craft during June and July by mines off the Biscay ports, B.d.U. issued a warning to U-boats regarding this danger. On the 16th July, he made a general order that, on account of mine danger in the approach routes to ports, U-boats must remain on the surface in waters of less than

ibid

- (1) After the attack at 1615 hours, U.753 attempted to dive but soon re-surfaced and lay motionless. J/58 squadron repeatedly attacked with machine guns to which the U-boat replied with cannon fire. Finally all the U-boat's gun's crew were killed or wounded and at 1650 hours she very slowly dived. B.d.U. ordered a chain of Ju.88s to maintain protection against further air attacks, signalled other U-boats in the vicinity to go to U.753's assistance and despatched three escort vessels to bring her in. She was met by the latter at 0900/24 and brought into La Pallice.
- (2) 3796 day flying hours gave 16 sightings and 13 attacks - 1 U-boat sunk and 3 damaged. 370 Leigh Light night hours gave 4 sightings and 3 attacks - 1 U-boat sunk. 152 other night hours flying gave no sightings or attacks. Ref. No.19 Group O.R.B. Appendices.
- (3) Lancasters of No.61 Bomber Command Squadron were temporarily loaned to Coastal Command on the 14 July for A/U patrols in the Bay of Biscay. Operating from St. Eval 69 sorties were made on these duties. The squadron returned to Bomber Command on the 26 July. Four aircraft of the squadron subsequently operated from St. Eval between the 1 and 21 August.

100 fathoms. (See Map V for this line.) The danger from unexpected air attack, however, was greater by night than day and in future U-boats were to complete this portion of their passage on the surface by day and only to submerge in the outer sections when daylight was not sufficient for the whole journey. Danger from possible British submarines inside the 100 fathom line must be reduced by zig-zagging.

From these events it can be said that the advent of the Leigh Light Wellingtons, (1) although never exceeding four or five operational aircraft in June and July, marked the commencement of an effective offensive in the Bay of Biscay which seriously worried the U-boat Command, harassed the crews in an area hitherto comparatively safe and by the increase in passage time, greatly curtailed the number of days a U-boat could spend in an operation area overseas. After the successful trial demonstration of the Leigh Light as early as May 1941, it is difficult to explain the fourteen months delay before producing even half a squadron of the aircraft. Ever since early 1941, in meetings at every level, the vital importance of adequate night illumination had been stressed and it had long been accepted that the only hope lay in the speedy arrival of the airborne searchlight. Every motive was thus present for continual pressure and the highest priority to be exercised. The complete surprise and helplessness of the few U-boats attacked in June and July 1942 by this novel weapon encourages speculation as to the possible results if two or even one whole Squadron had been employed instead of the penny packet actually available. (2)

(xiii) Re-organisation in the Northern Transit Area

While the offensive in the Bay of Biscay was giving these better results, the Northern Transit area proved disappointing. Almost continuous daylight offset the absence of Leigh Light aircraft for night operations but the increase in day flying hours during June only produced seven sightings. These all occurred between the 10th and 14th, and were made on only three individual U-boats. Four attacks were delivered and one U-boat was considered to have been slightly damaged. The positions were about 100 miles north of the Shetlands and the courses on which these U-boats were seen to be steering when sighted indicated the probability that they were proceeding northwards of the Faeroes and into the Atlantic between these islands and Iceland. While awaiting further confirmation of a possible change of route, (3) it was decided to introduce the fan system of patrols into the Northern Transit area. On the 14 July, the Slips and Long-slips patrols were cancelled and in their place were

C.C. Naval Staff
A/U File encl. 43
and
A.M./C.S. 14561
encl. 12B
See Map VI

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- (1) Appendix VI gives a description of the Turret and Nacelle types of Leigh Light. The tactical instruction for aircraft fitted with Leigh Lights is also given in the same appendix.
 - (2) Regarding the earlier request for more Leigh Light aircraft and after a further reminder in July from the A.O.C.-in-C. the Air Ministry replied on the 2 August that a requisition had been raised for sufficient Nacelle type equipment for all Coastal Command Catalinas, that trial installations were in hand for Liberators and Fortresses, and that the M.A.P. had now been informed that a second Leigh Light Wellington squadron was required. Ref. CC/S. 18329 encl. 38A.
 - (3) Two U-boats were sighted and attacked on the existing route South of the Faeroes during the first week in July. No damage was inflicted on either.

C.G./G1/14/7/42
and Map VII

instituted one fan of patrols from the Butt of Lewis extending for 200 miles between the bearings of 278° and 062° called the Butter Patrols (Nos. 1 to 13) and another fan extending 170 miles from Yell Sound in the Shetlands between the bearings of 295° and 044° called the Yeller patrols (Nos. 1 to 9).

C.C./G2/24/7/42
and Map VII

Following some sightings of U-boats later in July by aircraft, operating from Kaldadarnes, off the south east coast of Iceland, the Butter patrols were replaced on the 25 July by a system of parallel patrols. These extended 340 miles northwestward from a line joining Foula Island (Shetlands) and the Flannan Isles (Hebrides) and were called the Flora Patrols (Nos. 1 to 10). Increased attention by Kaldadarnes aircraft, both on escort to U.K./Iceland convoys and sweeps in the area Southeast of Iceland, produced a further five sightings of U-boats on southwesterly courses (1) and confirmed the suspicion that a new outward bound route lay well to the north of both the Shetland and Faeroe islands. Accordingly the whole scheme of patrols was re-cast and extended to include routine flying from Iceland. A new set of Flora patrols (Nos. 1 to 16) were instituted from the 27 July which replaced both the Yeller and the old Flora areas, and a fan system was introduced for aircraft based in Iceland which extended 330 miles from Portland, the most southerly point in Iceland, between the bearings of 184° and 072° called the Port patrols (Nos. 1 to 15). By the end of the month, one more U-boat was attacked on the old route and one on the new route. (2)

C.C./G6/26/7
G5/27/7 and
G6/27/7/42
See Map VII

The Northern Mine Barrage

Adty.
C.B. 04050/45(6)
page 7

An additional obstacle to outward bound U-boats had been provided by mining. The depth of water in the two channels leading to the Atlantic prevented the laying of a continuous thickly sown mine barrier but lines of mines in both shallow and deep fields were laid by naval units to the south and northwestward of the Faeroes. These mining operations were commenced in July 1940 working northward from the vicinity of North Rona Island. They were carried on intermittently throughout 1941 and with greater intensity in 1942 by which time a considerable portion of the two areas marked on Map VII had been mined. In January 1943, the completion of the barrage was abandoned, mainly owing to the need to reduce consumption of steel and to conserve man-power. Instead a series of deep lines of moored magnetic mines were laid north-west of the Faeroes across the general track estimated to be

- (1) Three of these U-boats were attacked. No damage was inflicted.

(2)

	Day-hours in area	Night hours in area	U-boats sighted in area	U-boats sighted to S.E. of Iceland	No. of U-boats using the routes (post war evidence)
June 1942	963	204	7*	nil	13
July 1942	1344	93	4	9	24

* These sightings were of only three individual U-boats.

Reference - C.C. O.R.B. Appendices for June and July, and Naval Staff records.

followed by the majority of the U-boats making the passage.⁽¹⁾ The general area had been publicly declared dangerous to shipping from the start and, although only one or possibly two U-boats were ever destroyed in the barrage, the knowledge that minefields existed and were being continually added to, undoubtedly restricted the U-boat routing policy to comparatively narrow deep water channels in the Iceland/Faeroes and Faeroes/Shetland passages.

(xiv) 10 cm. A.S.V. and Radio Altimeters

See Chapter II
Section (x)

It will be remembered that, in November 1941, the Air/Sea Interception Committee, though agreeing to the institution of measures to improve the operational efficiency of the existing Mark II 1½ metre equipment, had accepted the conclusion that centimetre A.S.V. was the real objective. However, during the next few days, the meeting continued its discussions and eventually changed its recommendations regarding the aircraft of Coastal Command. The decision in favour of adopting centimetre A.S.V. was made dependent on the outcome of comparative trials between the proposed high power 1½ metre, the 50 and the 10 centimetre equipment. This new recommendation was accepted but it committed research to three separate lines of development which was bound to delay finality in the choice of a standard set. In order to hasten development, the A.O.C.-in-C. Coastal Command felt that the importance of the matter required a more direct statement to a wider circle, and on the 19 February 1942 he wrote to the Under Secretary of State for Air complaining of the failure to equip Coastal Command aircraft with efficient A.S.V. He pointed out that the original intention of July 1941 to equip some squadrons with Liberators fitted with centimetre A.S.V. had come to nothing. Recently an allotment of Fortresses had been made but no steps had been taken to fit them with A.S.V. of any type. The Catalinas, which were at last coming forward with the long range Mk. II A.S.V., were being taken away again for the Far East and, apart from some Sunderlands and a few Whitleys, there were no aircraft in his Command fitted with A.S.V. which was efficient against U-boats. Future improvement was being held up by the existing overcrowded radio production programme and he urged that a fair proportion of the radio industry should at once be diverted to the output of equipment for use over the sea.

CC/PBJ/1005/42

CC/S.9108
encls. 27A and
47A

CC/S.7010/10/6
Encls. 62D and
69B

CC/PBJ/1180/42
1.5.42

The comparative trials between the 1½ metre, the 50 and the 10 centimetre A.S.V. sets eventually took place in Northern Ireland between the 16 and 23 March 1942. They indicated a marked superiority for the 10 centimetre A.S.V. The minutes of the next two meetings of the Air/Sea Interception Committee reveal that attention was directed more to Blind Bombing, Homing devices and A.S.V. marker buoys than to the development of progress in U-boat location equipment. Consequently a letter to the Director of Radio was written by the A.O.C.-in-C. in which he drew attention to the lack of an A.S.V. programme for Coastal Command. His requirements were the development of the 10 cm type for Whitleys, Wellingtons and flying boats, the prototyping of the

(1) This latter phase of deep mining was completed in September 1943. The area was used as the basis for a new form of air offensive across the Northern Transit route known as "Moorings". It is fully described in the next Volume. The total number of mines, both antennae and magnetic types, laid in this Northern Mine Barrage, was approximately 81,500.

Fortress for British 10 cm. in view of the probable delays in receiving the American 10 cm. and further representations for delivery of the existing American DMS 1000 A.S.V. in any Liberator aircraft coming direct from the United States.

The matter was again referred to at the first meeting of the Coastal Command Committee on A/U Warfare on the 8 May. It was stated that the Mark II A.S.V., with which the majority of Hudsons and Catalinas were fitted, was of little value against U-boats. Such Catalinas as had been fitted with the long range version had now gone abroad and the change over to long range forward looking aerials in the Hudsons was progressing very slowly.

Later in the month, trials were carried out in Northern Ireland with a Liberator aircraft flown over from the United States in which was mounted an American built 10 cm. D.M.S. 1000 Set with all-round Presentation (P.P.I.).⁽¹⁾ Ranges up to 15 miles were obtained at altitudes of 2000 and 1000 feet against a surfaced submarine but the most striking advantage of this all-round looking set was the clarity with which the coastline and high ground inland was revealed which gave a geographical picture easy to interpret. Suggestions were immediately put forward that heavy bombers should be fitted with it as a navigational instrument to facilitate the recognition of bombing targets either at night or by day above cloud. Equipment similar to this A.S.V. and subsequently to be known as H₂S was therefore developed independently.⁽²⁾ The production of this type was granted the highest priority and the competition for the components common to both A.S.V. and H₂S subsequently arose in an acute form when the mass production stage for both sets was reached.

Following the letter from the A.O.C.-in-C., the Director of Radio drew up a complete review of A.S.V. policy on the 14 May. The aims were restated and a summary given of the equipment then in use and under development together with detailed operational requirements for the future.⁽³⁾ This report was considered at the eighth meeting of the Air/Sea Interception Committee on the 28 May and the following recommendations were agreed to:-

- (i) The trial installation of British 10 cm. A.S.V. should be carried out without delay in Sunderland, Wellington VIII, and Whitley VI aircraft.
- (ii) The trial installation of American 10 cm. A.S.V. should be carried out at once in Fortresses and in any

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- (1) This set had been developed in conjunction with the British scientists in America and it incorporated a British invention which made it superior to the first All American set - the SCR-517. Further details of this concurrent development are given in Chapter XII Section (vi)(e).
 - (2) H₂S did not make use of the latest type of valve technique embodied in the A.S.V. Set and for that reason was not equal in performance to A.S.V. The restriction had to be imposed because Bomber Command aircraft ran a greater risk of capture on enemy territory than did aircraft of Coastal Command who were forbidden to fly over hostile country when fitted with certain types of equipment.
 - (3) This review was sent to the Radar Committee in the U.S.A. with the object of securing co-operation and inter-changeability of equipment.

A.M. C.S. 14561
encl. 9B

C.C. Development
Unit O.R.B.

CC/S. 7010/10/6
encl. 76E

future American G.R. aircraft to be allotted to Coastal Command.

(iii) The production of British 10 cm. equipment should proceed at highest priority.

(iv) In view of the operational limitations of other types employing wavelengths above 10 cms, such types were to be considered obsolescent and production of them should be limited to the minimum necessary to meet immediate requirements.

CC/S.7050/5
Part II
encl.27A

Among other devices which received attention at this meeting was the radio altimeter. The importance of this equipment had been re-affirmed in March in connection with bomb sight development quite apart from its desirability in night attacks on U-boats. At the Coastal Command meeting on A/U Warfare of the 8 May, it was stated that, of the three British types under development, none had yet been supplied.⁽¹⁾ The Director of Communications Department reported on the 28 May that, of these types now undergoing trial, Type 4 was by far the most promising. At the existing priority, deliveries of this type were not envisaged until October 1943. The meeting agreed that efforts must be concentrated to advance this date materially, meanwhile the possibility of delivery of American types should be explored.

CC/S.7010/10/6
encl.77C

The apparent delays which had taken place in the development programme of British centimetre A.S.V. since its approval in the autumn of 1941 caused Sir Henry Tizard to write to the Air Ministry on the 10 June. In this letter he deplored the neglect of outstanding A.S.V. interception problems, by the very committee set up to consider them, in favour of blind bombing, night torpedo attacks and other tactics suitable only after the enemy had been located. A copy was sent to the A.O.C.-in-C., Coastal Command for comment who replied that although the Committee had wandered from the initial problems in some respects, it was working along agreed lines of advance in A.S.V. location but was still dependent on the production side to find an answer to requirements already stated.

ibid
encl.78A

A number of other criticisms made by Sir Henry Tizard were answered in the next Air/Sea Interception Committee meeting on the 9 July but nothing was reported as regards a delivery date for any 10 cm. equipment. Regarding radio altimeters it was found on investigation that, in spite of concentrated efforts, it would be impossible to guarantee quantity production of the Type 4 earlier than September 1943. This meant that the less satisfactory Type 2 would have to be

ibid
encl.85C

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- (1) Type 1. was an American version of which we possessed only a small number and no more were expected. These few were on trial in No.201 Squadron.
- Type 2. covered heights from 50 to 1200 feet and the Air Ministry had been asked to supply this on high priority. Supplies were to go first to No.172 Leigh Light Squadron. None had been received to date.
- Type 4. was a new T.R.E. version which was not yet in production. An experimental model was due shortly for trials.
- Type 5. covered heights from 0 to 150 feet. None had been received to date.

introduced as an interim measure.⁽¹⁾ In America, trials were being carried out with their new version and it was expected that one of these A.Y.D. sets could be obtained for experimental trials over here in about two months time.

C.C. O.R.B.
Appendices for
July 1942

In view of the same lack of clarity regarding the Command's needs as had obtained in the case of A.S.V., the A.O.C.-in-C. stated his policy for radio altimeters in a letter to the Air Ministry dated the 19 July 1942, of which the following is a summary:-

Radio altimeters were required both for anti-U-boat and for torpedo dropping aircraft. In the former role they were necessary in night attacks to give an accurate knowledge of height to avoid crashing into the sea when following up an A.S.V. contact and to be at the correct height before switching on the search-light. Height accuracy was essential when making low level depth charge attacks and in using any form of bombsight then developed or under development. In the torpedo attack role, height accuracy was necessary when running in under or out from the enemy R.D.F. cover and to be at the correct dropping height to ensure the accurate running of the torpedo.

At the August meeting of the Air/Sea Interception Committee, it was reported that trials with the Type 2 radio altimeter were unsatisfactory and no fitting programme had started yet in Coastal Command. Delays in this type and in the arrival of any of the American A.Y.D. sets continued until the end of the year. The situation regarding production of 10 cm. A.S.V. was no better though matters came to a head at the end of September when it was realised that successful enemy counter-measures to the 1½ metre A.S.V. had made an appearance. Details are given in Chapter XII.

(xv) The Ocean Convoys

Earlier in this chapter it has been described how, apart from action against independently routed shipping off West Africa, the whole weight of the U-boat offensive was deployed against the unprotected eastern seaboard of America. In consequence U-boat attacks on the transatlantic convoys fell away to practically nothing and during the first five months of 1942 only nine ships of 44,500 tons were sunk within the range of Coastal Command bases.⁽²⁾ This shift in the U-boat offensive coincided with the period of depletion in the long range aircraft resources of Coastal Command⁽³⁾. These two factors encouraged the increased use

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- (1) Eight Sets of Type 2 had been delivered, of which four had been returned as unsatisfactory. Another 40 Sets were being brought up to date in the Standard Telephone Company's model shop. If trials on these were satisfactory, delivery could start at the end of July at the rate of five per week. Quantity Production could not begin until April 1943.
 - (2) Appendices IV and XXXIV give the location of Atlantic shipping losses and the details of Coastal Command's anti-U-boat operations respectively. They illustrate the results of the changes in British and German strategy as the months went by.
 - (3) Not only were these resources low owing to drafts to the Far East but, during much of 1942, priority was accorded to long range reconnaissance for the Home Fleet and the convoys to Russia.

of sweeps in support as opposed to individual close escort to convoys⁽¹⁾. Although this policy had been proclaimed in May 1941, it had lost favour after the heavy convoy losses in the autumn of that year but it was now re-affirmed that, unless there were unmistakable signs that a convoy was threatened, the available aircraft would be used primarily in sweeps over the convoy areas i.e. to the west of Ireland, in the Outer Bay, and over the Northwest Approaches through which the newly commissioned U-boats passed. During the five month period no U-boats were sighted by convoy air escorts as against twentysix by the sweeps.⁽²⁾

supporting

War Diary of
B. d. U.
and section (v)
of this chapter

In June 1942, the U-boat Command decided to re-open a limited offensive against the southern convoy route between Spain and the Azores so as to feel for another possible soft spot and to cause diversion in the Allied anti-U-boat dispositions. This month was also the time that assistance from Bomber Command Lancaster aircraft, the Liberator re-inforcements to No. 120 Squadron and Catalina additions to Gibraltar came into effect. The enemy's new move was first revealed in the increase in F.W. 200 reconnaissances to the westward of Ireland and Spain. On the 12 June, convoy HG 84 was shadowed by these aircraft until the 14th by which time the convoy was out of air reach from either the United Kingdom or Gibraltar and up to six U-boats had made contact. That night attacks were delivered in position 4220 N x 1740 W and five ships were sunk. On the 15th, the appearance of long range air escort by Lancaster and Liberators so hampered the U-boats that further operations by them were given up.⁽³⁾ However, on nearing the southwest corner of Ireland, the convoy was threatened by 30 JU 88's. No merchant ships were sighted but H.M.S. Wild Swan, well ahead of the convoy, received such severe bomb damage that she had to be abandoned.

ibid

CC/S.7050/4
Part I encls.
71A and 85A

During the first week in July, both HG 85 and OG 86 were shadowed by F.W. aircraft but no U-boat action followed. Fearing the possibility of attacks by enemy bombers the Admiralty shifted the convoy routes further to the ~~east~~^{west}ward thus putting them out of range of Coastal Command escort against U-boats. To afford what protection he could, the A.O.C.-in-C. gave instructions on the 9 July that as much long range flying as possible should be done on the eastern flank extending from latitudes 48° to 42° N between longitudes 15° and 22° W and designated Area B to distinguish it from Area A which comprised the medium range Bay Offensive flying. On the 17 of July, convoy OS 34 was sighted and reported by a homeward bound U-boat in 4630N x 2600W. Five other U-boats in the vicinity were directed towards the convoy and soon

- (1) The exact placing of these sweeps was done on information from the Admiralty Submarine Tracking Room. Continual contact was maintained between this centre and the Naval Staff at H.Q.C.C. who passed high probability areas to the Group Headquarters for use in planning the next day's operations.
- (2) Fourteen of these were attacked inconclusively but seven others were on the evidence, assessed as serious damage to three and slight damage to four. The majority of the U-boats sighted were new boats either on passage into the Atlantic or stationed in the Iceland/Hebrides area in accordance with Hitler's orders to guard against an expedition to Norway.
- (3) During the 15 June, three attacks on U-boats around the convoy were made by the escorting aircraft. Lancaster W/44 Sqdn. inflicted slight damage on U.552 but Liberator T/120 Sqdn. and Lancaster X/44 Sqdn. did not damage their U-boats.

located it. The W/T signals were D/F.ed in England and the convoy was re-routed to the southeastward in an endeavour to get into air escort range. Liberator F/120 Squadron was despatched from Predannock on the 18th and at extreme range - 960 miles from base - met the convoy at 2200 hours in 4322N x 2542W. Only four hours could be spent with the convoy at this range. Just as the aircraft was leaving, a U-boat's wake was seen in the darkness underneath but, in turning to attack, the wake was lost sight of and with no endurance left the aircraft had to give up any search. A few minutes later, two ships in the convoy were torpedoed. Several other attempts were beaten off by the surface escorts and the pack lost touch with the convoy. Efforts to regain contact during the next 24 hours failed and the chase was abandoned. This was the only convoy to be attacked on this stretch of the southern routes in July.

War Diary of
B.d.U.

In view of the slender resources of long range aircraft as distributed in the various Groups, some form of centralised direction was envisaged by the A.O.C.-in-C., in order to utilise them to the best advantage. On the 18 July, he proposed to the First Sea Lord that a more adequate prosecution of the air war against the U-boats at sea would be effected if all the long range squadrons were controlled by him from the Command Headquarters. Their sorties would be directed primarily into the area B but could also be switched to any high probability area indicated from time to time by the Tracking Room intelligence. The Group Commanders would continue to control their medium and short range aircraft on routine tasks in collaboration with their Naval C's.-in-C., but if a convoy was E.barred the control of the appropriate long range squadrons would revert to the A.O.C. of the Group concerned. Discussions in clarification of this proposed policy followed between H.Q.C.C., the Admiralty and the A.C.H.Q's involved.

CC/S.7050
encl.25A

ibid
encls.26A
to 28A.

On the 25 July, the A.O.C.-in-C. went a step further and assumed control of all the medium and short range A/U flying in the areas of Nos.15 and 18 Group informing the A.O.C's that individual patrols would in future be ordered direct every day from the Command Headquarters. On the 27th, two new systems of fan patrols were instituted for use by long range aircraft in No.15 Group and at Gibraltar.⁽¹⁾ The fan system was now universal in all areas and a glance at Map VIII will show how simple, in theory, was the centralised scheme of control from H.Q.C.C. briefed as it was with continual U-boat position intelligence direct from the Admiralty Tracking Room.

ibid
encl.29A

However, the A.O.C's, already dubious about the proposed centralised control of long range aircraft, did not relish the additional restrictions placed upon their initiative and discussions ensued before this order was

ibid
encls. 30A
to 35A

(1) One, called the Eagle Patrols Nos.1 to 25, extended southwards from Eagle Island (off the west coast of Ireland) and the other, called the C.V. patrols Nos.1 to 15, fanned up in a northwesterly direction from Cape St. Vincent. The intention of these fans was identical with the Area B scheme, i.e. to provide flank protection to the southern convoy route and to cover the western end of the U-boat passage route through the Bay of Biscay.
References - CC/G10 and G11/27/7/42.

ibid
encl. 38A

agreed to. Meanwhile agreement was reached with naval opinion on the subject of the long range squadrons and a policy signal was issued by the Admiralty on the 5 August embodying all the A.O.C.-in-C's proposals.

Henceforth a daily signal was made by H.Q.C.C. to the Home Groups, Iceland and Gibraltar giving the areas in which long range flying was to take place and indicating which convoys, if any, should receive special attention. Other daily signals were sent which ordered the precise sweeps that were to be undertaken by the medium and short range aircraft.

Donetz prepares to re-open the Mid-Atlantic Offensive

War Diary
of B.d.U.

Early in July, Admiral Donetz had made a general appreciation on the prospects of renewing operations against convoys in the Atlantic and had stationed a group of U-boats about 500 miles north of the Azores. By the middle of the month his U-boat successes had fallen away in the Cape Hatteras, Panama and Gulf of Mexico areas owing to the institution of convoy systems with much stronger air and surface craft defences. Another group of U-boats was sent to operate to the southeast of Greenland but the technique of shadowing well defended convoys by day and pressing home attacks by night had not been assimilated by the numerous fresh inexperienced U-boat captains and successes were only occasionally obtained by the few veteran captains of the 1941 vintage quite apart from the fact that since those days the offensive qualities of escort vessels were much improved.

Admty.
C.B. 04050/42(7)
Page 12

Now that the golden era of easy success against the unprotected American coastline was plainly drawing to a close, Donetz was well aware that battles against well defended ocean convoys were likely to be bitter and relatively unproductive. To prepare public opinion in Germany for less pleasing figures, he gave a broadcast address on the 27 July, ostensibly to mark the conclusion of six months operations against America but actually to warn the German people that the high rate of sinkings could not be maintained much longer and that U-boat casualties would rise when they commenced to grapple with strongly escorted convoys.

CHAPTER IV

THE ANTI-SHIPING WAR IN N.W. EUROPEAN WATERS
JUNE 1941 TO DECEMBER 1941⁽¹⁾(i) Introduction

This chapter, the first in Volume III dealing with the contribution of the Royal Air Force in the offensive against enemy merchant shipping in North West Europe, commences in the middle of the first large scale campaign waged against the enemy's sea communications between Bilbao in the south and Narvik in the north, with particular emphasis on the means employed to prevent the enemy from withdrawing further forces from the west to the eastern front, preparatory to the development of his operations against the Soviet Union.

From Chapter VI in the previous volume, it will be remembered that this large scale offensive commenced in March 1941, at the same time as a German assault had been launched against our own shipping in the North Western Approaches, which necessitated a redistribution of Coastal Command's forces to this area at the expense of operations in the North Sea.

To fill the gap, Bomber Command was requested by the Air Ministry to assist, and, by diverting a proportion of the Blenheims of No.2 Group to fulfil this commitment, they became the chief protagonist during daylight in the region of the Frisian Isles and the Dutch coast. Coastal Command continued to operate in this area by night, as well as on the Norwegian coast, the English Channel and the Bay of Biscay, but only to a limited extent.

Fighter Command was also actively engaged in this offensive as far as the range of their aircraft would allow, and apart from direct attacks on enemy shipping in the Dover Straits area and off the near continental coastline, air support was provided on many occasions for both Bomber and Coastal forces employed on 'Strikes' against enemy convoys.

By developing a low level technique, the Blenheims of No.2 Group can be said to have taken a greater toll of the enemy's shipping than ever before, but not to the extent

(1) Tabulated results of enemy shipping sunk and damaged are given in Appendix X. Appendix XXIX gives the breakdown of Anti-shipping Operations into sorties, attacks and aircraft lost for the three R.A.F. Home Commands and a comparison with Aerial Minelaying results. *A detailed chronological record of all enemy vessels sunk or damaged giving position, name, SECRET cause and tonnage is available at the Air Ministry Historical Branch (A.H.B./II/117/3(H)).*

claimed at the time.⁽¹⁾ Moreover, success was not achieved without serious losses among the Blenheims.

If the claims made by No.2 Group were accurate, it signified that the enemy must have suffered serious difficulties in the way of sea transportation at the time, and if such a high standard of achievement continued to be maintained in the future, then such losses would have to be taken into account by the Chiefs of Staff in assessing various plans, which involved an estimate of the amount of enemy tonnage available for the future prosecution of the war.

As decisions of far reaching strategical importance might be taken on the results of anti-shipping operations it was essential that every claim should be very carefully examined, so that there should be no question as to its integrity. Incorrect assessments from misleading claims might easily result in our war strategy or plans being misconceived and thereby wrongfully influence not only the policy of Commanders, but that of the Government too.

In consultation with the Admiralty and the Ministry of Economic Warfare it was decided on 25 July 1941 to set up within the Air Ministry, an Assessment Committee whose responsibility it would be to collect and collate the reports and any relevant evidence on the results of anti-shipping operations, and to make an assessment in the light of all the information available, which could with confidence, be supplied to the Admiralty and other Government departments concerned, for inclusion in the statistics required for planning.

The Committee, under the chairmanship of the Director of Bomber operations, held its first meeting at the Air Ministry on 31 July 1941, and thereafter met at fortnightly intervals for the purpose of considering and assessing the results of anti-shipping operations for the preceding period.

The full constitution of the Committee with the standards and principles it adopted during the first, second and third meetings, are outlined in Appendix VIII.

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- (1) From the start of the offensive in March 1941 to the end of June, the Blenheims of No.2 Group had flown 1,148 sorties on anti-shipping operations which led to 344 attacks on enemy vessels. Initial claims by Bomber Command amounted to 104 ships sunk and 72 damaged, totalling over 400,000 tons. These results were communicated, on 16 July, by the C.A.S. to the First Sea Lord. As this figure was about a tenth of the entire German mercantile marine, the latter somewhat naturally replied enthusiastically that they constituted 'one of the outstanding achievements of 1941'. However, when the Enemy Shipping Losses Assessment Committee was set up at the end of July, the considered claims submitted by Bomber Command had been scaled down to 73 vessels totalling 178,860 tons sunk and 62 totalling 96,780 tons damaged. The Assessment Committee drastically reduced these to 31 ships totalling 73,348 tons sunk with 58 totalling 148,720 tons damaged in various degrees. Post war evidence reveals that in point of fact only seven ships totalling 9,556 tons were sunk and ~~six~~ totalling ~~13,988~~ tons damaged. It is of interest to note that similar exaggerated claims were made by the G.A.F. in their reports of operations against British coastal shipping. See Chapter XIV.

Having adopted a suitable 'yard-stick' the Committee proceeded to assess all anti-shipping attacks as far back as 12 March 1941, i.e. the accepted date which marked the commencement of the first large scale offensive against enemy merchant shipping.

Reverting back to the claims of No.2 Group for the period March to June 1941, it is of interest to record that the Assessment Committee on examining these claims reduced the figure of 400,000 gross tons by almost a half,⁽¹⁾ but even this reduction is modest compared with that which is suffered by comparison with post-war evidence on enemy shipping losses during this period.

To get back to the offensive; it soon became evident that a lack of co-ordination existed between Bomber and Coastal Commands in the direction of the assault on enemy shipping, which was leading to a certain amount of overlapping and even neglect of certain areas. To find a quick remedy for this state of affairs, C.A.S. held a meeting at the Air Ministry on 15 July 1941, at which the views of the three Commanders-in-Chief of the operational Home Commands were amply expressed.

However, on the suggestion of the A.O.C.-in-C., Bomber Command, who recognised the present inability of his own command to conduct all anti-shipping bombing operations, a division of responsibility by areas was adopted and given a trial through-out the summer and autumn of 1941.

Each area is dealt with separately, commencing with the "Channel Stop" which is followed by the Wilhelmshaven to Cherbourg area, the Norwegian coast and the Bay of Biscay.

Throughout the summer months the offensive progressed and continued to take a steady toll of the enemy's merchant tonnage. By the autumn of 1941, however, the enemy had greatly improved his defences and although fewer sorties were being flown by No.2 Group's Blenheims, employed in the Wilhelmshaven to Cherbourg area, their losses were proportionately higher, and at the request of Bomber Command they were finally withdrawn from the anti-shipping role on 29 November 1941. Thereafter, Bomber Command played little part in the offensive against enemy merchant shipping at sea.

From this time, Coastal Command was virtually responsible, once again, for all anti-shipping operations in North West Europe with the exception of the "Channel Stop" which remained a Fighter Command responsibility and was maintained by the recently introduced Hurricane bomber.

This arrangement continued throughout the remainder of the period under review.

With regard to the statistics relating to operations, aircraft casualties etc. which are quoted in these anti-shipping chapters and their appendices, almost without exception they have been compiled specially for this narrative by collating contemporary operational forms and intelligence reports.

(1) The Assessment Committee's figures were 31 ships of 73,348 gross tons sunk and 58 ships of 148,720 tons damaged.

For the enemy merchant shipping casualties the following documents have been consulted and the appropriate details extracted to form the table headed "verification" in Appendices X, XVI and XXXIII.

(a) Records maintained by the Shipping Editor of the Corporation of Lloyds.

(b) Captured documents containing the records maintained by the German Admiralty and the German Shipowners Association.

In the main body of the text the Assessment Committee's figures have been used, as during the period they were the one source of information on the subject and were utilised for planning purposes. The post war figures have been embodied as footnotes to confirm or repudiate an Assessment Committee award.

The discrepancy between the figures produced by the Assessment Committee and those compiled from Lloyds and the German sources is acceptable, when the origin of information is considered.

In the case of the Assessment Committee, their statistics were based on the evidence obtained, at the interrogation of the aircrew immediately after the attack, from photographic and visual reconnaissance reports procured at the time of, or subsequent to, the attack, and information obtained from intelligence sources.

On the other hand, Lloyds' and the German sources, based their records chiefly on reports from Lloyds agents, ship-owners, shipmasters, members of ships' crews and German Naval Port Commanders.

The difference will be readily appreciated by reference to the above appendices, wherein the two sets of figures have been reproduced side by side.

It will be observed in the case of Coastal Command's claims under the category 'sunk' that the difference in the number of ships involved is only two for a period of twelve months, but the real discrepancy occurs in the tonnage figure.

This is understandable, however, in view of the difficulty in accurately assessing a ship's tonnage from the air, and the fact that ship recognition was not the R.A.F.'s strongpoint at this period of the war at sea.

In the 'damaged' category there is a very appreciable difference between the two sets of figures, but the explanation for this may well be contained in the fact that Lloyd's records under this heading only includes those vessels which required the attention of a shore establishment and were, therefore, withdrawn from service. Any other degree of damage, which was repairable by the ship's own crew, and did not entail a delay in port, has not been classified under this heading.

(ii) The Implication of a German attack on the Soviet Union

Information which suggested the imminence of a German attack on Russia became available to H.M. Government and the Service Ministries during May and the early part of June 1941,

C.O.S.(41)
311,325,350,
357,370,385

and from subsequent reports received it was deduced that an appreciable number of the Luftwaffe units had already been concentrated in the eastern theatre, partly at the expense of the air forces on the Western front.

It was obvious that the Germans would be unlikely to embark on such a vital project unless they were confident of a rapid victory which would then leave them free to concentrate their forces in the West.

To prolong Russian resistance and thereby prevent this rapid victory was bound to be to the advantage of Great Britain and the Dominions, since this would not only weaken the G.A.F., but would also provide time for the development of our own programme of expansion.

C.C./S.7010/
20/3 Encl.22c

In compliance with this principle, the Air Ministry instructed the Commanders-in-Chief of the three operational Home Commands to consider and report on the most effective means open to them which would prevent the enemy from withdrawing further forces from the West to the East, and to compel him to return those forces which might already have been sent, particularly in the event of operations developing against Russia.

C.C./S.7010/
20/3 Encl.22a

The three Commanders-in-Chief, with members of their staffs, duly met at Headquarters, Fighter Command on 19 June 1941, to discuss the various methods open to them, and it was finally agreed to recommend the following plan of action:-

(A) Bomber Command in conjunction with Fighter Command to plan and develop heavy attacks on the Bethune-Lens industrial area, (1) as from experience gained during recent operations it was thought that the enemy was particularly sensitive to attacks in this vicinity. If, attacks could be made in strength and cover more of this area than hitherto, the enemy would be forced to increase his fighter defences to protect these targets.

(B) Coastal Command in conjunction with Fighter Command to undertake the attack of all shipping passing through the Straits of Dover and Channel area during daylight. Combined with night attacks on Ruhr communications, this intense offensive against shipping would produce, it was thought, difficulties in transportation between France and Germany which the enemy could not afford to ignore. Furthermore, by forcing the enemy to pass his shipping through the Channel area at night, favourable opportunities would be given to surface craft of the Royal Navy for offensive action against such enemy traffic.

In addition to the direct methods referred to above, it was also proposed that the other services, i.e. the Navy and Army, should be asked to co-operate in a form of indirect action such as the staging of elaborate dummy arrangements for an invasion of France, which might make the enemy dubious of withdrawing more of his striking power, and might even induce him to bring back some of those units which had been moved to the East.

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- (1) In order to assist in maintaining a sufficiently strong force without materially reducing the night effort, Coastal Command agreed, subject to Admiralty concurrence, to return No.114 Squadron to Bomber Command immediately. (No.107 Sqdn. had already been returned)

Finally, a further operation was discussed which involved sending escorted bombers to an objective outside the normal fighter range, further particulars of which were not divulged.

ibid
Encl.22c

The minutes of this Meeting were forwarded to the Chief of Air Staff on 21 June, 1941, for general approval of the proposals outlined.

C.C./S.15080/
Ops.G. Encl.17a

There was no dissension, on the part of the Air Staff, with the conclusions reached by the three Commanders-in-Chief; in point of fact, on 8 July 1941, a memorandum issued by the Vice-Chief of Air Staff on the general strategic situation as affected by the German-Soviet Air War, did not differ in any important particular with the plan formulated on 19 June. The proposal to simulate preparations for an invasion of the continent, however, was not pursued, as it was considered that the enemy must have been well aware of his ability to meet any threat of this kind with his existing garrisons.

(a) A Combined Plan to Deny the English Channel to Enemy Shipping

An offensive by escorted bombers against enemy shipping in the Dover Straits and Channel area was, by no means, a new thing; there had been operations of this kind as early as 1940, and between February and the middle of June 1941, six "Roadsteads"⁽¹⁾ against merchant and naval shipping had been completed by Coastal Command and twelve by Bomber Command.⁽²⁾ But, this sporadic offensive had little or no effect on the enemy's boldness in passing destroyers, supply ships, barges and other hostile craft through the Straits of Dover in daylight,⁽³⁾ and likewise, operating his minesweepers, not only along his own coastal route, but also in clearing our mine-fields in the middle of the Straits - a situation which indeed proved both unsatisfactory and unacceptable to us. In consequence, proposals to effect considerable improvements in our control of the Straits were considered by the local Naval and Air Force Commanders. There were two objectives to achieve: the first was to destroy a sufficient amount of shipping to induce the enemy to provide increased fighter protection, and the second was the destruction of this fighter force, which in turn, would compel him to replace these losses by equipment transferred or diverted from the eastern theatre of operations. If the provision of increased fighter cover did not materialise and the enemy elected to pass this traffic through the Straits under cover of darkness, then his shipping would be open to attack by the Motor Torpedo Boats of the

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- (1) In "Roadstead" operations, the role of the fighters was merely to provide adequate protection for the bombers, for in attacks on nautical objectives accurate bombing was essential
 - (2) The first "Roadstead" took place on 25 February 1941, in consequence of a reconnaissance report by an aircraft of No.91 Squadron. Six Blenheims of No.59 Squadron (No.16 Group, Coastal Command) constituted the striking force and were accompanied by an escort wing of three fighter squadrons of No.11 Group, Bomber Command's participation in "Roadstead" operations commenced on 28 April 1941, when three Blenheims of No.2 Group attacked enemy small craft, off Calais.
 - (3) Enemy shipping known to have passed through the Straits of Dover in daylight between April and the middle of June 1941, was, 11 destroyers and 29 merchant ships of over 1,000 tons each.

Royal Navy as well as by aircraft on moonlight and clear starlight nights.

C.C./S. 7010
20/3 Encl. 3a

ibid
Encl. 18a

An appreciation of the possibilities of employing a mixed force of bombers and fighters for this proposed increase in the offensive against enemy surface craft, was prepared by Coastal Command in preparation for the meeting of the three Commanders-in-Chief on 19 June 1941. Subsequently, after consultations had taken place with Fighter Command, a combined plan was evolved to deny the eastern part of the English Channel to enemy shipping.

ibid
Encl. 36a

It was desirable to establish the striking force sufficiently near the enemy shipping routes to enable the attack to be delivered promptly after receipt of the information reporting the presence of a suitable target, and it was therefore arranged that one Blenheim Bomber squadron (No. 59) should be located at Detling and one Beaufort torpedo bomber squadron (No. 22) at Thorney Island. The latter were to operate from Dieppe to longitude 0300 West, and the Blenheims from Dieppe as far as the Frisian Islands, but these dividing lines were not, by any means, to be regarded as hard and fast as aircraft from either squadron could, when the occasion warranted, operate in the other area. The availability of the Blenheim was to be three aircraft at 30 minutes throughout the 24 hour period, while the Beauforts, until more crews were provided, could only keep three aircraft available throughout the daylight hours, plus sufficient for a roving patrol on moonlight nights. Aircraft of No. 59 Squadron were also to be used on moonlight nights for similar operations. Absolute 'fire brigade' action was not deemed necessary, bearing in mind that there were approximately only four positions along the enemy coast between Ostend and the mouth of the Somme where an attack could be carried out without unduly hazarding the aircraft. (1)

A 'strike' was not generally to be undertaken without Fighter protection or cloud cover, as it was known that the enemy had a fairly strong fighter force disposed in Flanders and Northern France. It was considered to be safe, however, to send unescorted aircraft to attack shipping on the occasions when a 'Circus' (2) was in operation, but it would be essential that any such 'strike' started after, and arrived back before the 'Circus' force. In giving protection to the bombers, Fighter Command were not prepared to provide maximum effort beyond Dunkirk in the north, and Etaples in the south.

- (1) In order to catch westbound shipping before it reached Calais, early information was necessary in order that an attack could be delivered at the Zuydecote Pass (off Dunkirk) or, off Gravelines. If this opportunity was missed, there was nothing to be gained by speed because the cliffs between Calais and Cape Gris Nez contained a large number of Ack-Ack batteries. In any case, as far as torpedo bombers were concerned, the water in the 'narrows' was not suitable for the running of torpedoes. Similar arrangements regarding 'Fire brigade' action, applied to eastbound shipping first reported off Etaples. (CC/S. 7010/20/3 - Encl. 25a.)
- (2) 'Circus' operations were accomplished with a combined force of bombers and fighters, chiefly against enemy land targets. The object was to force the enemy to give battle under conditions tactically favourable to our own fighters, and in order to compel him to do so, the bombers were to cause sufficient damage to make it impossible for him to ignore them and refuse to fight on our terms.

It was possible to provide protection further south on a few occasions, in which case the striking force would have to go direct to the target, as the fighters would have insufficient fuel to carry out any prolonged combats with enemy air forces that might be encountered.

It was both important and desirable that pilots and crews of the two bomber squadrons should understand the work of the fighter pilots and vice versa, and therefore, the two Group Commands concerned i.e. Nos. 11 and 16 Groups, encouraged their crews to exchange visits for the purpose of discussing the tactical problems involved and practising in the air together.

In regard to communications, it was intended that the bomber aircraft, like the fighters, should be fitted with V.H.F./R.T. sets in order that they could be ground controlled and vectored on to the target, but this special equipment did not become available during this initial phase of the new offensive.

For the location of targets, it was proposed to use the existing C.H.L. Stations, ⁽¹⁾ which had been reporting for V.A. Dover such accurate information of enemy shipping movements in the eastern part of the English Channel, and, as an alternative, routine reconnaissances supplemented by special reconnaissance when required would be flown.

During the no moon period an A.S.V. aircraft of No. 206 Squadron was to carry out a reconnaissance immediately preceding dawn from the Hook of Holland round to the mouth of the Somme; which would be followed by the standard routine patrol "Stem", ⁽²⁾ and at some time during the day, when weather permitted, another sortie by a P.R.U. aircraft. The "Jim Crows" by Fighter Command ⁽³⁾ would be continued, but in the ordinary course of events they would not extend further east than Nieuport or further west than Bai de la Seine.

The executive authority for ordering a sortie was vested in the A.O.C., No. 16 Group, and working under him was the Air Liaison Officer to V.A. Dover who was responsible for co-ordinating the reconnaissance aspect, the striking force and the fighter protection.

The name 'Roadstead' continued to be used for operations in which escorted bombers were employed, and the Coastal Command directive covering such operations was known as Coastal Command Operational Instruction No. 100.

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- (1) There were four Chain Home Low Stations in the coastal R.D.F. chain which were suitably situated to plot movements of enemy shipping in the Straits of Dover and Thames Estuary, i.e. Foreness, Swingate, Whitstable and Fairlight, all of which were connected by telephone either to V.A. Dover or C.-in-C., Nore. Foreness is just north of North Foreland, Swingate is just west of South Foreland and Fairlight is just east of Hastings. (Ref: CC/S/7010/20/3 Encls. 1a).
 - (2) The object of patrol 'STEM' was to reconnoitre the area along the coast between Dunkirk and Le Touquet during the twilight hours preceding dawn, and to attack if possible any shipping seen. It was flown by one Blenheim accompanied by two fighters as escort. (CH/G8/21/6)
 - (3) Flown by No. 91 Squadron based at Hawkinge and later by No. 601 Squadron from Manston.

ibid
Encl. 1a

(b) Operation 'Roadstead' - 27 June 1941 to 18 July 1941⁽¹⁾

The first combined operation to be put into practice under the new operational order was on 27 June 1941.

CC/S.7010/20/3
Encl.43a

CH/G4/27/6
DET/05/27/6

During the morning of that day between 1000 and 1113 hours both C.H.L. and 'Jim Crow' reported the presence of one 3000 ton merchant vessel escorted by 5 trawlers in the Straits of Dover. The convoy was on a north-easterly course at 7 knots and was expected to arrive at Zuydecoote Pass at 1515 hours. A striking force of three Blenheims of No.59 Squadron were ordered to attack, and as the weather was fine in the area, fighter protection was provided by Nos.92 and 609 Squadrons. After the rendezvous with the fighter escort had been established over Maidstone at 1445 hours, the combined force set course for the target. At 1512 hours, two merchant ships of approximately 8000 tons each and a smaller one of 3000 tons were sighted some 10 miles off Dunkirk. All three Blenheims prepared to attack and losing height from 4000 to 1500 feet released two 500 lb. bombs (fused tail 11 seconds) each, on the smaller vessel. One direct hit and one near miss astern was claimed. When last seen the stern of the 3000 ton vessel was awash and it was listing heavily. The Admiralty assessed this vessel as sunk.⁽²⁾ All the bomber crews reported the fighter escort as excellent.

CH/G9/28/6
D.E.T./04/28/6

On the following day another force of three Blenheims escorted by one squadron of Hurricanes and another of Spitfires, were despatched to deal with two 3000 ton merchant ships reported by a 'Jim Crow' at 1515 hours as one mile off Cape Gris Nez on a north-easterly course, but failed to locate the target.

No further operations of this nature were called for during the remainder of June, as the traffic passing through the Straits was either too small for consideration or had reached harbour before action could be organised.

CC/S.7010/20/3
Encls.91a

CH/G10/2/7
DET/03/2/7

On 2nd July, however, operations were resumed when a 'Jim Crow' and C.H.L. station detected a 5000 ton merchant ship escorted by two trawlers just west of Dunkirk. This force was on a westerly course at about 12 knots, and was expected to arrive off Etaples at 1840 hours. A strike force consisting of three Blenheims of No.59 Squadron with an escort of two squadrons of fighters, again provided by Nos.92 and 609 Squadrons, located this force at 1824 hours S.W. of Touquet Pointe on a southerly course at about 10 knots. All three bombers attacked the merchant vessel from two hundred feet with a salvo of two 500 lb. S.A.P. bombs each, all of which missed the target, with the nearest at 10 yards. A considerable amount of very accurate flak was encountered and all three bombers suffered some damage. Later the same night six Beauforts of No.22 Squadron, unescorted, were detailed to contact and attack the same merchant ship. Five out of the six despatched failed to locate the target, but the sixth aircraft after sweeping in a south-westerly direction down the French coast intercepted the merchant ship with one escort ahead and one astern, at 2345 hours north of Fécamp. Several runs were made over the target before a good attacking position could be secured, but eventually the final approach was made down moon on a south westerly course,

CH/G/2/7
CH/G/112/7
T1/01/3/7

- (1) For tabulated details of these operations see Appendix XI.
- (2) This assessment has not been verified from postwar records

SECRET

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releasing one torpedo at 600 yards range, from 80 feet. The air gunner followed the track of the torpedo which was in direct line with the ship, and a few seconds later saw a large column of water shoot up, which seemed to indicate that a hit had been obtained. Both escort vessels fired at the aircraft which sustained damage to the trailing edge of the port wing as well as several bullet holes in the wings. This merchant vessel was believed a total loss as P.R.U. aircraft the next day could find no trace of the craft either at sea or in Le Havre. (1) The Admiralty Assessment Committee, however, made no award through lack of sufficient evidence.

CC/S.7010/20/3
Encl.91a

CH/G1/5/7
DET/03/5/7

For the next two days there was a lull, as nothing of importance was detected passing through the Straits, but on the 5 July, plots were received, and later confirmed by 'Jim Crow' which indicated the passage of a large force of ships, i.e. three merchant ships escorted by four 'R' boats and one flak ship on a north-easterly course at 11 knots. To meet this force, six Blenheims of No.59 Squadron with one squadron of fighters of No.306 Squadron joined up over Whitstable at 1250 hours and set course for Nieuport. At 1315 hours the enemy force was sighted and 'A' Flight made a high level attack from 4000 feet to create a diversion and to draw the flak. No hits were registered, but several near misses were observed. This attack was closely followed by a low level assault from 50-150 feet by 'B' Flight which claimed two direct hits on the vessel in the middle position. In all, 12 x 500lb. S.A.P. bombs were released as well as several rounds of machine gun fire. Dark smoke was seen drifting over the convoy after the attack. An intense curtain of flak was encountered by the three aircraft engaged on the low level attack, in addition to which there was some flak from shore batteries. A shell burst under the turret of one aircraft, caused it to strike the water with its air-screws, but, with the remainder of the force, returned safely to base. The assessment for this attack was seriously damaged. (2)

CH/G2/6/7
DET/03/6/7

The next day an unsuccessful 'Roadstead' was flown, by three Blenheims escorted by three squadrons of fighters, on a doubtful target, but only wrecks were sighted.

During the forenoon of 7 July, several reports of enemy shipping under way in the vicinity of Boulogne were received from P.R.U., 'Jim Crow' and C.H.L. Stations. It was estimated that one convoy of eleven ships including at least five merchant ships of 2/3000 tons each, would be off Gravelines at 1515 hours, and it was decided that this force would be the target for a striking force of six Blenheims of No.59 Squadron which was being organised by No.16 Group. An escort of fighters, consisting of aircraft from three squadrons, Nos.306, 222 and 402, were being put up by No.11 Group. The first flight of Blenheims was airborne at 1503 hours and being on the late side they set course direct for Gravelines without contacting the fighter escort. One observer did report two fighters over Maidstone but no other escorts were seen. At 1524 hours, off Graveline, a convoy of ten ships with one destroyer was sighted about 2 miles off-shore on a course of 060 degrees speed 5/6 knots. A low level attack on two merchant ships developed, and of the total of 4 x 500lb. S.A.P. bombs dropped, one claimed a direct

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- (1) There is no record of any ships lost by air attack in this area on 2 July 1941.
 - (2) There is no verification of this assessment, from post-war records.

hit and another a near miss. One of our aircraft was seen to turn away, from this force, with its starboard engine on fire and almost immediately dive into the sea just ahead of the enemy destroyer. On leaving the convoy, one large merchant ship some 5 miles astern was emitting clouds of black smoke.

The second flight of Blenheims consisting of only two aircraft after failing to find their escort flew straight to the coast but returned after a short time to Maidstone and eventually established contact with the fighters. On approaching Calais a large number of vessels in convoy were sighted, including some merchant vessels of 2/3000 tons escorted by 'E' and 'R' boats. It was decided to attack this force instead of the original target, so, diving from 5000 to 2500 feet a bombing attack was delivered, each aircraft releasing 2 x 500 lb. S.A.P.'s. One very near miss was observed on an E-boat, which later sank. On leaving the area the convoy was observed scattering and apparently returning to Calais. The assessment for this operation was one E or R-boat sunk, one merchant ship of 3000 tons damaged. (1)

During the next nine days, nothing large enough to warrant a strike was detected trying to make the passage of the Straits. On 10 July, six 'M' class Minesweepers were reported in the vicinity by aircraft and C.H.L., but the target was considered to be too difficult to tackle successfully, without incurring severe losses.

CH/G9/16/7
DET/01/16/7

CH/G11/16/7
TI/05/16/7

It was not until 16 July, therefore, that a worth while target which called for a 'Roadstead' operation, again came into the area. Fighters on a visual reconnaissance in the Channel sighted, at 1540 hours, a 6/7000 ton enemy tanker in ballast, escorted by six trawlers, on a westerly course at 12 knots. Three Blenheims of No.59 Squadron were ordered to rendez-vous with half a squadron of fighters off Rye at 1710 hours and proceed to attack the tanker south of Boulogne. The sortie was flown at 4000 feet in good visibility but this force failed to find the tanker and her escort. Arrangements were made immediately for a second escorted striking force of Beauforts, armed with torpedoes, to locate the tanker and attack. As the weather was deteriorating, however, the fighters were withdrawn, but the Beauforts were allowed to proceed and if there was sufficient cloud cover in the area they could execute an attack. At 2113 hours, the tanker and her escort were sighted off the mouth of the Somme on a course of 210 degrees at 10 knots. The aircraft prepared to attack on a course of 095 degrees, and approached the target to within 1000 yards when the torpedoes were released from 60 feet. One torpedo failed to drop, but of the remainder, it was thought that one hit had been registered, and all three crews reported a column of dense smoke rising from a point near the foremast. In addition, hits on the tanker and the leading escort vessel were claimed by the air gunners, all of whom had used their guns liberally. Accurate light flak was encountered from the enemy force.

An assessment of 'damage' was the Admiralty's award for this attack. (2)

(1) There is no verification of damage to any shipping in this area on 7 July 1941.

(2) There is no confirmation of this assessment.

CH/G12/17/7

During the late afternoon of the following day another medium size target occupied the attention of a further escorted striking force. At 1610 hours a visual reconnaissance, confirmed by C.H.L., reported the movements off Blanc Nez of a convoy consisting of one merchant ship of 1500 tons, with an escort ahead and astern, on a south westerly course at 15 knots. It was expected to arrive off Etaples at 1830 hours, by which time it was planned to have an attacking force in this position. Six Blenheims of No.59 Squadron with an escort of two squadrons of fighters were despatched to deal with this force. At 1846 hours, S.W. of Touquet Pointe, one merchant vessel of approximately 7000 tons with one tanker of 1500 tons and two escorts, were observed, and the leader of the strike decided to make a pattern bombing attack from 3000 feet. One formation attacked the merchant vessel, the other, the tanker. Two 500 lb. G.P. and 11 x 250 lb S.A.P. bombs were dropped in all, but apart from a near miss on the port beam of the merchant ship, the results were generally unobserved. All aircraft reported considerable accurate flak from shore batteries but less accurate from the escort vessels.

CH/G14/17/7
T1/01/17/7

This same enemy force was subjected to another attack later in the evening by another strike of three escorted Beauforts armed with torpedoes, but it was reported that as the merchant vessel was so high out of the water, it was considered likely that the torpedoes passed underneath the hull. Heavy and light flak was encountered from all four ships.

This attack concluded the initial intensified campaign against enemy shipping in daylight in the Dover Straits inaugurated by Coastal and Fighter Command under the terms of the conference of 19 June. ~~in view of the fact that,~~ Under the recently agreed division of responsibility by areas, No.2 Group, Bomber Command, had now been allotted the task of destroying enemy shipping along the coast from Wilhelmshaven to Cherbourg during daylight hours. In order, therefore, not to prejudice their chances of effecting surprise, aircraft of No.16 Group were no longer to be flown along this section of the coast by day, unless specially detailed. This meant the withdrawal of No.59 Squadron and No.22 Squadron from the area, which were now to revert to their normal role, except that the Blenheims were warned to be ready to supplement No.2 Group's effort if the circumstances so demanded. No.22 Squadron were to be employed on mining operations.

(c) Summary and Comment

Of the total of 14 enemy merchant ships, exceeding 1000 tons displacement, which were detected making the passage of the Dover Straits between 27 June - 17 July 1941, it was assessed that Coastal Command aircraft in nine attacks had sunk one ship of 3000 tons, and seriously damaged or damaged a further four ships of 18,000 tons, in addition to which one escort vessel of the 'E' or 'R' boat class was also sunk.⁽¹⁾ This result was achieved by the expenditure of 8.82 tons of bombs and six torpedoes, for the loss of one Blenheim and crew, and, at the time was regarded as a satisfactory rate of exchange.

It is significant to record, in view of the motives for this new offensive, that throughout the period of 21 days under review, no movement of enemy shipping was recorded at

(1) Postwar evidence has not confirmed these successes.

Night by Swingate (R.A.F.) or the three other C.H.L. (Army) Stations, and no combats with enemy aircraft developed by day.

Although the combined Coastal and Fighter Command scheme for denying the English Channel to enemy shipping was only in operation for such a short time, a very clear understanding was established of certain essential requirements for the successful functioning of a combined bomber and fighter force against surface shipping.

In the earlier stages of the operation, it was requisite that a very close liaison existed between the reconnaissance and strike organisations, in order that no time should be wasted in acquainting the strike force of the presence of a suitable target, and despatching that force to intercept. To this end, it was necessary that the crews engaged in reconnaissance work should clearly understand the elements of strike warfare.

The next essential, and one of supreme importance, was that there must be the closest possible co-operation between escort and strike forces, which could only be achieved by constant practice together, and complete understanding of each other's tactical problems.

In the final stage of the operation, it had been brought to light from past experience, that the main fighter force should not be tied down to close escort but free to engage enemy opposition in pure fighter combat, and it was essential that a sub-section of the fighters should be detailed to clear the enemy decks prior to the final approach of the strike aircraft.

A long time was to elapse, however, before the supplies of suitable aircraft and crews could be spared from other commitments to allow for the provision of these requirements, but these points formed the basic policy upon which the Strike Wings were ultimately built.

(iii) The division of responsibility by areas - Policy

C.C./S.15080
Encl. 1A

From July 1941 onwards, the anti-shipping operations of Coastal Command began to assume a more offensive character as greater numbers of aircraft of the anti-shipping squadrons were made available for direction into their more natural employment, namely, attacks on shipping at sea.

This was largely made possible by the release of aircraft formerly employed on attacking land targets, the policy for which had undergone considerable change at the instigation of the newly appointed Air Officer Commanding-in-Chief.⁽¹⁾

His views on the bombing and fighter policy which it was considered should be followed by Coastal Command in the future, were made known to the Chief of the Air Staff during the preparatory period of taking over the Command.

The existing policy of using a variety of aircraft in small numbers for the attack of harbours and fringe targets was considered to be quite useless as insufficient weight of bombs was dropped to create any real damage to either the port facilities or any shipping within the ports. In this respect the A.O. C-in-C. expressed the hope that he would be instructed that it was no responsibility of Coastal Command to bomb such targets, but, when the necessity arose,

(1) Air Chief Marshal Sir Philip B. Touber de la Ferté.

an adequate force for the purpose should, within reason, be made available by Bomber Command. In his opinion, the primary duty of Coastal Command's striking force was the attack of shipping at sea.

Although in the past the A.O.C.-in-C. had been a warm advocate of giving Coastal Command long range fighters, he now felt that in many respects their achievements were very limited since, owing to communication difficulties they were unable to make use of Fighter Command's information and interception organisation. For this reason it was suggested that whoever administered the long range fighters in future, they should within certain limitations be operationally controlled by Fighter Command.⁽¹⁾

C.C./S.15080
Encl.2A

In his reply to these proposals, the Chief of Air Staff suggested that, before he gave any decision on these matters, consultations should take place with the Air Officers Commanding-in-Chief, Bomber and Fighter Commands, both of whom would be affected by such changes in policy, and when the considered proposals were submitted to the Air Ministry it should be stated whether or not they were in agreement with the A.O.C.-in-C., Coastal Command, on these matters.

C.C./S.15080
Encls.4A,5A
and 6A

Written consultations on the subject of the utilisation of Coastal Command's fighter and bomber force took place between the respective Air Officers Commanding-in-Chief, and while Fighter Command agreed to the proposals in respect of fighter aircraft, the A.O.C.-in-C., Bomber Command counter-claimed with the suggestion that the attack of shipping was his sole prerogative. He went on to state the need for a rationalised policy in regard to the duties of Bomber and Coastal Command, and summed up by proposing a division of responsibility by areas.

In spite of this opposition to his proposals, the A.O.C.-in-C., Coastal Command pressed forward with his claims for a new policy, submitting them to the Chief of Air Staff on 4 July 1941.

C.C./S.15080
Encl.20A

In an effort to iron out the difficulties presented by the proposals of the A.O.C.-in-C., Coastal Command and the counter proposals of the A.O.C.-in-C., Bomber Command, the Chief of Air Staff called a meeting for the 15 July 1941, for the purpose of discussing the operational responsibilities of the two Commands.

Opening the discussion, C.A.S. said it was essential that the anti-shipping operations of the two Commands should be co-ordinated for operational reasons and also in order to avoid over-lapping or the neglect of certain areas. He asked the Commanders-in-Chief of Coastal and Bomber Commands to state how they suggested this co-ordination could be effected.

The A.O.C.-in-C., Coastal Command said that in his opinion the primary responsibility for the bombing of ships at sea should be that of Coastal Command. He welcomed the use of Bomber Command squadrons to back-up Coastal Command but he thought that the primary objective of Bomber Command

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- (1) The limitations were:-
- (a) Special operations over the Fleet.
 - (b) Special escort operations over important convoys.
 - (c) Escorting of Coastal Command torpedo aircraft as required.

should be confined to land targets including the ports. He rested this opinion upon the close liaison existing between his Command and the Admiralty who were principally concerned in anti-shipping operations and on the economy and greater efficiency resulting from putting aircraft habitually operating over the sea in one Command. He admitted that Coastal Command organisation was not at present as efficient as it might be for taking advantage of the available information, also that No.2 Group had been very successful in developing an anti-shipping technique, but he did not regard these as sufficient reasons for handing over primary responsibility for the attack of shipping to Bomber Command.

The A.O.C.-in-C., Bomber Command, then presented his case and commenced by saying that in his view all bombing operations should in theory be conducted under the control of Bomber Command whatever the target. There was no reason why Bomber Command should not be primarily responsible for bombing operations against ships as they were for land targets; on the other hand use of the torpedo should be left to Coastal Command who would also continue with all reconnaissance over the sea.

He went on to give several reasons for this view point, but, on the other hand he recognised the present inability of Bomber Command to conduct all anti-shipping bombing operations, and therefore proposed that there should be a division of responsibility by areas.

Chief of Air Staff thought there was much to be said for the division of responsibility by areas, with a pooling of resources of Bomber and Coastal Commands when necessitated by the importance of the target in any particular area. He asked the A.O.C.-in-C., Fighter Command, how he would be affected by the adoption of such a proposal.

The A.O.C.-in-C., Fighter Command, explained that he was only concerned with the comparatively small area within one hundred miles of Manston, in which fighter cover could be provided for offensive operations. At present, in this area, he found that the arrangements for providing a striking force quickly from either Bomber or Coastal Commands were inadequate, although better in Bomber than in Coastal Command. He suggested that all anti-shipping operations in this area ought to be conducted by a force under single control kept at constant readiness to operate immediately on receipt of information. His experience, therefore, confirmed the value of the area division of responsibility, but showed the necessity for special arrangements in the Dover area.

The Vice-Chief of Naval Staff also favoured this suggestion, since both Commands would have to carry out anti-shipping operations in the event of invasion, it was desirable that both should continue to have responsibility for conducting them at this time. This would be provided for if an area system were adopted. He also agreed that special arrangements were necessary in the Straits of Dover area.

It was therefore concluded that a trial should be made of the proposal for the division of responsibility by areas.

Bomber Command would be made primarily responsible for anti-shipping operations in the sea area between Cherbourg

and Texel. (1) Coastal Command would be primarily responsible for anti-shipping operations over the rest of the seas round the British Isles.

If targets were presented in one of these areas which required greater resources than were available in the Command primarily responsible, then arrangements would be made direct for re-inforcements to be provided by the other Command if possible; the forces borrowed would be under the operational control of the Command borrowing them.

It was also decided that the area system of responsibility should apply to reconnaissance for anti-shipping operations, but if the Admiralty desired a special reconnaissance carried out they would call upon Coastal Command, whatever area it was desired to cover. (2)

Regarding the 'Channel Stop', it was agreed that an effort must be made to put a complete stop on the movements of enemy shipping through the Straits of Dover. It was suggested by the C.A.S., that two squadrons of No.2 Group Blenheims ought to be kept standing by at an aerodrome near the S.E. coast ready to take immediate advantage of a report of the movement of enemy shipping. The No.2 Group squadrons could take it in turn to form part of this 'fire brigade'.

The A.O.C.-in-C., Bomber Command, entirely agreed with this suggestion, but pointed out that it would put a considerable strain on his bomber resources in the Group even when re-inforced by the transfer of No.114 Squadron. He was also doubtful whether a complete stoppage could be achieved with only two squadrons immediately available. However, after further suggestions had been examined, it was decided to adopt the following measures:-

- (a) A 'fire brigade' of two squadrons of Blenheims from No.2 Group to be stationed near the S.E. coast for anti-shipping operations in the Straits of Dover, with the object of putting a complete stop on the movements of enemy shipping through that area.

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- (1) Later amended to Cherbourg and Wilhelmshaven.
(ref: C.C.S./7010/20/3. Encl.51A)
 - (2) The decisions on the conduct of anti-shipping operations reached at this meeting were embodied in a 'Directive for Coastal Command' which was issued as a joint document by the Admiralty and the Air Ministry on 2 September 1941.

In this directive the primary role for Coastal Command was still regarded as reconnaissance with offensive and defensive operations as subsidiaries.

The policy for the attack of 'fringe targets' by Coastal Command aircraft was also defined, and confirmed the opinion of the A.O.C.-in-C., with regard to this type of operation. It was laid down that the bombing of 'fringe targets' should not normally form part of the activities of the Command but rather than bombs should be brought back, certain pre-determined targets might be attacked.

In regard to attacks against enemy convoys it was stated that such attacks should be directed against the merchant vessels themselves and not against the escort vessels.

(Ref:- A.M./S/5644 - Encl.38A).

(b) No.59 Squadron (Blenheims) to be lent by Coastal Command to assist No.2 Group aircraft, until required for re-equipping with Hudsons.

(c) Arrangements to be made between the A.O.C.-in-C. Bomber and Coastal Commands for the control of the 'fire brigade' by setting up a No.2 Group Controller at No.16 Group (Coastal) Headquarters. (1)

(d) Fighter Command escorts to give the maximum possible tactical assistance to the Blenheims, including strafing the decks of the enemy ships immediately before the attack.

(iv) The 'Channel Stop'

C.C./S.7010/20/3
Encl.50A

Within three days of the meeting, formal directions on future anti-shipping operations in the Straits of Dover were despatched by the Air Ministry to the Commanders-in-Chief, including a request for immediate measures to be concerted on the lines agreed on 15 July, with a view to commencing these operations with the least possible delay.

Ibid
Encl.76A

In the meantime, a conference had been held at Fighter Command Headquarters with representatives of Bomber Command and No.2 Group to arrange the details of co-operation required in this type of combined operations. As the result of this meeting, instructions were drawn up and issued on 19 July 1941, the Bomber Controller was installed at No.11 Group Headquarters, and discussions in regard to the fighter tactics to be employed in close support of the bombers, had been held. Thus, the new arrangements were complete and under this revised scheme full use was to be made of the existing organisation set-up by Coastal and Fighter Commands prior to the division of responsibility for attacks on enemy shipping.

C.C./S.7010/20/3
Encl.76A

Fighter protection was to be provided for the bomber forces despatched against targets located in the area between Dieppe and Ostend, and although it was just possible to give escort within these wide limits, every effort was to be made to confine attacks between the area Le Touquet - Dunkirk, in order to allow the fighters some margin for meeting all contingencies.

One squadron of bombers maintained by No.2 (Bomber) Group would in future be stationed at Manston, one flight of which would be kept standing by at approximately 30 minutes notice. A further striking force of one squadron would be at one hour's notice to reinforce the Manston squadron if necessary.

In order that complete co-operation and understanding would be established between the bomber and fighter squadrons, No.11 (Fighter) Group also maintained one squadron of fighters at Manston.

It was agreed that the bombers would normally carry out their approach and attack from sea level, and it was, therefore, important that the close escort squadron should fly at approximately the same height during the approach so that warning would not be given to the target about to be attacked.

(1) Subsequently changed to No.11 Group (Fighter) Headquarters.

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In all attacks with fighter support, escorts were to give the maximum possible tactical assistance to the bombers. For example, part of the close escort squadron should be detailed to keep under fire the flak ships protecting the merchant vessels being attacked during the last stages of the approach to the target.

In the event of it being necessary to make attacks with bombers not located at Manston, ⁽¹⁾ the bombers would rendezvous and be joined by their escort fighters over a fighter station to be selected by the A.O's.C. the Groups concerned.

The existing organisation for reporting enemy shipping movements remained unaltered and was as follows:-

- (a) No.11 Group 'Jim Crow' Squadron.
- (b) C.H.L. Station reports to V.A. Dover.
- (c) Routine reconnaissance, including P.R.U.
- (d) Intelligence, Admiralty.

Thus the plan to deny the English Channel to enemy shipping was resumed on 18 July 1941, under a new partnership.

(a) Operations - 18 July to 7 October 1941

FC/S.22179
Encl.22A

The details of enemy shipping which were reported by the various sources of information to have been at sea in the Dover Straits area between 18 and 31 July 1941, showed that the number of vessels exceeding 1000 tons displacement which made the passage totalled 14, of which eight were Eastbound and six Westbound. In addition almost daily movements were recorded of some 140 odd small craft, including minesweepers, both trawlers and 'R' boats, and coastal vessels.

At night no movement of shipping between Calais and Gris Nez was detected by any of the four C.H.L. Stations covering the area. The only movement was a damaged 6000 ton tanker and escort which left Boulogne about dusk on 23rd, and although attacked by four MTB's of the Royal Navy, no hits were registered.

During the period under review nine operations of the 'Roadstead' type were scheduled and eight found the targets and attacked; seven by the Blenheims of No.2 (Bomber) Group and one by torpedo carrying Beauforts of No.16 (Coastal) Group. ⁽²⁾

For each operation a fighter force varying from one and a half to five squadrons of Hurricanes and Spitfires was provided for the protection of the bombers, a few of which were detailed to attack by gunfire the escorting flak ships, small craft, and minesweepers, which had a considerable effect on the morale of the ship's personnel and gun crews.

The wastage of fighters was not serious, in fact only three were involved, but, in spite of their efforts to minimise the A.A. fire for the benefit of the bombers, the Blenheims suffered serious casualties.

The first operation of this series accomplished on 18 July, against a 6000 ton tanker was assessed as seriously

- (1) Including Coastal Command's contribution.
- (2) For full details see Appendix XI.

damaged, (1) but was marred by the loss of the entire bomber force of three Blenheims as well as one Spitfire. One enemy aircraft was claimed as destroyed by the fighter escort.

The following day a 5000 ton tanker was claimed sunk, without loss to the attacking forces, but on 20 July two Blenheims failed to return out of a force of six which engaged and claimed to have seriously damaged another tanker of 6000 tons. (2) Three further attacks against merchant tonnage were made on subsequent days without results, but again on 23 July a loss of four Blenheims out of six was sustained during an attack against a tanker of 3-4000 tons. The next day, a force of six Beauforts of No.16 Group attempted to dispose of the 6000 ton tanker claimed as seriously damaged by Blenheims of No.2 Group on 20 July, but although six torpedoes were expended they all failed to make contact. The escorting fighters, however, claimed one enemy aircraft destroyed.

Apart from two attacks on 14 minesweepers by fighter aircraft with cannon and machine gun, no further 'Roadstead' operations took place during the remainder of the month, as no suitable targets presented themselves in the Straits area.

Besides providing escorts for these 'Roadstead' operations, aircraft of Fighter Command made several attacks on shipping within the area during the second half of July, in the course of visual reconnaissances and 'Rhubarb' patrols; (3) in addition to which a number of fighter sweeps were flown for the express purpose of attacking shipping; and in some cases damage was claimed. (4)

FC/S.24752
Encls.71A-78A

As a result of the losses suffered by No.2 Group in 'Roadstead' operations at this time, pressure was, first of all, brought to bear on Fighter Command to increase their efforts against the 'Flak ships' escorting the merchant vessels, and secondly, the Commander-in-Chief, Bomber Command, made a request to the Chief of the Air Staff, that the Hurricane Bomber, which was then under development, should be given to No.2 Group for employment in anti-shipping operations instead of the Blenheims. At a meeting held on 29 July 1941, for the purpose of discussing daylight operations by Bomber Command, approval was given to the suggestion for the use of the Hurricane Bomber in this role, but C.A.S., ruled that they should be operated by Fighter Command in order that full use could be made of the existing Fighter Command organisation, as once the Hurricane had released its bombs, it became a pure fighter and should be operated as such.

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- (1) There is no verification of this assessment.
 - (2) Neither of these claims has been confirmed.
 - (3) Operation 'Rhubarb' consisted of a series of patrols over enemy territory by single fighters or formations up to a flight in strength, operated with cloud cover except when the cloud base was below 2000 feet (later amended to 1500 feet). The primary purpose of the operation was to attack enemy aircraft in flight, but if no targets were seen, pilots might 'in favourable circumstances' attack suitable surface objectives. (Ref:- FC/S.22332, Encl.1A).
 - (4) Under Fighter Command Operation Instruction No.41, one Flight, composed of Cannon and Machine gun aircraft of Nos.1 and 3 Squadrons, were to be sent to Manston daily for the attack of enemy ships in the Dover Straits.

However, as the Hurricane bombers were not to become available for anti-shipping operations until early October, the task of denying the Straits of Dover to enemy shipping continued to be the responsibility of the Blenheims of No.2 (Bomber) Group supplemented by the torpedo bombers of No.16 (Coastal) Group.

FC/S.22179
Encl.23A

The number of vessels exceeding 1000 tons displacement which were detected in the Dover Straits area between 1 and 31 August 1941, totalled seven, four of which were eastbound and three westbound. This was a reduction of 50% compared with the numbers for the latter half of July.

Again, a large number of small craft - nearly 150 - chiefly employed on minesweeping duties were also discovered making daily movements within the area, and were an indication that the minefields laid during July had caused the enemy some anxiety.

The only movement at night was that of two merchant vessels and escort which left Boulogne at 2000 hours 131 on a southerly course. Unfortunately, the two M.T.B.'s sent out to attack developed engine defects before contact could be made.

Considering the proportion of suitable targets available, a reasonable amount of success was claimed by air action as the result of the seven 'Roadstead' operations completed during the month; six of which were flown by the Blenheims and one by Beauforts. For the expenditure of nearly one ton of bombs and three torpedoes some 10,000 tons of enemy shipping was claimed as seriously damaged or damaged,⁽¹⁾ a figure that might well have been larger if the enemy had not made use of port to port sailings on several occasions and the weather had not prevented one attack.

In addition to the 'Roadstead' operations, three Beauforts of Coastal Command on a roving commission, attacked and claimed to have seriously damaged a 2000 ton laden tanker⁽²⁾ off Nieuport for the loss of one Beaufort, and on two occasions Beaufighters of the same Command with Fighter escort went out against small surface craft.

Although the losses among the bombers, i.e. four Blenheims and two Beauforts were not quite so heavy as the previous month, they were still on the excessive side.

FC/S.24752
Encl.96B

It was appreciated by the Air Ministry that a valuable contribution was being made to the strategical situation as a whole by No.2 Group's anti-shipping operations not only in the vicinity of the Dover Straits but also throughout the remainder of the area for which they were responsible, but as the requirements for Blenheim aircraft for Malta and the Middle East⁽³⁾ had become of such prime importance, it was essential that this type of aircraft should be conserved as far as possible in the immediate future. In consequence the Air Ministry instructed Bomber Command on 29 August 1941, that the primary responsibilities of No.2 Group were, in future, to be regarded as:-

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- (1) and (2) There is no confirmation of these claims in Lloyd's or German records.
 - (3) No.2 (Bomber) Group were already maintaining two squadrons based in Malta, which was their primary responsibility before meeting any obligations at home.

(i) The attack of suitable objectives under fighter cover in Northern France ('Circus' operations).

(ii) The 'Channel Stop' ('Roadstead' operations).

Any additional operations were to be considered for the time being in the light of the foregoing priorities and with a view to avoiding serious wastage as far as possible.

Although there was an increase in the number of enemy ships of over 1,000 tons displacement using the Dover Straits during September, the number of 'Roadstead' operations within the area declined from seven in August to five in September.

Twenty-four ships were detected at sea in the area during the month, eleven of which were eastbound and thirteen westbound. Of this total, eight actually made the passage of the Straits with equal numbers east and westbound, while the remainder did not pass Gris Nez.

Only two of the five 'Roadsteads' flown, located their targets successfully, and on each occasion serious damage was claimed on the merchant tonnage concerned, namely, one 4,000 ton merchant ship and one 4,000 ton tanker, both of which were eastbound⁽¹⁾

Three Blenheims and three fighter aircraft were lost during these two operations, but seven enemy aircraft were claimed as destroyed.

Throughout the month the enemy showed an increasing tendency in favour of movements by night which gave the M.T.B.'s of the Royal Navy based on Dover the opportunities for which they had been waiting. By destroying one 6,000 ton merchant ship⁽²⁾ they gave the enemy a sample of the form of attack to which night sailings would be subjected, whenever weather conditions permitted.

Alternatively to night sailings, the enemy continued to develop a method of conducting his sailings in short stages from port to port where the size of the ship permitted entry into Calais or Boulogne, a procedure which robbed our attacking forces of the opportunities for engagement.

The number of smaller vessels chiefly employed on mine-sweeping duties (155) was approximately the same as in August, and there were also indications that the enemy was driven to using routes further off shore.

In addition to the above shipping, two 'Maas' class destroyers made the eastward passage of the Dover Straits during the early hours of 8 September. As their presence was not satisfactorily established by R.D.F., until the vessels were off Sangatte, by which time their speed increased and daylight was breaking with good visibility, an M.T.B., attack was impracticable.

C.O.S. (41)560
8/9/41

Early in September the Commander-in-Chief, Home Forces, made a request to the Chief of the Air Staff for as many

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- (1) Neither of these claims has been confirmed.
 - (2) The destruction of one merchant vessel of 6,198 gross tons by M.T.B.s of the Royal Navy has been verified. She was the German ship Trifels.

squadrons as possible from No.2 (Bomber) Group to be made available for the large scale Army exercise which was to take place between 29 September and 3 October 1941. Provided the situation at the time permitted, C.A.S. informed C.-in-C., Home Forces that he would stand down four of the six available squadrons of this Group and six Fighter squadrons, and if the Chiefs of Staff were of the opinion that the 'Channel Stop' could be relinquished for this period, the aircraft engaged on this operation would also be made available if the situation allowed. It was agreed by the Chiefs of Staff to forego the 'Channel Stop' and in consequence, No.2 (Bomber) Group were relieved of the responsibility for the attack of enemy shipping in the Dover Straits as from midday on 28 September, 1941. In point of fact they did not resume operations again in this area, as the Hurricane bomber was now coming off the line and becoming available for delivery to squadrons so that by 1 October one flight of No.607 Squadron was equipped with this type of aircraft.

For the period 29 September to 9 October, Coastal Command were made responsible for providing the bombing force in the 'Channel Stop' and three Beauforts of No.22 Squadron were accordingly based at Manston, but as no suitable targets came into the area during the period, they were not called upon to take part in any 'Roadstead' operations, and returned to their base at Thorney Island on the last day of the period.

(b) The Hurricane Bomber takes over the 'Channel Stop'
(8 October to 31 December 1941)

F.C./S.24752
Encl.126A

At the meeting held on 29 July 1941, under the chairmanship of the Chief of the Air Staff, it was decided that when Fighter Command had been supplied with sufficient fighter/bomber aircraft the responsibility for the 'Channel Stop' should be transferred from Bomber Command.

As sufficient numbers of this type of aircraft to equip one flight had been delivered to No.607 Squadron by 1 October 1941, it was only a matter of a few days before Fighter Command was ready to assume this responsibility.

F.C.S.23203
Encl.57A

In preparation for their anti-shipping role No.607 and No.615 Squadrons, in combination, carried out a number of practice attacks against wreck targets, and evolved tactics which promised to give a high standard of accuracy, together with comparative immunity from flak.

These tactics were well suited to the characteristics of the Hurricane Bomber and may be described briefly as follows:-

- (i) The Fighter Bombers, the Anti-Flak Squadrons and the Escort Squadron (if any) rendezvous and proceed to the target at 500 feet or below, to avoid giving early warning of approach.
- (ii) A few miles from the target the Anti-Flak Squadron and the Fighter Bombers increase height to about 2/3,000 feet and the Escort Squadron (if any) increase height accordingly.
- (iii) The Anti-Flak Squadron makes its usual form of attack on the Flak ships, followed immediately by the Fighter Bombers who open fire on the target-ship for about five seconds in their dive and then drop their bombs with eleven seconds delay - at very low height, either flattening out to torpedo the ship or dropping their bombs on the deck just prior to flattening out.

Of all the forms of attack practised, the above method had the squadron's complete confidence and it was, therefore, proposed to try this out on a more active type of target.

ibid
Encl.129A

On 9 October 1941, the Air Ministry and all concerned were informed by the A.O.C.-in-C., Fighter Command that he had assumed responsibility for day operations in the area Manson - Ostende - Dieppe - Beachy Head, with effect from dawn on 8 October 1941.

The newly equipped No.607 Squadron being based at Manston for this purpose.

Outside this area the responsibilities for attacks on enemy shipping remained as defined at the meeting held on 15 July 1941.

F.C./S.22179
Encl.32A

The month of October as far as the 'Channel Stop' was concerned happened to be the quietest on record, and in consequence the Hurricane bombers did not make their first 'Roadstead' operation until 30 October 1941, which was made against four small ships reported to be off Gravelines. The Hurribomber force of four aircraft escorted by seven Hurricanes of No.615 Squadron did not unfortunately, make contact with the target and therefore jettisoned their bomb load of 8 x 250lb (2 x 250lb on each aircraft) before returning to base.

The number of merchant vessels exceeding 1000 tons displacement which made the passage of the Dover Straits during October totalled only two, both of which were westbound. This being the smallest total since Germany overran France. As the movements of these two vessels and their escorts took place by night, the provision of a strike force was the responsibility of V.A. Dover.(1)

In addition to the above shipping, two destroyers made the eastward passage during the early hours of 25 October, proceeding just outside the Outer Ruytingen. Weather conditions were unsuitable for an M.T.B. attack, and the three Blenheims of No.500 Squadron despatched by No.16 (Coastal) Group to intercept and attack this force at first light, failed to make contact. One Blenheim did not return from this operation.

No movement of enemy vessels over 1000 tons was detected during daylight, and little movement of small craft was apparent either by day or night in the area covered by the Dover shore-based R.D.F.

During the period, the actual number of small craft (91) reported at sea in the Straits area also showed a marked reduction; very few of which were believed to be employed on mine sweeping.

It is considered, by V.A. Dover, at this time, that the reduction in the movements of small craft was almost certainly the result of the attacks made during the past two months by the cannon and multi-gunned fighter of Nos.91 and 615 Squadrons, which numbered shipping as their first and second objectives; and also the incidental attacks on shipping by other fighter aircraft flying 'Rhubarb' and reconnaissance sorties.

(1) See Appendix XI for further details of the action taken.

ibid
Encl.35A

Owing to the ~~severe~~ curtailment of air reconnaissance of the enemy ports and shipping routes by bad weather during November, the identification of enemy vessels at sea in the Dover Straits was particularly difficult. As R.D.F. in its present stage was unreliable in estimating sizes, the means of identification was by the coastal craft of the Royal Navy when in action, or by 'Y' information. The value of prior air reconnaissance to ascertain the target's importance and suitability for attack was amply illustrated this month.

The number of vessels of over 1,000 tons displacement which actually made the passage of the Straits during November was two eastbound and three westbound; all by night.

No destroyers or large warships were known to have gone through the area, but three or four Torpedo Boats escorted the large merchant vessel which made the passage eastwards on the 28th.

With the exception of the convoy attacked off Fe' camp on the twenty-seventh, by the Hurricane bombers of No.607 Squadron, no movement of enemy vessels over 1,000 tons was detected by daylight during the month.

An assessed award of one merchant vessel and one escort vessel sunk, with another escort vessel damaged, (1) was considered at the time to be an encouraging start for the Hurricane bomber offensive. One of the accompanying fighters also claimed the destruction of two enemy aircraft.

Later in the day, No.607 Squadron's Hurribombers took part in another 'Roadstead' against shipping at Boulogne, but on this occasion lost three aircraft and their pilots.

The number of small craft (55) operating in this area again showed a reduction, and the minesweeping element was very small.

ibid
Encl.38A

Of the nine vessels detected at sea in the Dover Straits area during December, 1941, five actually made the passage - three eastbound and two westbound; all by night.

No destroyers or larger warships were known to have attempted an entry into the area, but five Torpedo Boats escorted an important vessel on its westward passage on 13 December. Bad weather prevented any air or surface craft action against this enemy force.

The enemy's reluctance in passing vessels of over 1000 tons through the area by day, except on rare occasions was again noticeable.

From the reports of small craft using the area during the month, it appeared that the enemy was carrying out a systematic sweep between Boulogne and Dunkirk; in fact, this channel was apparently swept on fourteen occasions.

Although the identification of vessels picked up by R.D.F., had been facilitated during the latter part of the month by calibrating the sets and comparing the signal strength with the range to obtain an estimate of their size, the only sure means of identification remained with P.R.U., 'Jim Crows' or 'Y' information.

(1) Only one minesweeper - M.3810 - of 30 tons was sunk.

On two occasions, aircraft of No. 217 Squadron Detachment⁽¹⁾ were despatched at night to attack shipping making the passage of the Straits. On the first operation, the target was located and attacked, but although two flashes from delayed action bombs were seen, nothing further was observed. The second attack proved abortive as the strike force failed to locate the target, which it was thought, must have entered port.

During this month Hurricane bombers were added to the aircraft available for night attacks on enemy shipping, but as no suitable targets presented themselves there was no opportunity of showing what they could achieve in this direction. By day, however, they took part in a 'Roadstead' operation against shipping off Fecamp on 5 December, resulting in indeterminate damage to two small merchant ships and a trawler, the loss of four aircraft and their pilots. The escort fighter force claimed the destruction of one enemy aircraft.

There were no further 'Roadsteads' during the remainder of the month, but several fighter sweeps directed against the small craft at sea in the Dover Straits area, continued to be made intermittently up to the end of the year, and earned for themselves several assessments of 'damage'⁽²⁾ against the surface craft attacked.

(c) General review - December 1941

Whereas at the beginning of the period under review i.e. June 1941, the enemy was passing destroyers, supply ships, barges and other craft through the Straits of Dover in daylight, the situation at the end of year was very different. Day traffic had virtually ceased, and such movement as did take place was done under cover of darkness and at the risk of attack from the coastal forces of the Royal Navy and aircraft of the Royal Air Force.⁽³⁾

As far back as January 1941, it was agreed by V.A. Dover and the Air Officers Commanding-in-Chief, Coastal and Fighter Commands, that it could only be by air operations carried out in the closest association with the Naval command that enemy shipping, sailing so boldly through the Straits in daylight under cover of the shore batteries and the German Air Force, could be attacked and destroyed. There was the promise that if air attacks achieved sufficient success the enemy would be forced to abandon daylight sailings in favour of night, thus affording favourable opportunities for the coastal forces of the Royal Navy to come into operation.

To this end the work performed by the squadrons of Blenheim bombers of No. 2 Group, Bomber Command, the Beauforts

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- (1) This was the newly formed Shipping Interception Unit trained in the technique of controlled interception, the development of which is outlined in Appendix IX.
 - (2) There was no confirmation of these assessments.
 - (3) While the risk of attack certainly enforced these precautions on the enemy, the casualties inflicted on his shipping certainly did not prevent him from passing what he pleased through the Straits. That he did not please to pass very much through in the latter months of 1941, was not a compliment to the 'Channel Stop' at this period. See 'Appendix XI' for German losses.

of No.16 Group, Coastal Command, and the Fighters of No.11 Group, Fighter Command, had achieved that objective. Despite heavy casualties particularly among the Blenheims, low level attacks were continued in the face of powerful opposition whenever opportunity offered, until the advent of the more suitable Hurricane bombers early in October. By that time, however, the enemy had practically abandoned daylight passages.

Daylight reconnaissance requirements were most ably met by the 'Jim Crow' sorties of No.91 Squadron Fighter Command; their services had been of inestimable value in the staging and timing of shipping strikes, in ascertaining the nature and size of vessels plotted by R.D.F. and of confirming reports received from other sources. The aircraft of P.R.U. had also provided information of shipping in the enemy harbours.

In the annual review of the situation in the Straits of Dover by V.A. Dover, his remarks on the action of the Royal Air Force are as follows:-

"It is entirely appropriate and satisfactory to record that the main factor in regaining control in the Dover Straits has been the action of the Royal Air Force in establishing air superiority over the Strait and the adjoining areas."(1)

The existing air facilities for the attack of enemy shipping in the 'Channel Stop' at the end of 1941 were, that for night operations a flight of Coastal Command torpedo-bomber aircraft were stationed at Manston, being vectored on to their targets by ground control from Swingate C.H.L. station in conjunction with an R.D.F. plot maintained in the operations room of V.A. Dover. In addition, Hurricane bombers of Fighter Command were under training to carry out this duty on moonlight nights and it was hoped to obtain good results, particularly against small craft.

In conclusion it was hoped that eventually the Straits would be cleared up at night after the same fashion as had been followed by day, with the coastal craft also playing their part.

(v) Attack on enemy shipping in N.W. European Waters (excluding the Straits of Dover)

CC/S.7010/20/3
Encl. 63A

Although an appreciable anti-shipping effort on the part of the three operational Home Commands was concentrated in the 'Channel Stop', there were even larger commitments to be met outside this area.

Referring back to the conference held at the Air Ministry on 15 July 1941, it will be recalled that it was decided by the Chief of the Air Staff to give a trial to the division of responsibility by areas in regard to the attack of enemy shipping during daylight hours in North-Western European waters.

Bomber Command was given the responsibility of dealing with enemy surface craft between Wilhelmshaven and Cherbourg,

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- (1) Far from the cessation of German traffic being due to air attack, it now appears that the enemy requirements did not necessitate any more movements than did in fact take place. These requirements tailed off to practically nothing by the end of the year. Night sailings and stronger escorts were purely prudent precautions similar to our own in this area.

while Coastal Command was to cover the remaining sea areas, i.e. those off the Danish and Norwegian coasts, the western half of the English Channel and the Bay of Biscay.

In so far as the attack of shipping was concerned, the area system of responsibility was to apply also to reconnaissance.

It was made clear, however, in the Air Ministry directive issued to the A.O.'s C.-in-C., of the three operational Home Commands on 19 July, 1941, that this allocation of areas for the attack of shipping did not disturb in any way, the responsibility of Coastal Command for meeting the operational requirements of the Admiralty in all areas.

Prior to this division of responsibilities, an intensified offensive against enemy shipping traversing the Continental coastline was already in full swing, and some remarkable results had been claimed by the low level bombing of the No.2 (Bomber) Group Blenheims. However, as there was no defined limits for attacks by either Coastal or Bomber Commands, a certain amount of wastage of effort took place, which could be ill-afforded at this juncture of the war at sea. Therefore, the area system of responsibility can be said to have cured this defect in our planned offensive.

(a) Wilhelmshaven to Cherbourg - The daylight Offensive

Subsequent to 15 July 1941, Bomber Command's part in the anti-shipping offensive continued to be maintained by the Blenheim bombers of No.2 Group in the Wilhelmshaven to Cherbourg area.

Apart from the numerous attacks made by the Blenheims, with or without fighter escort against shipping in ports such as Rotterdam, Le Havre, Cherbourg and Kiel, a very large effort was deployed against merchant cargo vessels and tankers bound to and from Emden and Rotterdam, as well as those vessels found in the waters off the Frisian Islands and the Dutch coast, which were attempting or had successfully negotiated the 'Channel Stop'. Included in this traffic were Armed Merchant Raiders, blockade runners and supply vessels bound to and from the Atlantic.

During the latter half of June 1941, no fewer than 14 enemy merchantmen were attacked by the Blenheims off the Frisians and the Dutch coast. The aircraft employed in these strikes dropped a total of 7.34 tons of bombs, largely composed of the 250 lb. variety, which resulted in assessments of two ships totalling 600 tons sunk and seven others totalling 30,000 tons damaged to various degrees.⁽¹⁾ During these operations six Blenheims were lost. In addition, several attacks were made against the groups of small fishing vessels of 50-100 tons, which were observed to be equipped with W/T aeriels and identified as reporting vessels employed by the enemy to augment his advanced air raid warning system.⁽²⁾

As the offensive progressed, the enemy's opposition very naturally increased. There was a tendency to move now in small convoys of 6-8 vessels with an escort of 4-6 flakships,

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- (1) These assessments are not confirmed by Lloyd's shipping records or the German sources of information.
(2) The patrols were known as 'SQUEALERS' and were flown from the Hook of Holland to Juist.

all of which were heavily armed; furthermore towards the end of the summer several enemy aircraft were to be found either orbiting the convoy or hovering in the vicinity ready to attack any bomber force.

However, in spite of the opposition the Blenheims continued to press home their low-level attacks with believed good effect, but only at high cost in the form of aircraft casualties.

During July, assessed results showed that out of 32 ships attacked, ten totalling 33,429 tons were sunk and 12 totalling 35,613 tons sustained damage to various degrees. (1) These results were achieved by the expenditure of 20.33 tons of bombs, and the loss of ~~one~~ 18 Blenheims.

much lower
In August for a higher expenditure of bombs, i.e. 24.32 tons and a ~~slightly higher~~ wastage rate in aircraft, ~~eleven~~ ~~eight~~ Blenheims, the assessed results showed a decline in ships sunk and damaged although the number attacked increased by four - 36 ships attacked; five totalling 8,400 tons sunk and 11 totalling 24,148 tons, damaged. (2)

CC/S.7008/8
Encl.88A

It was towards the end of this month that the Air Ministry instructed Bomber Command to conserve the Blenheim aircraft as far as possible in order that the urgent requirements of the Middle East in this respect, could be met. From now on, the primary responsibilities of No.2 (Bomber) Group after this commitment had been fulfilled were to be regarded as:-

- (i) the 'Circus' offensive in Northern France.
- (ii) the 'Channel Stop'.

Any further operations were to be considered for the time being in the light of the foregoing priorities, and with a view to avoiding serious wastage as far as possible.

After this announcement it might have been expected that attacks on enemy shipping outside the special 'Channel Stop' area would have become rare; however, numerous attacks on shipping found off the Dutch and Belgium coasts continued to be made throughout September with even better assessments than in the previous month. Of the 24 ships attacked, seven totalling 15,750 tons were assessed as sunk and nine, totalling 30,200 tons, damaged, five of which were considered to be serious. (3) The wastage among the Blenheims engaged, amounted to ~~nine~~ ^{nine}, which was ~~the same as~~ ^{again lower than} the previous month, whereas the bomb expenditure was 22.58 tons - a slight decrease on the August figure. During October, a change in the primary role of No.2 (Bomber) Group Blenheims was introduced as the result of Bomber Command's relinquishment of the 'Channel Stop' to the Hurricane bomber of Fighter Command.

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- (1) According to the evidence made available after the war, four ships of 3,923 gross tons were sunk at sea by air attack in the Wilhelmshaven - Cherbourg area during July, and one ship of 3,845 gross tons was damaged.
 - (2) During August, postwar evidence shows that only three ships of 1,318 gross tons was sunk by air attack in this area, and one ship of 2,288 gross tons damaged.
 - (3) For September, records made available after the war show six ships of 5,726 gross tons sunk and one ship of 4,390 gross tons damaged by air attack.

In a directive to the A.O.C. No.2 Group, dated 16 October, 1941, Bomber Command stated that after the maintenance of two squadrons in Malta, the primary role of the Group was to be the attack of enemy shipping and fringe targets. In the execution of this task, the area Wilhelmshaven to Cherbourg was to have first priority, but in the event of no shipping being available for attack, fringe targets and self evident military objectives within the area could be regarded as alternative targets. The scale of attack was to average twelve sorties per day.

Subsidiary tasks were 'Circus' operations with fighter escort, and attacks by Fortress aircraft against targets in Germany. These tasks were to be undertaken in future only when weather and other conditions were particularly favourable.

Towards the end of the month the area of responsibility for shipping attacks was amended to Stavanger - Bordeaux, but the Wilhelmshaven to Cherbourg area was still to have first priority.

(b) No.2 Group Blenheims withdrawn from the anti-shipping role

Meanwhile the anti-shipping results for October fell very short of the past three months figures, which was largely accounted for by the adverse weather experienced throughout the month, and as a secondary reason, the absence of No.2 Group's Blenheims from active operations, in view of the fact that they were engaged in Army manoeuvres until 9 October.

Although a reduced effort was expended on fewer shipping targets the rise in wastage of aircraft (13) was the second highest during the period under review. For the expenditure of 8.48 tons of bombs only two ships totalling 2,633 tons were assessed sunk and four totalling 14,080 tons damaged. (1)

The high rate of casualties among the Blenheims was more than Bomber Command could stand, and indicated that the enemy had greatly improved his defences.

In consequence the A.O.C.-in-C., Bomber Command recommended to the Air Ministry on 8 November 1941 that No.2 (Bomber) Group, until re-equipped with Mosquitoes or something equivalent, should be relieved of all shipping attacks and revert to a night offensive role.

CC/S.15026
Encl.120A

This suggestion received the approval of the Air Ministry on 25 November 1941.

In regard to the re-equipment of No.2 (Bomber) Group, Bomber Command was informed by the Air Ministry at the same time, that four squadrons of the Group would be supplied with Boston III's during the following two months. It was requested that consideration should be given to the practicability of these newly equipped squadrons undertaking occasional daylight sorties against shipping. The aim would be, in co-operation with the forces similarly employed by Coastal Command to compel the enemy to maintain the existing

(1) Post war records confirm the sinkings of two ships of 2,661 gross tons by air attack within the area Wilhelmshaven to Cherbourg.

considerable scale of defences for his shipping.

E.S.L.A.C.

Although the Bostons of No.2 (Bomber) Group commenced their daylight attacks against enemy shipping on 16 February, 1942, and continued to participate in a very limited offensive throughout the remainder of the period covered by this chapter, no significant results were achieved.

(c) Wilhelmshaven to Cherbourg - The night offensive

CC/S.7010/20/3.
Encl.53A

Although the onus for attacking enemy shipping by day along the enemy occupied coast from Wilhelmshaven to Cherbourg rested with No.2 (Bomber) Group, a night offensive also had to be maintained against a limited amount of merchant tonnage on the shipping routes both east and west of the Dover Straits. As No.2 Group were not prepared to undertake this commitment, No.16 (Coastal) Group was delegated to fill this role.

A readjustment of routine patrols

Ibid
Encl.56A

The existing system of standard routine patrols for anti-shipping operations in No.16 Group's area extending from Horns Reef to Cherbourg was not quite suitable for the new commitment and therefore a few changes were found necessary in order to bring the plan into line with the latest policy. Furthermore, the Admiralty at this time, made a request for a daily reconnaissance to be implemented between Boulogne and Cherbourg for the purpose of obtaining data for estimating the probable movements of enemy shipping during the dark hours which, information suggested, was routed to pass through the Straits of Dover during daylight under cover of air protection and coastal batteries.

Map No.IX illustrates the system of routine patrols for anti-shipping operations in No.16 (Coastal) Group area, as at July, 1941.

CC/G1/25/12/40

Commencing at the most northerly point, Patrol SWEEP was retained in the new set-up, but was seldom flown when the Baltic was ice-free, but in the winter of early 1942 for instance, when this inland sea was so frozen-up that the shipping route through the Great Belt and the Sound to Norwegian ports was impassable, ships were compelled to come down the west coast of Denmark, when SWEEP was flown to advantage.

CH/G7/21/11/40
CH/G7/4/7/41

From Borkum to Walcheven was the next stretch of coastline which was given frequent coverage, and was known as Patrol NOMAD.⁽¹⁾ This new patrol was generally flown by three or four aircraft, each with its own section of the route to cover, during the hours of darkness, provided there was sufficient cloud, as interceptions by enemy aircraft on this section of the coast were notoriously regular.

CH/G2/18/7

Then followed the section of coastline in which the Admiralty were particularly interested in i.e. Boulogne to Cherbourg. Two patrols were laid-on to cover this area, HABO from Boulogne to Le Havre and HACH from Le Havre to Cherbourg. Both were flown in the form of an armed reconnaissance by two aircraft during morning and evening twilight. Three days after the inauguration of these two patrols, an extension was

(1) Originally Patrol NOMAD was introduced in November 1940 for the purpose of disrupting the movements of shipping, bringing coal and iron ore in the vicinity of Rotterdam, but gradually the sphere of operations became lengthened to meet the varying changes of circumstances until by June 1941, it had assumed the above mentioned proportions, and the qualification that only ships at sea were to be attacked.

CH/G7/21/7

made to the eastern limit so as to bring in the area from Boulogne to Ostend. The same conditions applied and the patrol was known as BEND.

CH/G4/1/16

CH/G8/17/6

CH/G4/2/7

Within the scheme of standard routine patrols were those which were introduced in June 1941, for the purpose of dealing with the German E-boat menace to our East coast convoys.⁽¹⁾ They were known as PIRBO 1, 2, 3, 4 and were sited in that part of the North Sea, between East Anglia and the Netherlands, on what was assumed to be the lines of approach of the E-boats from their bases at Scheveningen, Rotterdam, IJmuiden and Den Helder, to our convoy lanes.

The sphere of activity and the duration of E-boat operations were largely controlled by the period of darkness, as they usually made their departure from the Dutch coast during the evening twilight so as to arrive off the convoy lanes and carry out an attack during the dark hours making the return journey so as to be back at their bases by dawn. As there were only brief periods of darkness during the summer months it was impossible to maintain these schedules and therefore their activities were somewhat curtailed. In consequence, the necessity for the PIRBO patrols seldom occurred at this particular period.⁽²⁾

16G/S.5024/14

Encl. 71A

CH/G3/18/9

With the advance of autumn, however, and the longer hours of darkness, a resumption of E-boat activity was expected, and, in anticipation an entirely new form of attack against these small elusive targets was suggested. By means of air reconnaissance with A.S.V. fitted aircraft it was planned to locate, shadow and illuminate with flares any E-boats detected, as a preliminary to their destruction by Naval surface craft and Beaufighters of No. 248 Squadron. The number of aircraft to be employed and the patrol area known as HODEN, were of a flexible nature and were included in the orders issued at the time of the operation.

CH/G4/17/9

In the Dover Straits and Eastern English Channel area an identical scheme had been in operation since August 1941, and was known as EBO, but by the end of the year the limits of the scheme had been extended northwards round the coast and similar patrols were then being flown off the East Anglian coast.⁽³⁾

CH/G9/24/6

Complementary to these standard routine patrols were four others which were laid-on according to circumstances. For instance, patrol WANDER covering the coastline between Cap Gris Nez and Dieppe was flown by one aircraft armed with bombs, during the moonlight period, with the object of locating and attacking enemy surface craft.

CH/G6/15/9

CH/G6/11/4

Under similar conditions, free lance patrols in the North Sea between Borkum and Calais known as ROVERS, and in the English Channel between Cherbourg and Gris Nez known as ROAMS, were implemented by varying numbers of aircraft according to the availability. On some occasions aircraft would carry out individual reconnaissances and strikes; at other times a combined operation in force would be the order of the day. Variety in the place, time and numbers of aircraft taking part were the keynotes of these two patrols.

- (1) During the first five months of 1941, the whole of the German E-boat effort was concentrated on the East Coast convoy route. Eighty-seven attacks were made on Allied shipping resulting in the loss of 16 ships totalling 28,639 tons.
- (2) From the operational diary maintained by the Senior Officer E-boats, it is apparent that the lack of E-boat activity between June and October 1941, can be largely attributed to the fact that three E-boat flotillas were transferred from the western area to the Baltic for participation in the Russian campaign. Only one newly formed flotilla remained to continue the offensive in British coastal waters. (Reference for both footnotes:- Admty. NID/FDS.X.237/48).
- (3) The autumn and winter 1941/42 offensive of the German E-boat arm did not assume the proportions expected. Only ten ships totalling 21,971 tons were sunk by them during the course of 51 attacks. From German records it is clear that this mediocre effort was due to the following adverse factors as far as the campaign against British imports was concerned:-
 - (a) The Fuehrer ordered the reinforcement of light forces in Norwegian waters during the latter part of October 1941 and the 2nd Flotilla of E-boats was detailed for this purpose.
 - (b) The 1st Flotilla was released from operations in November 1941 for refit and was subsequently sent to Norway to relieve the 2nd Flotilla.
 - (c) Five boats of the 3rd Flotilla were sent to Sicily in November 1941 and five more were ordered to follow when ready.
 - (d) Reconnaissance by the G.A.F. was only slight throughout the autumn and winter, consequently only a very few convoy reports were made available.
 The situation was summed up by the Senior Officer E-boats in the concluding remarks of his December 1941 report to higher authority - "greater results could not be expected with the E-boat arm numerically at its lowest point and the G.A.F. so weak in operational areas." Ref. Admiralty NID/FDS.X.237/48.

CH/G8/21/6
CH/G8/25/6

Finally, there was the patrol STEM which was an armed reconnaissance, closely allied to the "Channel Stop", covering the area Dunkirk to Le Touquet during the twilight hours of dawn. It was usually flown by one bomber aircraft accompanied by a small fighter force. It was not intended that the fighters should act primarily as an escort but rather as an attacking force against any escort vessels while the bomber attacked the main target.

Thus the scheme of patrols in No.16 Group's operational area was adjusted to meet the new policy; the Group's anti-shipping effort from 19 July 1941, onwards, therefore, was largely confined to the hours of darkness with an occasional 'Roadstead' or 'Circus' by day when Bomber Command were unable to provide a striking force.

H.Q.C.C.
Location
Statement
No.8 -
18/7/41

For the implementation of this scheme of patrols, No.16 (Coastal) Group had available a proportion of seven squadrons of aircraft. Owing to the many other commitments of the Group, it was not possible to devote the whole of each squadron solely to anti-shipping operations. Furthermore, three of the Blenheim squadrons were in the process of re-arming, one with Beaufighters and the other two with Hudsons, and in consequence, although they were operational, they were unable to take a full part in the Group's activities for many months ahead.

The composition of the available force was, therefore, made up of Beauforts from two squadrons⁽¹⁾ which were used, generally, for sea-mining and shipping strikes of the Rover and Roam type; Blenheims from one squadron⁽²⁾ for E-boat operations and shipping strikes; Blenheim/Hudsons from two squadrons⁽³⁾ for the armed reconnaissances; Blenheim/Beaufighters from one squadron⁽⁴⁾ for E-boat operations; and Hudsons from one Canadian squadron⁽⁵⁾ for shipping strikes and E-boat operations.

(2) The enemy's convoy routine

C.C./S.7743/1
Encl.24A

It was obviously not possible at that time to be really positive about the enemy's convoy routine, but by sifting a large amount of intelligence and plotting the shipping movements, certain conclusions were reached which made it possible to assume the form the enemy's convoy schedules were following.

Departures from Rotterdam were occurring daily, at times which made it possible for the ships to be clear of the Hook by 0800 hours. The eighteen mile passage from Rotterdam was made through the New Waterway, and as the individual vessels could only steam at about 4/5 knots when in the canal zone it took them about four hours to reach the open sea and form up into convoy order. On frequent occasions a second convoy left Rotterdam in time to arrive off the Hook during the forenoon, usually about 1000 hours.

The majority of shipping movements along the coasts of Belgium, Holland and Germany were by ships using the ports of

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- (1) No.22 Squadron at Thorney Island and No.86 Squadron at North Coates.
 - (2) No.500 Squadron at Bircham Newton.
 - (3) No.59 Squadron at Detling and Thorney Island. No.53 Squadron at Bircham Newton.
 - (4) No.248 Squadron at Bircham Newton.
 - (5) No.407 Squadron at North Coates.

DS 64294/1(140)

Rotterdam, Delfzijl and Hamburg, but there was also a large scale movement from Rotterdam coastwise to the Kiel Canal and then through the Great Belt or Sound to the Norwegian ports.⁽¹⁾

Most of the convoys at this period appeared to steam at 8 knots but the plots showed that there were also some fast convoys able to make a passage at 10 knots.

To give a reliable forecast for convoys bound to Rotterdam was a much more difficult proposition as these could have come from any one of a selection of ports such as Delfzijl, Hamburg or through the Kiel Canal. However, it appeared that fast convoys were running to a time schedule making their arrival off the Hook about 1230 hours, and in addition, the plots showed quite a considerable concentration of southbound shipping - mostly slow convoys - which seemed to be timing their arrival off the Hook for 1900 hours.

From these remarks it will be obvious that the majority of the shipping movements in and out of Rotterdam were taking place during the daylight hours.

Southwards from Rotterdam there was remarkably little seaborne traffic towards Flushing, Ostend, Dunkirk, Calais and westwards through the English Channel. What movement there was, did in fact contain blockade runners, armed merchant raiders and supply ships bound for the Atlantic, but they generally came under the eye of the 'Channel Stop' and although some made the passage unmolested, the weather was on their side and aided their escape, and it was not in any way due to lack of vigilance on the part of the 'Channel Stop'. The amount of traffic in this area was insignificant by comparison with the shipping movements along the Dutch coast.

(3) Operations - July to 28 November 1941

For the first two months of this period successes at night were very few and far between, but this can be largely accounted for by the fact that:-

- (a) the enemy had not yet been persuaded to move his convoys during the hours of darkness, and
- (b) because the technique of the night attack still remained unsolved with emphasis on the lack of suitable illuminants.⁽²⁾

In consequence of the latter reason, full advantage was taken of the moonlight periods by laying on extra patrols.

C.C./S. 7743/1
Encl. 18A, 25A

During the second half of July 1941, only six ships of 13,500 tons were attacked in the Channel area (excluding the Dover Straits) and nothing was found to attack off the coasts of Holland and N.W. Germany. Although nearly one ton of bombs and six torpedoes were expended no successes were gained.

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- (1) By reason of the fact that the enemy used this route in preference to that up the west coast of Denmark, patrol SWEEP was seldom used except when the Baltic was frozen-up.
 - (2) Research and development of air/sea night reconnaissance by a reflected beam method had been pursued in the R.A.F. since 1937, but tactical and technical progress had been very slow. In Appendix 'VII' the problems and difficulties encountered up to date have been outlined.

The month of August remained almost as quiet throughout with only five ships of 15,200 tons being subjected to air attacks. The difference between this month and last was that all the attacks took place in the southern North Sea instead of the Channel. No results were achieved, however, by the expenditure of 1.05 tons of bombs, but two Blenheims failed to return from the month's operations.

There was no significant change during September as only nine ships of 38,000 tons were attacked off the coasts of Holland and N.W. Germany with two totalling 13,000 tons, assessed as damaged;⁽¹⁾ and in the west Channel area only one of 3,500 tons was attacked without result. The total bomb tonnage for this month rose to 3.90 tons.

October

In contrast to the previous two and a half months, October proved to be the busiest month so far in this phase of the anti-shipping operations in No.16 Group's area. It became increasingly evident that the enemy was now passing a proportion of his convoys along the North German and Dutch coasts during the hours of darkness in order to avoid the daylight offensive then being waged by No.2 (Bomber) Group.

In order to meet this commitment, an additional number of offensive reconnaissances of the 'Rover' type were laid on with the result that the number of attacks made during the month showed a very significant increase.

E.S.L.A.C.

Of the thirty ships of 93,000 tons attacked in the southern North Sea area, two totalling 10,800 tons were assessed as sunk and six totalling 26,000 tons as damaged.⁽²⁾

The majority of the convoys sighted were encountered off the Frisian Islands round about dawn on a southerly course, with a far less number on a northerly course just prior to midnight.

The first claim came early in the month by a Hudson aircraft of No. 407 Squadron (R.C.A.F.) when on a Rover patrol between the Hook of Holland and Borkum, on 1 October. The attack was made on a merchant vessel of 2,000/2,500 tons, and was granted the assessment of 'seriously damaged'.⁽³⁾

This attack was followed by a quiet period of eight days during which nothing of importance occurred, but on 10 October, a Blenheim aircraft W/500 during the course of a Nomad patrol sighted in position 52.28 N - 04.27 E an enemy convoy of approximately ten to twelve merchant vessels of various tonnages between 500 - 3,000 tons including one tanker, with an escort of three vessels, on a course of 190 degrees true at 8 knots. A first sighting report was sent at 1202 hours, on receipt of which, No.16 Group detailed a striking force of three Blenheims A, J and L/500 Squadron to attack this convoy. The strike took the form of a 'Roadstead' operation, and the bombers were, therefore, met by twelve long range Spitfires of Nos.152 and 19 Squadrons of Fighter Command, over Swanton Morley at 1515 hours and from there set course in formation for the Hook of Holland. At

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- (1) There is no verification of these two assessments, from post war records.
 - (2) Only one dredger of 100 tons was sunk.
 - (3) Post war evidence does not support this assessment.

1602 hours the convoy was sighted in position 52.04 N - 04.06 E, headed by a naval vessel, believed at the time to be a small cruiser⁽¹⁾ and several flakships all of which opened fire immediately. This force was followed by eight merchant vessels (varying from 500-3,000 tons) escorted by four or five flakships. About one mile astern was yet another merchant vessel of 3,000 tons with one escorting vessel. As pre-arranged, the bombers split up to make individual attacks. Aircraft A/500 climbed to one thousand feet and approached the convoy from an off-shore direction to deliver an attack from sea level on a vessel of 2,000 tons with 4 x 250lb. S.A.P. bombs, of which two were claimed as direct hits. The rear gunner fired two long bursts of 200 rounds each into the escorting vessels ahead, and saw several figures jump overboard from two vessels. Aircraft L/500 also delivered two attacks on two merchant vessels but results were not observed. Such intense flak was encountered that the third aircraft received a direct hit and was therefore unable to make an accurate approach for an attack to be delivered, but the rear gunner fired five hundred rounds with machine gun into the naval escorts. The assessed result for this attack was one merchant vessel of 2,000 tons 'seriously damaged'.⁽²⁾

Although several attacks were made by aircraft engaged on 'Rover' patrols off the Frisians between 10 and 25 October, no further successes were achieved. On the 26th, however, the first sinking of the month was claimed by one of six Hudson aircraft flying a 'Rover' patrol off the Dutch coast in the vicinity of Ijmuiden. The six Hudsons of No.407 Squadron were ordered to carry out individual patrols between Nordeney and Ijmuiden at dawn. Each aircraft sighted a convoy but from their reports it appeared that several sighted the same convoy. Five attacks were made; four with bombs and one with machine guns only, the sixth aircraft attempted an attack but the bombs failed to release. Of the four attacks with bombs, that made by Hudson C/407 Squadron was assessed as sunk.⁽³⁾ This aircraft was airborne at 0549 hours and having reached Ijmuiden at 0654 hours sighted two merchant vessels of approximately 3,000 tons each on a course of 045 degrees true; speed unknown. From fifty feet a stick of 4 x 250lb. S.A.P. bombs were dropped on one merchant vessel and approximately 750 rounds were fired from the rear and side guns. Flames and smoke, not unlike oil burning were observed to be coming from the stern of the vessel as the aircraft set course for base.

Attacks continued to be made against enemy convoys during the hour or so before dawn on the two following days, i.e. 27th and 28th but no further successes were claimed.

The last day of the month, however, proved to be the best of all, for during the course of Nomad, Rover, Strike and Suivi patrols, one ship of 7,800 tons was claimed sunk and four ships of 18,000 tons were claimed as damaged.⁽⁴⁾

CH/G1/30/10

CH/G6/29/10

At dawn on the morning of the 31st, three Blenheims of No.500 Squadron were sent out on a Nomad patrol between Nordeney and Ijmuiden. At 0639 hours one of the Blenheims sighted three coasters of about 900 tons and twelve fishing vessels, just north of the Western Ems, and proceeded to

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- (1) It later transpired that this vessel was a minesweeper.
 (2) There is no evidence in post war records to confirm this assessment.
 (3) and (4) There is no confirmation from post war records.

attack one of the coasters with 4 x 250lb. G.P. bombs from two hundred feet. Three of the bombs fell short and the fourth overshot. After only ten rounds had been fired from the front guns, a fault developed and they jammed; the rear gunner got in two short bursts from which tracer was seen to strike the deck of the ship. The second Blenheim returned to base early owing to an electrical failure and the third aircraft failed to return. Not a very encouraging start, but the next attack appeared to be more successful.

CH/G2/31/10

At dusk a Hudson aircraft of No.407 Squadron on a Rover patrol in the same area made a first sighting report on a convoy of ten to fifteen ships sighted off Terschelling. This was followed by a low level attack on a merchant vessel of 4,000 tons. Four S.A.P. bombs of 250lbs. each were dropped from fifty feet, one of which was seen to register a direct hit close to the foot of a mast. This attack resulted in an assessment of 'damage'.(1)

E.S.L.A.C.

CH/G6/31/10

On receipt of the first sighting report No.16 Group ordered a strike force of three Blenheims of No.500 Squadron and eight Hudsons of No.407 Squadron (R.C.A.F.) to attack this target.

During the series of attacks developed by this strike force, seven hits were claimed, including a salvo of 4 x 250lb. S.A.P. bombs from a Blenheim on a vessel of 7,800 tons of which the funnel and parts of the superstructure were seen to fall into the sea, and twenty seconds later the vessel exploded and caught fire. This ship was regarded by the Assessment Committee as a 'total loss'.(2)

Further successes in the 'damaged' category amounting to three ships of 14,000 tons were claimed by the Hudson strike force of No.407 Squadron during the course of the night 31 October - 1 November.(3) Of the eight aircraft despatched, seven made low level attacks on targets found by A.S.V. and visual means; the eighth aircraft returned to base with turret trouble.

Operations in the English Channel area west of the Dover Straits for the month were somewhat restricted in comparison with the North Sea area, and resulted in only one attack by a Hudson aircraft of No.59 Squadron during the dawn patrol Habo on 14 October. A group of three ships, including one of 5,000 tons was attacked with 3 x 250 lb. S.A.P. bombs in salvo, but no results were observed.

Throughout the month two hundred and twelve sorties were flown on enemy merchant shipping reconnaissance and strikes, and the bomb tonnage was just over fourteen tons.

November

During the month of November the improvement in the amount of enemy shipping located and attacked by night was not only maintained, but for the first time exceeded 100,000 tons in the Southern North Sea area. Of the thirty-six ships of 107,657 tons attacked, four, totalling 3,981 tons, were

(1)(2) There is no support for these assessments among post war records.

(3) It is confirmed that the Swedish ship Brahholm of 5,676 gross tons was damaged by air attack off the Dutch coast on 1 November.

assessed as sunk and eleven, totalling 43,276 tons, damaged. (1)

As in the previous month the majority of the ships attacked were found off the Frisians during the hours of darkness before dawn or round about midnight. Throughout the month the eastbound convoys were regularly contacted before midnight, but the westbound traffic appeared to lack such a time schedule and were found all over the area at irregular times between dusk and dawn.

CH/G1/2/11
H.Q.C.C.
Narrative
d/d 2.11.41

After the activity in shipping attacks during the last night of October and the early hours of 1 November, fresh claims in the damaged category soon came the way of five Hudsons of No.407 Squadron engaged in a shipping strike during the early hours of the following morning. A convoy of ten merchant vessels, previously reported by aircraft of No.5 (Bomber) Group off the Dutch coast, was found off Terschelling, and three vessels of the 5/6,000 ton class were attacked, with claims for direct hits on two ships. In one case an explosion of large proportions which lit up the whole sky, was seen by the Hudsons crews. Both of the vessels involved were assessed as 'damaged'. (2)

CH/G3/2/11
H.Q.C.C.
Narrative
d/d 2.11.41

A few hours later, a second strike force of three Blenheims was despatched to deliver another blow at the same convoy, but only one aircraft (W/500) was successful in finding any shipping. This aircraft sighted a convoy of eight merchant vessels off Ameland on a westerly course at 0714 hours and attacked the largest vessel of 3,000 tons with 4 x 250 lb. G.P. bombs from six hundred feet. The result was uncertain but one hit was claimed and another bomb was seen to explode some fifteen feet from the ships side; however, in view of the lack of any confirmatory evidence, no assessment was allocated to this attack.

CH/G6/2/11
H.Q.C.C.
Narrative
d/d 2.11.41

After dusk the same evening, one Hudson of No.407 Squadron on a Rover patrol off Ameland contacted by A.S.V. an eastbound convoy of seven merchant vessels and attacked one vessel of 1,500 tons from fifty feet. One hit was claimed which caused a dull red flash followed by sparks and smoke from amidships. This attack earned an assessment of 'damaged'. (3) As a follow up, a further strike force of three Blenheims was sent out to locate and attack this convoy but misfortune befell the first aircraft soon after take-off while the other two aircraft were compelled to return to base owing to adverse weather.

CH/G6/2/11
H.Q.C.C.
Narrative
d/d 2.11.41

Later the same night a Rover was flown by five Hudson, two of which picked up the same eastbound convoy by A.S.V. off Vlieland. An attack developed which resulted in one 7,000 ton tanker being claimed as damaged by one or two direct hits. (4)

As there were no more serviceable aircraft available in No.16 Group to continue the attack on this convoy, six Hudsons of No.608 Squadron at Thornaby under No.18 Group's control

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- (1) From Lloyd's shipping records and the German sources, it has been confirmed that four ships of 3,821 gross tons were sunk by Coastal Command aircraft during this month, and a further two ships of 8,919 gross tons were damaged.
 - (2) There is no confirmation of this assessment.
 - (3) There is no verification of this assessment from post war records.
 - (4) There is no confirmation of this assessment.

were despatched individually to the area and carried out further attacks during the early hours of 3 November, but without results. Two of the force returned to base. Three of the Hudsons also came back after drawing a blank, but the fourth aircraft sighted the convoy and selected the largest vessel for an attack from mast height. One or probably two direct hits were claimed on the forward part of the ship which caused debris to be thrown into the air followed by smoke and steam. The aircraft also machine-gunned other vessels in the convoy and succeeded in temporarily silencing the flak from the escort craft.

During the late evening of 5 November, two Hudsons (K&R/407) on a Rover patrol off the Frisian Islands made A.S.V. contact, and then visually sighted, a convoy off Ameland consisting of approximately twelve vessels with an escort of two flak-ships on a westerly course at eight knots. One of the Hudsons (K/407) made an attack from eighty feet on a 4,000 ton merchant vessel. One bomb failed to release and the position of the remainder were not observed in relation to the target. Intense and accurate flak was encountered.

TH/01/6/6/11
H.Q.C.C.
Narrative
d/d 5.11.41

As a result of this combat, a further eight Hudsons supplied by No.18 Group were despatched to re-locate and attack this convoy. Five aircraft were successful in sighting the target and making attacks, but in two cases results were not observed. The remaining three aircraft (O,G,H/608) selected merchant vessels of 1,500 tons, 6/7,000 tons and 2,000 tons respectively, each dropping 4 x 250lb. S.A.P. bombs from one hundred feet or less. Aircraft G/608 which attacked the largest vessel appeared to be the most successful and obtained an award of 'damage' from the Assessment Committee.⁽¹⁾ Having seen two of its bombs fall ten and twenty yards away from the ship's side, the placing of the other two were not observed but a large column of flame was seen to rise from the approximate position of the attacked vessel. Two Hudsons (D&K/608) failed to return from this operation.

Five days elapsed before the next claim to success came along. This was the first 'sunk' assessment of the month and was made by a Beaufort aircraft (V/86)⁽²⁾ in company with a Hudson (E/407) and another Beaufort (E/86) which had been sent out on a daylight patrol between the Hook of Holland and Den Helder. All three aircraft attacked a lone merchantman found off Texel at 1422 hours. The bombs of E/86 failed to release and those of E/407 overshot, but the 6 x 250lb. S.A.P's

No.86 Squadron
P.R.B.

- (1) There is no confirmation of this assessment from post war records.
- (2) No.86 Squadron (Beauforts) had been based at North Coates since 12 May 1941, and had commenced equipping with Beauforts and working up from 11 June. The Squadron carried out its first minelaying operation off Ameland on 15 July. In September a detachment of three aircraft was sent to Leuchars for operations off the Norwegian coast and carried out its first torpedo attack on 12 September. During October the squadron became non-operational while torpedo training at North Coates, and by November was able to take part in anti-shipping operations with No.407 Squadron off the Dutch coast, but in view of the fact that 11 crews were posted to the Middle East between 20 and 30 November, the squadron reverted to minelaying. The claim made by V/86 is confirmed by post war evidence but it was a fishing vessel of 190 tons.

from V/86 scored one or more direct hits and the vessel (350 tons) was reported to have sunk within four minutes.

CH/G2/18/11
H.Q.C.C.
Narrative
d/d 18.11.41

For the next twelve days the wintry weather experienced in the southern North Sea precluded all anti-shipping operations except for the occasional reconnaissance from which nothing of importance emerged. The one and only attack throughout the period was a cannon and machine gun encounter between three Beaufighters and an escort vessel found north of Den Helder on 18 November.

CC/S.15213
Encl. 30A

In contrast to the increase in anti-shipping operations which was being experienced off the Dutch coast and Frisian Islands at this time, there was a considerable reduction in enemy traffic passing through the Dover Straits and the English Channel which appeared to make some of the routine patrols being flown in this area, surplus to requirements. For instance, from an analysis of the results obtained by the HACH and HABO patrols during the month of October, out of forty patrols flown, only two sightings were obtained. In view of the additional requirements in the numbers of aircraft required to fill the night role off the Dutch and N.W. coasts of Germany, especially during the moonlight periods, it seemed that this unfruitful flying in the Channel area could be easily dispensed with and the aircraft thus released could be more usefully employed. The A.O.C., No.16 Group strongly urged H.Q.C.C. to approach the Admiralty, at whose request these two patrols were maintained, for the purpose of obtaining their permission to discontinue this unprofitable routine flying. On 20 November 1941, this request was granted, but they were to be laid on when required for a specific purpose.

CH/G5/24/11

On 24 November, during a temporary improvement in the weather, a Rover patrol was flown by two Hudsons (F&P/407) between Den Helder and Norderney, during the course of which a merchant vessel of 2/3,000 tons was attacked but no claims made.

H.Q.C.C.
Naval Staff
Officers Log

Three days later an intelligence report gave the information that the S.S. Annam (3,600 tons) was leaving Rotterdam on 27 November with a very important cargo for Copenhagen, and would be off the Hook of Holland at 1000 hours.

CH/G1/27/11
H.Q.C.C.
Narrative
d/d 27.11.41

To deal with this target a daylight operation was necessary; it was therefore arranged that a 'Roadstead' would be carried out. (1) The force which set out to locate the target consisted of three Beauforts of No.217 Squadron armed with bombs and twelve Spitfires of Nos.19 and 152 Squadrons of Fighter Command, but they failed to find the ship. Instead a convoy of two merchant vessels of 1,500 tons each, one merchant vessel of 800 tons and six trawler type auxiliaries was found off the Hook of Holland at 1025 hours and attacked by the three bomber aircraft who concentrated their bombs on one 1,500 ton ship which appeared to be equipped with catapult and aircraft. A total of 6 x 500lb. G.P. and 12 x 250lb. G.P. bombs were released from mast height and were believed to have fallen around and on the target, which, according to the crew's account, was left enveloped in smoke and listing heavily. It transpired later, however, that a 431 ton trawler type vessel was sunk during this

(1) In the case of escorted attacks on shipping in the coastal waters between Texel and Ostend, fighter protection and support for the bombers was provided by No.12 Group.

encounter and not the merchant vessel of 1,500 tons.⁽¹⁾ One Beaufort was shot up but landed successfully.

(4) Armed merchant raider activities - 28 November to 7 December 1941.

On the following day, i.e. 28 November, another important piece of information came to hand which indicated the presence of an inward bound enemy raider, known as 'Raider B',⁽²⁾ in the English Channel. The first indication of her arrival in home waters, although not positively confirmed at the time, came in through a sighting report made by a Catalina aircraft (Q/209) engaged on an Anti-Shipping Cross-over patrol in the Bay of Biscay near the Spanish coast, on 23 November. The ship, was reported as one merchant vessel of 2,000 tons, three island type, fairly high raked or clipper bow and rather squat funnel. She was closely escorted by an unidentified aircraft later recognised as an H.E. 115 which prevented the Catalina from approaching the merchant vessel. Eventually a combat ensued and Q/209 sustained some damage. There was some delay in reporting this ship to base, as the Captain of aircraft was reluctant to break W/T silence in view of the state of 'Q' after combat, until nearer base and protected by the approaching darkness.

Form Orange
PD/G1/24/11 and
PL/G6/22/11

H.Q.C.C.
Controllers
Log

On 24 November, the weather was very poor and precluded a similar patrol in the same area as Q/209 had found the ship. It was anticipated, however, that if she had not already entered port, she would be sighted sooner or later by aircraft engaged on the routine patrols which covered her approaches to a German port. However, she managed to evade further sightings, and contrary to the enemy's current policy for east-bound shipping in the English Channel to hop from port to port, this ship came up without a pause, with the result that the next concrete news of her whereabouts, came from Dover C.H.L., which reported a contact on a large eastbound merchant vessel off Cap Gris Nez at 0230 hours on 28 November.

Immediate steps were now taken to locate and attack this important target.

H.Q.C.C.
Narrative
d/d 28.11.41

The weather in the Dover Straits and southern North Sea was far from satisfactory for the type of task on hand, there was much cloud with base at 500 feet with almost continuous rain and very poor visibility between south east England and south west Norway. Patches of fog and lifted fog were expected during the morning off Continental coasts.

CH/G3/28/11

In spite of the weather it was proposed that two Hudsons of No.59 Squadron and three of No.407 Squadron(R.C.A.F.) should carry out a strike during the hours of darkness followed by three aircraft of No.86 Squadron at first light. Fighter protection had been arranged to cover the withdrawal of the last named aircraft which would be in broad daylight. Instructions to this effect had been despatched to the stations concerned by 0330 hours.

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- (1) This was the Dutch trawler Delft of 431 gross tons, the sinking of which is confirmed.
 - (2) A motorship named Komet (ex Ems) of 3,287 gross tons. She was converted to an armed merchant raider at Hamburg and was commissioned on 1 June 1940. During her first cruise ending November 1941, she is believed to have accounted for 36,305 tons of Allied shipping. Her armament included 1 E-boat and 1 Aircraft.

CH/G4/28/11

Two hours later these arrangements were revised. Only the two Hudsons of No.59 Squadron were to strike in the dark hours and No.407 Squadron's aircraft, now increased to six, were to strike at first light; No.86 Squadron's effort was cancelled. In addition, arrangements had been made for three Beauforts of No.22 Squadron, armed with torpedoes, to proceed from St. Eval to Bircham Newton at first light or earlier if weather permitted, in readiness for a daylight attack.

H.Q. No.16
Group Narrative
d/d 28.11.41

In the meantime the two Hudsons of No.59 Squadron had become airborne, but immediately ran into nil visibility and were compelled to return to base.

By 0600 hours on the 28th the strike force consisting of six Hudsons of No.407 Squadron were on their way to the target area. Four aircraft made landfall in the vicinity of Walcheren and patrolled south westwards but failed to make any contacts in the thick low cloud and almost continuous rain encountered; the remaining two aircraft saw nothing. All were diverted to aerodromes on the south coast in view of the appalling conditions at their own base at North Coates.

RO/G2/28/11
H.Q. No.18
Group Narrative
d/d 28.11.41

As no further operations were possible from No.16 Group stations, six aircraft of No.608 Squadron at Thornaby were able to get off at 1130 hours and proceeded to the Hook of Holland to search the shipping channel south westwards towards Zeebrugge.

Two of this force abandoned the patrol owing to bad visibility and another did not sight anything. The remaining three aircraft (M.H. and K/608) however, sighted during a break in the weather two large trawler type vessels, two flak-ships, a convoy of six merchant vessels and a larger merchant vessel conforming to the description, given at the briefing, of the ship they had been ordered to locate. This vessel was in the act of turning-in for the shelter of the Hook of Holland. Attacks were made on both flak ships, one of which was left burning and subsequently assessed as 'seriously damaged'.⁽¹⁾ One of the trawler type vessels was also attacked but results were not observed.

All night operations were cancelled owing to the continued bad weather.

On the following morning, the 29th, the position was reviewed at H.Q.C.C., but in view of the lack of information on the whereabouts of the Raider - its anchorage or whether it was in Rotterdam - it was decided that a strike on the Dutch port would be an unnecessarily hazardous undertaking but it was considered advisable to sweep along the Dutch coast in a northerly direction from the Hook of Holland.

RO/G3/29/11

Although the weather at Thornaby and Leuchars was very doubtful, three Beauforts of No.42 Squadron eventually managed to get off from Leuchars at 11.30 hours. Poor visibility along the Dutch coast prevented two aircraft from seeing anything of importance, and on their return they were diverted to Thorney Island as conditions at base had worsened. The third aircraft, however, was more fortunate and struck a patch of clear weather during which a merchant vessel of 4,000 tons escorted by four destroyers was sighted in position 52.36N, 04.18E, on a north-easterly course at ten knots. An immediate attack was made from seventy five feet in the face of heavy flak from the four escort vessels and owing to the evasive action necessitated by this onslaught the results were unobserved.⁽²⁾ Photographs were taken, and revealed a probable

(1) This is not confirmed in post war records.

(2) Actually one hit was secured but the bomb failed to explode
Ref: The log of the Komet.

fruit carrier type of modern ship about 3,000 tons. There was no camouflage or armament visible.

H.Q.C.C.
 Controllers Log
 d/d 29.11.41

A subsequent strike force of three Beauforts of the same squadron despatched from Leuchars to follow up this attack, saw nothing, and although they had been ordered to land back at Thorney Island this had to be changed to Wick while they were in the air, as Thorney Island was rapidly becoming unserviceable. Instead they landed at aerodromes in East Anglia and one, unfortunately, crashed into some High Tension cables near Farningham, Kent, and all the crew were killed.

The bad weather continued throughout that evening, and although the target was such an important one, the chances of getting away another strike became hopeless, and eventually the A.O.C.-in-C., Coastal Command decided that further strikes were out of the question under the existing conditions.

CH/G2/29/11

Towards midnight of the 29th/30th the weather began to clear and enabled two Hudson of No.59 Squadron to take-off early on the 30th on a NOMAD which was extended to Borkum in order to cover the Raider's estimated line of progress; however, no shipping was seen so it was concluded that the ship had reached the comparative safety of a German port.

H.Q.C.C.
 Controllers Log
 d/d 29.11.41

It was at 1900 hours the same evening, the 30th, that the first intimation was received in H.Q.C.C., that an outward bound enemy raider(1) had left a German port and was making her way down the North Sea.

At 2200 hours No.16 Group was informed that a strike was required to be off the Hook of Holland as soon as possible after midnight to sweep northwestwards up the Dutch coast and to attack some southbound shipping reported by the Hudson (F/59) engaged on the NOMAD patrol earlier that evening. At 2357 hours, No.16 Group announced that eight Hudsons and five Beauforts would be available for this task.

Concerning the movements of armed merchant raiders, it will be readily appreciated that, at the time, it was most essential for security reasons that only the minimum number of people should have knowledge of the information, and even more important still the enemy must not be made aware of what was being sought. Therefore, the aircraft were ostensibly sent out to attack shipping generally or a particular convoy, which it was hoped by the Operations Staff would include the object of the strike. On this occasion it was the South bound convoy of fifteen merchant ships which had been sighted earlier the previous night by one of the routine reconnaissance aircraft which provided the 'excuse' for special efforts to locate the raider.

In the early hours of the following morning, 1 December, a large composite force of eight Hudsons and five Beauforts was despatched to the Hook of Holland under the pretext of

(1) Believed to be Raider 'E', a steamship named Thor (ex. Gran Canaria) of 3,866 gross tons. She was converted to an armed merchant raider at Hamburg and was commissioned as such early in 1940. Her armament included 6 x 5.9 inch guns and two torpedoes. She completed her first operational in April 1941, and was believed to have sunk or captured 78,254 tons of Allied and Neutral shipping, including H.M.S. Voltaire.

seeking out this southbound convoy, but in reality to try and locate the outward bound raider.

None of the aircraft appeared to have sighted the target which was the real object of the strike, but one Hudson (H/407) attacked a convoy of nine ships found off Vlieland, and owing to the intense flak was unable to locate the ships a second time or observe the results of the attack. A second Hudson (M/407) also sighted one 4,000 ton and three 2/3,000 ton merchant ships north of IJmuiden but was driven off by the amount of flak put up and later failed to re-locate the ships. Nothing of importance was sighted by the remainder of the force, and one Hudson (J/407) failed to return.

During the course of the morning it was deduced by the amount of enemy W/T traffic that there were numerous convoys underway between the Hague and Schiermonnikoog including some important shipping, as enemy air escorts and defensive activity were abnormally busy.

H.Q.C.C.
Controllers Log

At midday, No.16 Group was informed by H.Q.C.C., that an appreciation of the probable movements of the raider was in the course of preparation, but in the meantime the A.O.C.-in-C., desired all available Beauforts of No.217 Squadron fitted with V.H.F. to be sent from Thorney Island to Manston, in preparation for an early strike.

Throughout the afternoon the weather gradually deteriorated and it was expected that all No.16 Group's activities would have to be abandoned for the rest of the day. By 2150 hours all the Group's stations were closed down and operations cancelled.

No further information on the raider's movements came to hand during the night until at 0232 hours on the morning of 2 December, considerable W/T activities were noted between Boulogne and Dieppe and again an hour later between Dieppe and Le Havre. From which it appeared that the raider was probably approaching the Channel area.

With the east coast and most of the south coast aerodromes fogbound all day nothing could be done from this area to alleviate the position; however, as some of No.19 Group's stations were serviceable in the west country the Group was instructed to arrange for one aircraft to sweep east from Cherbourg and also to bring six Beauforts (three with torpedoes and three with bombs) to readiness at St. Eval prepared to strike if the reconnaissance aircraft made a sighting. This chance was short-lived as the reconnaissance aircraft was cancelled owing to poor visibility in the area. In consequence the three Beauforts armed with bombs, were released in view of impending night operations in the Bay of Biscay, but three torpedo carrying Beauforts were kept at immediate readiness.

The fog in the Channel area persisted throughout the day and night causing all operations for Nos.16 and 19 Groups to be cancelled.

No further information on the raider's movements came in during the night, nor were there any prospects of air reconnaissance the next day, i.e. 3 December, as there was still widespread fog overland and thick haze at sea in the Channel area, and although it cleared slightly during the middle of the day it reformed again at dusk.

Then, at 1950 hours that evening V.A. Dover reported

SECRET

140

that C.H.L. had picked up four surface craft off Dunkirk on a south westerly course at fourteen knots. This force was later identified as one merchant vessel of about 2,000 tons and three smaller vessels.

In low visibility a force of M.T.Bs. supported by M.G.Bs. was despatched to attack but results were unobserved.

A second force of M.T.Bs. were sent out but failed to make contact with the target as the enemy surface force had entered Boulogne at 2135 hours.

Nothing could be done by aircraft that night, but No.16 Group were ready with reconnaissance and strike aircraft as soon as the weather permitted. The dawn HACH and HABO patrols were laid on for the morning of the 4th and a force of torpedo bombers were standing-by at Thorney Island to strike on receipt of the first sighting report. No.19 Group were also warned to be prepared for strike and search as soon as the weather allowed. Three Beauforts of No.42 Squadron armed with torpedoes were available at St. Eval, and three Beaufighters of No.236 Squadron to act as a diversion during the torpedo attack.

Fighter Command had also been warned in case they were called upon to provide a fighter escort in the event of a 'Roadstead' operation being necessary, and later expressed their willingness to supply a wing of long range fighters for protection purposes.

In addition to the two routine patrols a P.R.U. reconnaissance was laid on for Cherbourg - Le Havre - Boulogne. The hopeful forecast of the previous evening failed to materialise for when the dawn came on the 4th there were overcast skies with thick haze at the eastern end of the Channel, and patches of fog elsewhere. In consequence, the dawn HACH and HABO patrols were cancelled and likewise the photographic reconnaissance, conditions for which being hopeless. There had been no indications from C.H.L., that the ship had left Boulogne and this was later confirmed by a 'JIM CROW' of Fighter Command (No.11 Group) which had managed to take a peep at Boulogne harbour during a brief lifting of the fog and had identified a merchant vessel of at least 3,000 tons tied up about two hundred yards from the entrance. The description of the ship was: one funnel, two well-decks, two fairly high masts. A second 'JIM CROW' at midday amplified this description after a much closer scrutiny, including two runs over the vessel, had been achieved. At 1216 hours a small tanker-like vessel was approaching the merchant vessel and there was one flakship in the outer harbour entrance. At 1224 hours, No.11 Group stations generally became unserviceable but it was hoped to fly-off one aircraft at a time to keep a constant watch on Boulogne.

In the meantime V.A. Dover had planned to send out a force of M.T.Bs. supported by M.G.Bs. to patrol that night as far south as Fe'camp, and C.-in-C., Plymouth was also going to despatch some M.Ls. to the Cherbourg area, in case the raider resumed her voyage after dusk. It was expected that she would call at another of the Channel ports before making her final departure.

At 1500 hours all No.19 Group's stations became unserviceable owing to fog, and as No.16 Group had been out all day, there was nothing further to be done that night except to await news from the C.H.L. chain if she moved out of Boulogne.

CH/G10/3/12

Further proposals for air operations to take place on the 5th were made by No.16 and 19 Groups, included a Beaufighter reconnaissance at first light from Ushant to Cherbourg, a torpedo strike force with fighter escort to stand-by to act on the Beaufighter's reports and a Sunderland crossover patrol on about seven degrees west to cover the mouth of the Channel.

By dawn on the 5th nothing had been seen on C.H.L. nor had any information come in by other means.

Low cloud and drizzle over Boulogne precluded any P.R.U. sorties or JIM CROW at first, but towards midday an effort was made and a report was brought back by JIM CROW that, at 1125 hours the 3,000 ton M.V. was still in Boulogne. Six hours later another report stated that a 3,000 ton merchant ship had been sighted in Boulogne outer harbour heading west.

Earlier in the day the Admiralty had enquired whether Fighter Command could do anything with Hurribombers or Bomber Command with medium bombers, but the reply was the same from both Commands i.e. that the weather was against the ship being tackled in harbour.

During the night 5th/6th, the weather again precluded any air operations.

By the late morning of 6 December, the weather had improved sufficiently to allow P.R.U. to get an aircraft through to Boulogne, and at 1245 hours a visual was obtained on a medium sized merchant vessel at anchor in the outer harbour. A rush interpretation of the photographs taken revealed a ship of about two hundred feet long and the interpreters were confident that this ship was there on 27th and 29th November.

As all photographic light had gone for the day, the next best thing was to await the daylight and send over another P.R.U. aircraft to confirm this discovery.

In squally conditions but with fair periods and visibility at five to ten miles, a JIM CROW reported at 1030 hours on the 7th that the 2,000 ton ship in the outer harbour had gone. This was later confirmed by the rush interpretation of the photographs taken by the P.R.U. reconnaissance of Boulogne that morning. The whole harbour was covered and all the photographs revealed was a single large unit of 350 feet long in the inner harbour, obviously riding light.

After this disquietening report the Admiralty were anxious to get news of the P.R.U. Cherbourg reconnaissance to see whether the raider was in that port, and if that was unsuccessful for something else to be done before dark in an endeavour to check the raider's whereabouts.

However, just about the time that the rush interpretation was made available a Beaufighter (Q/236) had taken off from St. Eval on the hazardous job of making a visual of Cherbourg harbour. A landfall was made at 1732 hours and after making several runs over the port, the pilot was convinced that the ship he was briefed to locate was not present. The rush interpretation revealed the same disappointing news that the raider was not in Cherbourg.

From this information, the Admiralty concluded that the raider had probably gone right through the Channel and out into the Atlantic.

Although all aircraft engaged on routine patrols in the South Western approaches and the Bay of Biscay were briefed to keep a look-out for her, she evaded all searches and made the safety of a Biscay port where she remained until mid-January, 1942, before proceeding on her second and last raiding cruise to Far Eastern waters.

(5) Operations - Concluding phase for November, 1941

Reverting to the 30 November, as compensation for the failure to destroy such a valuable prize as an incoming armed merchant raider, anti-shipping operations throughout the remainder of the last day of November produced some promising results.

Three Beauforts (Y.R.U/86) and four Hudsons (E,M,N,K/407) were despatched on normal NOMAD and ROVER patrols off the Dutch coast and Frisian Islands during the afternoon. Off Borkum, one of the Beauforts (U/86) sighted a convoy of five merchant vessels of 500-4,000 tons and attacked one of the larger vessels from fifty feet. Two of the bombs were seen to overshoot but the position of the remainder was not observed owing to a violent explosion which occurred amidships. This ship of 2,000 tons was assessed as 'seriously damaged'.⁽¹⁾ A Hudson (K/407) sighted a convoy of twelve merchant vessels and two flak ships west of Borkum, and attacked from twenty feet. The bomb bursts were not seen but smoke and steam were observed issuing from the target on the portside aft. Although a vessel of 6,000 tons was selected for attack, it transpired later that a vessel named 'Olaf Maersk' of 1,950 tons was sunk during this attack. Another sinking by a Hudson (N/407) was claimed a few minutes earlier and nearer to Borkum when a 1,500 ton ship, one of a convoy of nine vessels was found on a westerly course at eight knots. Subsequent to the attack which was made from thirty feet, a large cloud of smoke was seen coming from the bow of the ship which was also observed to be listing heavily and well down by the head. This vessel was assessed as 'sunk' and later confirmed as the 'Ester' of 1,250 tons.

On this auspicious note the operations for November were concluded, and although the tonnage assessed as sunk was not as large as the previous month a good deal more shipping tonnage was believed to have been disabled, and would need repair before it could be brought back into service.

(6) Coastal Command assumes responsibility in the Wilhelmshaven to Cherbourg area

During this month, the vexed question of No.2 (Bomber) Group's daylight offensive in the Cherbourg to Wilhelmshaven area had been made the subject of much correspondence between the Air Officers Commanding-in-Chief Bomber and Coastal Command. The situation had been eased, however, by the fact that the A.O.C.-in-C. Bomber Command had decided to recommend to the Air Ministry that No.2 Group should be relieved of shipping attacks and revert to a night offensive, until re-equipped with something better than the Blenheim. The high casualty rate of this type of aircraft had now become unacceptable, and was the sole reason for the A.O.C.-in-C.'s decision.

(1) This assessment is confirmed. It was the Norwegian ship Svolder of 3,243 gross tons which was seriously damaged by air attack off Borkum.

CH/G1/30/11
CH/G2/20/11
CH/G3/30/11
H.Q.C.C.
Narrative
d/d 30.11.41

C.C./S.15026
Encl.111A-123A

(v)(b)

As already mentioned in section ~~4~~, this request was approved by the Air Ministry on 25 November, 1941, and as regards the future equipment of No.2 Group, it was pointed out that four squadrons of the Group would be re-equipped with Boston III aircraft during the next two months. It was also requested by the Air Ministry that while these squadrons would participate primarily in the roles filled by the Blenheim, the A.O.C.-in-C., Bomber Command was to consider the practicability of undertaking occasional daylight sorties against shipping. The aim would be, in co-operation with forces similarly employed by Coastal Command to force the enemy to maintain the present considerable scale of defences for his shipping. It was not intended that these operations should be undertaken on more than a limited scale, but with its higher speed and better bomb load the Boston III might occasionally be able to undertake effective attacks of this nature without risking such heavy casualties as had been experienced by the Blenheim. These operations were to be co-ordinated under the direction of the A.O.C.-in-C., Coastal Command.

Thereby, Coastal Command assumed, once again, complete responsibility for all anti-shipping operations by day and night in the area Cherbourg to Wilhelmshaven.

(7) Operations - December 1941

During the month of December 1941, the total number of attacks on enemy shipping in No.16 Group's operational area showed a decline on the previous record month, and was in fact the lowest since September. Of the thirty two ships of 88,097 tons attacked, only one of 8,777 tons was assessed as sunk and five totalling 17,300 tons damaged. (1)

Bad visibility encountered on nine days of the month, prevented all anti-shipping operations from being carried out; in fact throughout the period generally the poor visibility aided much enemy shipping, including a raider, to escape unscathed.

In view of the change in policy occasioned by the withdrawal of No.2 Group's aircraft from the daylight offensive, operations by day were resumed in the area generally by the introduction of day ROVERS and NOMADS, and in consequence more daylight attacks took place than for the past four months.

The majority of the shipping was encountered off Texel and Den Helder and did not appear to be maintaining any particular schedule.

Apart from operations against the outward bound raider during the first week of the month, when the weather was our greatest enemy, the normal anti-shipping operations were also heavily curtailed.

On 5 December, the fog had given way to cloudy and overcast conditions with showers in the North Sea which allowed a limited number of anti-shipping sorties to be resumed.

E/boats had been reported operating off the coast of East Anglia during the night 4th/5th, which resulted in two Beaufighters (H.J./248) being sent out on an EBO the following

CH/G1/5/12
H.Q.C.C.
Narrative
d/d 5.12.41

(1) According to Lloyd's and German sources, one ship of 8,777 gross tons was sunk by air attack during December, but none were damaged.

SECRET

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morning to intercept the enemy on their way back to Texel. No E-boats were encountered but a convoy of ten to fifteen medium sized ships was sighted on a northerly course off Texel, and one 700 ton Dutch trawler seen in the same vicinity was subjected to a total of five machine gun and cannon attacks for which an assessment of 'damaged' was awarded. (1)

CH/G2/5/12
H.Q.C.C.
Narrative
d/d 5.12.41

The day NOMAD off the Dutch coast between the Hook and Borkum was flown independently the three Hudsons, one (J/59) of which had nothing of importance to record, the second (D/59) sighted nine merchant vessels and one escort vessel stationary off Western Ems, and the third aircraft (U/59) attacked a 700 ton trawler, one of two sighted off Skulpen Gat, but claimed only two near misses for which no assessment was given.

CH/G11/5/12
H.Q.C.C.
Narrative
d/d 5.12.41

Against the convoy found by D/59, the standby strike force of six Hudsons of the same squadron was sent out to locate and attack. One returned early due to engine trouble, a second Hudson (U/59) attacked the flak flashes from a convoy of eight ships off Texel, with no apparent result, and the remaining four aircraft had no sightings to report.

The same night eight Hudsons of No.407 Squadron (R.C.A.F.) were detailed for the routine ROVER patrol which was plotted to cover the track of the large convoy of ten to fifteen ships, sighted earlier in the day by the Beaufighters. With the exception of one aircraft which bombed an estimated position of a convoy picked up by A.S.V. but not seen visually, the remainder failed to sight anything owing to the poor visibility. One aircraft (E/407) failed to return.

At midday on 7 December, one (E/59) of two Hudsons, on the day NOMAD, sighted two small merchant vessels of 6/800 tons north of IJmuiden and attacked the leading vessel from mast height with 3 x 250 lb G.P. bombs, two of which scored direct hits. The vessel, which was left in a sinking condition, was assessed as 'seriously damaged'. (1)

The early morning patrols of the 9th were hampered by the unsuitable weather conditions and produced no results, but in the afternoon three Beauforts of No.217 Squadron from Manston very successfully dealt with a convoy of nine merchant ships sighted some eight to ten miles north of the Hook at 1215 hours by aircraft of No.12 (Fighter) Group.

No.217 Sqdn.
O.R.B.
Dec.1941

A visual sighting of a convoy of eight ships was made at 1639 hours at the exact position plotted as the point of interception. The largest ship of the convoy, a liner type of some 12,000 tons, was singled out for attack. Aircraft P/217 led the formation and passed astern of the ships as though they were not sighted, and then turned and attacked from the landward side. The first aircraft passed between the ship's masts and obtained three direct hits with 500 lb. G.P. bombs near the base of the funnel. The second aircraft K/217, followed very closely but was hit by flak as it went in, and the port engine was soon ablaze. This aircraft eventually struck the water ahead of the target ship. Aircraft B/217 came in low over the bow of the vessel dropping 4 x 500 lb. G.P. bombs, but the actual bursts were not seen, as the vessel was burning fiercely amidships and in the forward hold. This aircraft struck one of the wire guy ropes on the forward mast and came home with eighteen inches of wing tip missing.

(1) There is no confirmation of this assessment.

SECRET

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CH/G6/9/12
H.Q.C.C.
Narrative
d/d 9.12.41

A second strike of four Husons of No.407 Squadron arrived in the area at 1710 hours and one aircraft immediately sighted a convoy of five merchant vessels and two flak ships, all stationary. The largest merchant ship was burning fiercely from bows to superstructure. Aircraft O/407 attacked a merchant ship of 3/4000 tons standing by, and claimed a direct hit amidships with a 250 lb. G.P. bomb. Masses of debris were flung into the air. Another Hudson, N/407, also located the convoy on A.S.V. at fourteen miles and visually sighted the largest vessel on fire. At 1725 hours an attack was made on a ship of 3/4000 tons but there were no visible results.

CH/G11/9/12

A third strike force of four Hudsons of No.59 Squadron was sent out to try and find the remainder of this convoy, but one was forced to return early owing to engine trouble and two others came back without sighting anything. The fourth aircraft (J/59), however, was successful in finding the liner still blazing at 2243 hours off the Dutch coast north of Egmond, and delivered a further attack with 3 x 250 lb. G.P. bombs from two thousand feet, but no results were seen.

E.S.L.A.C.

The liner turned out to be the German passenger ship 'Madrid' of 8,777 tons which was assessed as a 'total loss' and credited to Beaufort P/217 Squadron, and in addition 'damage' to a 3/4000 ton merchant ship was awarded to Hudson O/407 Squadron.

Fairly extensive sea fog patches blotted out operations on 10 December, but improved conditions during the following day permitted the routine patrols to be flown which resulted in only a machine gun attack on two fishing vessels by one Hudson (F/59).

CH/G3/12/12
CH/G2/12/12
H.Q.C.C.
Narrative
d/d 12.12.41

During the early morning of the 12th, patrols off the Dutch coast were cancelled on account of the weather, but later, the day NOMAD and ROVERS were able to take-off. During the course of the NOMAD patrols, twelve trawlers, three small merchant vessels of 200 tons each, and a medium sized merchant vessel of 4,500 tons with three escort vessels was sighted south of Heligoland. The large merchant ship was attacked by Hudson V/407 but owing to evasive action results were not observed.

On the ROVER patrol, during a driving rainstorm at 1050 hours two enemy destroyers were sighted by Hudson J/59 on a northerly course south of Den Helder. An immediate attack was made from mast height with 3 x 250 lb. G.P. bombs, but as the aircraft entered cloud results were not observed. As the aircraft's W/T was unserviceable no first sighting report could be made, therefore it was not until the aircraft landed at base some two hours later that the information was handed-in. The weather had by then deteriorated and would not permit a further strike force to get off immediately but, six Beauforts, armed with torpedoes, were brought to immediate readiness for an attack as soon as the weather improved.

Meanwhile a JIM CROW reported a convoy of nine ships including a 6000 ton vessel, seven miles north of the Hook of Holland on a northerly course, and all available aircraft of No.407 Squadron were brought to immediate readiness to deal with this force.

Both strikes got off at 1415 hours.

CH/G5/12/12

Six of the Hudsons returned without sighting anything and reported lack of cloud cover off the Dutch coast, the seventh

aircraft reached the coast but the absence of good cover decided a return to base. This aircraft sighted an ME.110 in the vicinity, and although a brief exchange of shots took place, both aircraft altered course for home with no apparent damage.

CH/G4/12/12

Of the seven Beauforts sent out to locate and attack the two destroyers with the convoy of nine merchant ships as a secondary target, three returned to base owing to lack of cloud cover and the remainder failed to find either target.

CH/G7/12/12

A Wellington of No.221 Squadron was despatched later that night to try and find the convoy of nine merchant ships but was also unsuccessful.

CH/G14/12/12

The pre-dawn ROVER of the 13th by three Hudsons of No.407 Squadron located and damaged one 8000 ton and one 4000 ton merchant ship. The first vessel was attacked off Texel at 0511 hours by N/407 Squadron which claimed a direct hit with a 250 lb. S.A.P. while the second ship, one of a convoy of ten, was picked up by A.S.V. and attacked off Arneland at 0545 hours by C/407 Squadron. A direct hit was claimed and the vessel's riding light was blown a considerable distance into the sea.

H.Q.C.C.
Controllers
and Naval
Staff Logs

Another outward bound raider scare flared up that night when at 2127 hours it was reported by C.H.L. Dover that a very large ship with a torpedo boat escort had been picked up some seven miles north of Gravelines, on a westerly course at nineteen knots. By 2305 hours she had passed Gris Nez but had then stopped off Boulogne about an hour only to resume her voyage at 0040 hours at a reduced speed of 12/14 knots. This ship was using the same W/T call sign as that of Raider 'B' on 27 November.

Immediate action by M.T.B.'s or aircraft was ruled out by the weather, but a photographic reconnaissance of Cherbourg was laid on for the first photographic light of the 14th, in addition to which a Fighter Command JIM CROW and a patrol between Cherbourg and Cap d'Antifer by one Hudson of No.16 Group was also arranged.

There was a south-westerly gale in the Channel at this time and it was therefore anticipated that the ship would probably make good not much more than twelve knots which would bring her off Cherbourg about noon.

By midday on the 14th, it was considered by V.A. Dover that she must have put into Le Havre, as the Hudson which went from Cherbourg to Le Treport coastwise with visibility at twenty miles from 0904 to 0945 hours had seen nothing resembling the target.

Further arrangements were made to continue the search in the Channel from Le Havre to Brest by aircraft of No.16 and 19 Groups, and although the plans were curtailed by the thick weather on the French side, nothing further was seen or heard of the ship.

CH/G6/15/12
CH/G7/15/12

The coast from Dunkirk to Nordeney was patrolled by two Hudsons during the morning of the 15th, by a Beaufort in the afternoon and by three Hudsons in the evening, one of which failed to return (H/407). The net result was the sighting of a convoy of sixteen merchant ships at 1640 hours on a westerly course north of Schiermonnikoog, one of which was attacked by a Hudson aircraft (O/407) with 4 x 250lb. S.A.P. from fifty feet, but owing to evasive action results were unobserved.

This aircraft was followed back to base by a twin-engined enemy aircraft and as 0/407 was taxiing to dispersal and the flare had just been extinguished, the enemy opened fire, but caused no damage.

CH/G1/16/12

As the result of two sightings of southbound convoys by a Beaufighter engaged on a RECCO patrol between the Hook of Holland and Texel on the morning of the 16th, a 'ROADSTEAD' operation was organised, and a strike force consisting of three Beauforts of No.217 Squadron, four Beaufighters of No.248 Squadron and twelve long range Spitfires of Nos.19 and 152 Squadrons was despatched to the area during the afternoon.

One Beaufighter returned owing to a defect in the under-carriage, but the remainder of the force located two convoys off the Hook of Holland and also one large merchant ship of 10/15000 tons closely escorted by two flakships.

Beaufort Z/217 proceeded to attack the large merchant vessel with a torpedo launched from fifty feet at one thousand yards range. It was estimated that this torpedo struck one of the escorting flakships as large columns of grey smoke were seen to rise from one of these vessels.

At the same time but a little further to the north, Beaufort J/217 attacked a merchant ship of approximately 3,000 tons, with a torpedo launched from fifty feet, but there was no visible result.

The third Beaufort (B/217) attacked a convoy of one merchant ship of 5,000 tons and six others of less than 1,000 tons, off the Hague. Although the course of the torpedo was observed and thought to be accurate, no results were seen.

With machine gun and cannon the three Beaufighters (Q.V.U./248) attacked the shipping generally and it was claimed that some damage was done as well as causing considerable confusion among the ships.

Heavy and accurate flak was encountered by all the aircraft but no serious damage was sustained.

Throughout the remainder of the month a further seven attacks were made on enemy shipping but only one produced any result.

CH/G5/28/12

On the evening of 28 December during the moonlight period, ten Hudsons of No.407 Squadron were despatched to strike at a convoy of twelve merchant ships reported by No.12 Group aircraft at 1220 hours to be off Katwijk on a northerly course. Six aircraft returned to base without sighting anything resembling a target, and although the remainder made various sightings off Texel only three carried out attacks, as the fourth aircraft's bombs failed to release.

Hudson L/407 attacked a merchantman of 5,000 tons, with 4 x 250 lb. S.A.P. bombs from forty feet, of which one was seen to burst amidships and another hit the ship's seaward side. Heavy flak and machine gun fire was encountered. The vessel was assessed as seriously damaged. (1)

The other two Hudsons (J and E/407) made similar attacks on merchant ships of 5,000 and 7,000 tons respectively but there were no visible results, although in the former attack,

(1) There is no confirmation of this assessment.

only the last bomb of the stick was seen to overshoot into the sea. Very intense and accurate flak was put-up by all ships.

This was the last attack on enemy merchant shipping of the year, in No.16 Group's operational area, as the weather prevented any further anti-shipping operations.

Although the routine patrols in the English Channel, excluding the Dover Straits, were maintained as far as the weather would allow, no attacks developed there during the month.

C.C./S.15094
Encl.1A

(vi) The Norwegian Coast

(a) Policy

There were two regions, i.e. the Norwegian Coast and the Bay of Biscay, which were unaffected by the division of responsibility by areas and therefore remained the sole charge of Coastal Command for anti-shipping operations by day and night.

Of the two areas, the Norwegian coast was, during the period covered by this chapter, the most important and offered numerically more opportunity in ships.

Amongst the many duties performed by the aircraft of No.18 Group in this northern area, the coast of Norway from Trondheim to Kristiansand South was covered, when the weather allowed, by a series of reconnaissance patrols⁽¹⁾ in accordance with the policy laid down by Headquarters, Coastal Command.

The original object of these reconnaissances were briefly:-

- (a) To locate and report enemy coastal shipping in order that strike aircraft may be directed to attack.
- (b) To give warning of an attempt by enemy major units, armed merchant raiders or supply ships, to break out into the Atlantic.
- (c) To provide information about the enemy's invasion preparations.

This policy was formulated in December 1940, but in the light of experience gained during the first half of 1941, certain modifications were effected in order that economies could be made and the available aircraft used to the best advantage.

C.C./S.15080(II)
Encl.22a

For instance, on the subject of enemy invasion preparations, the Chiefs of Staff had recently examined the effect of German operations in Russia on the probability of an attempt at invasion of this country during the autumn and had decided that although it remained of the greatest importance that there should be no relaxation in our preparations for defence, the Services generally could expect from now on

Form Green
C.C/G1/25/12

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|-----|--|-----------------------------------|
| (1) | Patrol STAB - Stadtlandet to Bergen | } Three times in seven days. |
| | Patrol BERT - Bergen to Stavanger | |
| | Patrol STAND - Stavanger to Kristiansand South | |
| | Patrol HORNLI - Horns Reef to Lister | |
| (2) | Patrol TROST - Trondheim to Stadtlandet | } When conditions were favourable |
| | Patrol SLEEVE - Skaggerak. | |

(i.e. August 1941) to receive one month's notice of impending invasion. Therefore the above reconnaissances were no longer required at frequent intervals for anti-invasion purposes.

Again, the Naval Authorities had agreed that visual reconnaissance of the whole of the Norwegian coast from Trondheim southwards was not required to find raiders breaking out, providing the area was covered as frequently as possible by photographic reconnaissance, a form which was much more effective in view of the intricacies of the coastline. But if P.R.U. was prevented by weather over five consecutive days a visual reconnaissance would be required.

Thus it was now possible to concentrate the available aircraft on the task of locating and attacking enemy merchant shipping, except in the event of a particular situation arising, of which a warning would be given, when the roles of either anti-invasion or anti-raider would take precedence over the operations against merchant coastal shipping.

As far as the finding of targets was concerned, the enemy shipping sailing up and down the coast between Stadtlandet and Stavanger used the Inner Leads⁽¹⁾ and therefore a visual reconnaissance on this section of the coastline sometimes failed to locate a proportion of the traffic underway. When a convoy was found it was invariably attacked by the reconnaissance aircraft, but experience had shown that these targets were difficult to re-locate by a strike force. This was due largely to the length of time which elapsed between the sighting and the arrival of the strike despatched from one of No.18 Group's stations.

Furthermore, adequate cloud cover was an essential requirement to enable the aircraft to enter and search in the Fjords, unless undue risks were to be taken by way of almost certain encounters with superior enemy forces.

Escort by the existing long range fighters of the Command, which were predominately Blenheims, was out of the question, as experience had proved to our cost that they were easily outclassed by the ME.110 and ME.109.

C.C/S.15205
Encl.25A

Therefore, the current policy was for the G.R. aircraft to fly at a low altitude over the North Sea to the Norwegian coast, and then, by taking full advantages of cloud cover, make a quick sweep into the fjords and if a target was found to carry out an attack. To dispense with the unsound and hazardous procedure of the strike aircraft having to search for a target, full use was made of the available interpretations by the regular photographic reconnaissance.

In addition to the routine coastal reconnaissance patrols an occasional ROVER was flown, which, at this time of the year was in daylight, but as the perpetual twilight ceased, they were laid on especially during the moonlight periods.

Attacks against shipping in the principal ports such as Bergen, Stavanger, Oslo etc., were occasionally attempted when conditions were favourable and photographic reconnaissance had revealed some worth while targets. Also, if a strike force or ROVER failed to locate a primary target at sea, and they were favourably placed, a secondary task of bombing ships in

(1) For routes up and down the Norwegian coast see Map.XVI.

port was sometimes allocated. If the bombs missed the target, they generally struck wharves, warehouses, slipways, building berths, or other property generally allied to ships and shipping.

At the end of June 1941, the forces available to the A.O.C., No.18 Group for the implementation of the current anti-shipping policy consisted of one Hudson,⁽¹⁾ one Hudson/Anson,⁽²⁾ two Blenheim bomber⁽³⁾ and one Beaufort torpedo bomber⁽⁴⁾ squadrons for reconnaissance and strike purpose; one Blenheim fighter⁽⁵⁾ squadron for protection and reconnaissance and one flight of Spitfires⁽⁶⁾ for photographic reconnaissance.

Like the other Groups of the Command, the shortage of available aircraft made it impossible, in view of the many other commitments, to devote the whole of these squadrons to anti-merchant shipping operations. A major diversion, especially in the first six months of 1942, were the operations covering the movement of the enemy major units up and down the Norwegian coast,⁽⁷⁾ which absorbed the majority of the available aircraft for long periods on coastwise and ocean patrols.

In the summer of 1941, a number of changes in the disposition of squadrons also took place within No.18 Group, the benefit of which was not felt for many months.

Under an earlier arrangement between the Cs.-in-C., Coastal and Bomber Commands, No.114 Squadron was returned to its parent Command on 19 July, which left the Group deficient of a strike squadron. This was remedied early in August by the formation of another Beaufort torpedo bomber squadron at Leuchars,⁽⁸⁾ but the increasing demands of strategic requirements in the Mediterranean, resulted in a chronic lack of Beauforts for use in Home waters, and hindered the squadron's progress towards operational fitness; in fact by the end of the year there were only four aircraft in the squadron.

Further additions to the Group under an existing Command expansion scheme⁽⁹⁾ were made at this time and consisted of two long range fighter squadrons⁽¹⁰⁾ which were chiefly for trade protection and interception duties, but on occasions they were used for reconnaissance purposes off the Norwegian coast. Here again the drain of crews and aircraft for the requirements of the Mediterranean delayed the full operational status for many months. Meanwhile they were only of nominal use to the Group.

(b) Operations - June to September 1941

The period under review commenced on a modest note on 15 June 1941, with an unsuccessful torpedo strike by six

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- (1) No.220 Squadron at Wick.
 - (2) No.320 (Dutch) Squadron at Leuchars.
 - (3) No.608 Squadron at Thornaby, and No.114 Squadron at Leuchars (on loan from Bomber Command).
 - (4) No.42 Squadron at Leuchars.
 - (5) No.235 Squadron at Dyce with a detachment at Sumburgh
 - (6) 'C' Flight, P.R.U. at Wick.
 - (7) For full details see chapter VII.
 - (8) No.489 (R.N.A.F.) Squadron.
 - (9) For full details see Chapter I.
 - (10) No.404 (R.C.A.F.) Squadron (Blenheims) forming at Skitten. No.143 Squadron (Beaufighters) forming at Thornaby.

Beauforts of No.42 Squadron from Leuchars.

H.Q. No.18 Group
O.R.B. June 1941

For the rest of the month, one or more routine patrols were flown every day except the last when banks of fog and low cloud precluded all anti-shipping operations. The only possible target which appeared in the area during this period was on 24 June when Blenheim L/235 on Trost, sighted a large merchant vessel about 15,000 tons, believed to be a troopship, escorted by one destroyer north of Stadtlandet on an easterly course at ten knots. A strike force of three Beauforts was despatched to the area, but failed to locate the target. Three ROVERS were flown during the period, but no suitable targets were found.

The month of July appeared to be much more profitable. Of the twenty-six ships of 53,031 tons attacked, three totalling 5,381 gross tons were assessed sunk, and seven totalling 18,950 gross tons, damaged, (1) for the loss of one Hudson, two Blenheims and one Spitfire. Six torpedoes and just over eight tons of bombs were expended.

Although the total effort on anti-shipping operations for August compared very favourably with the previous month, enemy shipping sighted and attacked showed a substantial decrease with a consequent reduction in successes. Of the sixteen merchant ships of 34,700 tons attacked, only five totalling 11,000 tons was assessed as damaged, (2) whereas our own wastage of six Hudsons, one Beaufort and one Blenheim was one hundred per cent higher than the month of July. It followed, therefore, that the bomb tonnage for the month was lower by one third, by reason of the reduced number of attacks, and only one torpedo was released during this period.

The weather was fair throughout the month and did not appear to interfere unduly with operations except on four days when unfavourable conditions closed down all stations in the Group.

The decline in the number of attacks made against enemy merchant shipping off the Norwegian coast during August was continued throughout September, but the amount of tonnage involved increased by nearly twenty thousand tons.

A significant feature among the weapons released during the period was the marked increase in the use of torpedoes.

Of the fourteen ships of 53,430 tons attacked, two totalling 10,989 tons were assessed as sunk and five totalling 18,441 tons, damaged. (3) The two sinkings and one damaged (5,500 tons) were claimed as the result of torpedo attacks.

Weapons released during the month amounted to three tons of bombs and eleven torpedoes.

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- (1) According to Lloyd's and the German sources, three ships totalling 1,498 gross tons were sunk by air attack during the month. There is no confirmation of any ships damaged during the month under this cause.
 - (2) During August there is confirmation of only one ship of 125 gross tons being sunk by air attack and two ships of 994 gross tons being damaged.
 - (3) From the records available for September, two ships of 5,449 gross tons is shown as sunk by air attack and two ships totalling 6,215 gross tons are mentioned as damaged by the same means.

Wastage among the aircraft engaged in anti-merchant shipping operations totalled four, comprising one Spitfire (P.R.U.), one Blenheim (T/235) on TROST, one Hudson (H/608) on HORNLI and one Beaufort (W/22) on a STRIKE.

An important diversion from operations against merchant tonnage, was the effort required to keep watch on the movements of the enemy major naval unit (Admiral Von Scheer) at Oslo between 4th and 18th of the month lest a breakout into the Atlantic was attempted. (1)

The weather from an operational point of view had very little adverse effect on the Group's anti-shipping activities with the exception of one day i.e. 27th, when no operations were possible, and the odd day when one or more stations were closed down for a few hours by local conditions.

(c) A plan to effect further economy in the use of aircraft

Early in September 1941, the operational role of No.18 Group was reviewed by the Air Officer Commanding for the purpose of effecting further economies in the use of aircraft.

An appreciation in respect of anti-shipping operations along the Norwegian coast in particular, with suggestions for increasing the striking value of patrols, was submitted to Headquarters, Coastal Command on 9 September, 1941, for approval.

The difficulties encountered by the reconnaissance aircraft in finding targets in the maze of fjords, and their re-location by the strike forces was fully stressed; likewise the superiority of the enemy fighter opposition which could be expected.

It was then pointed out that apart from the small area off Stadtlandet, the most favourable area for attacks on shipping was between Stavanger and the Naze, because it was, in comparison with the remainder of the shipping lanes, clear of the natural protection provided by fjords in which the enemy so effectively sheltered from air attack.

In order to obtain information about the passage of ships along this stretch of coastline it would be necessary to search not only the area Stavanger to the Naze, but a limited region on either side so as to locate the shipping which would ultimately enter the assailable area within a given time.

To achieve this two special reconnaissances had been planned which were, originally, to be named 'PLATE' and 'SAUCER', but were subsequently altered to 'CUP' and 'SAUCER' (2) They were to be flown at frequent intervals throughout twenty-four hours so far as the weather permitted, and arranged at such times as to ensure as far as possible against ships

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- (1) For details see Chapter VII, section one.
(2) 'CUP' - a reconnaissance in three sections from Marsten Light (Go.07N - 05.02E) to Egersund (58.26N - 05.52E).
'SAUCER' - a reconnaissance in three sections from Egersund (58.26N - 05.52E) to the Naze (57.59N - 07.30E) thence eastwards following the coast to 08 degrees East and Hantsholm Light (57.08N - 08.36E). See Map XIV for location.

C.C/S.15094
Encl.1a-12a

making the passage unobserved. The probability of a good R.D.F. network existing along this stretch of coastline and the proximity of four German fighter aerodromes, made adequate cloud cover a necessity if these reconnaissances were to be done effectively.

If a particular situation arose, however, 'Cup and Saucer' would be abandoned and the existing reconnaissances re-instituted.

The Air Officer Commanding No.18 Group concluded the appreciation by stating that under this proposed scheme he felt that aircraft would have much better chance of actually destroying enemy ships.

In accordance with the decision made by the A.O.C.-in-C., at a Staff Meeting held at H.Q.C.C., on 20 September, 1941, the proposed new scheme of patrols as applied to the existing visual and photographic reconnaissance plan⁽¹⁾ was submitted to higher authority for approval. On 28 October, 1941, the Admiralty's concurrence in the revised plan of reconnaissance for the Norwegian coast, was received and communicated to No.18 Group with a request to implement the courses of action outlined, forthwith.

RO/GI/23/11

However, in view of the continued alarms concerning the probable break-out of the Admiral Scheer during the first three weeks of November, it was not possible to commence 'CUP and SAUCER' until the 23rd of the month.

As a further step in the principle of economy in reconnaissance aircraft, H.Q.C.C., in co-operation with D.D.O.H., instructed No.18 Group on 15th November, 1941, to fly a shortened version⁽²⁾ of TROST, if P.R.U. had failed on five consecutive days.

(d) The value of A.S.V. on the Norwegian coast

ibid
Encl. 24a
and 3a

Of growing importance in this area as bad weather and the longer nights increased was the question relating to the value of A.S.V. on really dark nights near the Norwegian coast. With so many islands with high hills and mountains often coming down to the waters edge, great difficulty had been experienced in detecting a target, except by an A.S.V. operator whose skill was much above the average, or, if the target was at least six or seven miles off the coast. Where there were fewer hills and islands, however, such as the area between Stavanger and the Naze, a ship could be detected as near as one mile off the coast, although this was not always feasible.

Another important matter concerned the identification of

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- (1) The courses of action outlined were:-
 - (i) A daily reconnaissance of the coast from Trondheim to Kristiansund South whenever weather permitted.
 - (ii) A reconnaissance from Trondheim to 62 degrees North to be flown whenever photographic reconnaissance failed (TROST).
 - (iii) Visual reconnaissance of the coast between Stadtlandet and Stavanger if photographic reconnaissance had failed on five consecutive days.
 - (2) Between 62 degrees and 63 degrees North, as shipping could sail in the fjords north of this latitude, which therefore, rendered reconnaissance less effective.

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the target once it had been detected. To achieve this on a moonless or otherwise dark night it was necessary to employ flares. The only available reconnaissance flare in No.18 Group was the four and a half inch, which owing to a delay fuse of seven seconds and its rate of fall thereafter, required a minimum cloud base of 1,400 feet to obtain one minute's illumination. A four inch training flare was also available and as this ignited almost immediately after leaving the aircraft, a cloud base of 800 feet would give just over one minute's illumination.

To avoid wasteful flying on night reconnaissance along the Norwegian coastline in conditions where there was insufficient light for direct visual reconnaissance, it therefore seemed feasible to deduce from these facts that:-

- (i) It was useless to attempt any reconnaissance relying on A.S.V. off the Norwegian coast except between Stavanger and the Naze, and
- (ii) a reconnaissance was worth attempting in this area providing the cloud base was at a suitable altitude to allow at least one minute's illumination according to the type of flare in use, also, providing the weather was moderately clear, i.e. without mist, rain or snow, in order to avoid halo effect.

Before the A.O.C., No.18 Group gave a final decision on these two matters in respect of night reconnaissance, he approached H.Q.C.C., and received their agreement with this policy on 1 December, 1941 with the one qualification of cloud and visibility conditions.

(e) Operations - October to December 1941

(1) October

Of outstanding importance during the month of October was the increase in the number of attacks made on enemy merchant shipping in this area. All previous monthly totals were surpassed both in the number of ships and the amount of tonnage involved; in point of fact it proved to be the highest total of the year 1941.

In the assessed results, however, the tonnage sunk was lower than the previous month, but damage was well above anything previously recorded.

Of the forty-three ships of 104,669 tons (estimated) attacked, six totalling 7,290 tons were assessed as sunk and twelve, totalling 32,479 tons, damaged.⁽¹⁾

In spite of the modified torpedo bombing policy announced during the month by the A.O.C.-in-C., the chief weapon was the bomb, of which 19.12 tons were used; only one torpedo was released.

With an increase in activity, the wastage among the aircraft showed an upward trend. Seven aircraft came within the category of 'total loss' for the month's anti-shipping

(1) According to post war records, five ships of 4,969 gross tons were sunk and three ships of 2,959 gross tons were damaged in the Norway area during October.

reconnaissance and strike activities⁽¹⁾, which was not excessive especially in view of the fact that the policy of very low level attacks was being pursued with the utmost vigour in spite of the enemy's defensive tactics.

RO/93/2/10
H.Q.
No.18 Group
Narrative.
d/d 2.10.41

The first 'damage' claim of the month was made on 2 October by a Beaufort of No.42 Squadron engaged on a ROVER patrol in the Bergen area. At 1346 hours aircraft C/42 was proceeding coastwise in a southerly direction west of Bergen, when one merchant vessel of about 1,000 tons on a northerly course was sighted ahead. One mile astern of this ship was another of about 2,000 tons. Both ships were attacked from mast height with 500 lb. bombs, and the rear gunner believed there was at least one hit on the leading vessel. Having 2 x 250 lb. bombs left, the pilot attacked a factory at Mjovik before returning to base.

RO/93/2/W
H.Q.
No.18 Group
Narrative

Another ROVER taking place at the same time in the TROST area claimed hits on a cargo liner, estimated to be of 10/15,000 tons found north of Aalesund. A low level attack was made with 4 x 250 lb. G.P. bombs but it was believed they failed to explode. A strike force of two Beauforts from the same squadron were ordered off to follow-up this attack, but bad weather resulted in the sortie being abandoned.

RO/96/4/10
RO/94/4/10

A period of continuous rain or drizzle with low stratus and fog persisted for the next six days and closed down most of the stations in the Group. On the 4th, however, a photographic reconnaissance sortie and two ROVERS were able to take-off and during a brief fair spell, attacked a stationary merchant ship in Leirvik Bay but without result. One Hudson failed to return from the ROVER in the STAB area.

An improvement in the weather on 9 October allowed a general resumption of anti-shipping operations throughout No. 18 Group

RO/91/9/10

A photographic reconnaissance from Trondheim to Oslo was ordered and completed by a Mosquito aircraft from Wick. During the course of the reconnaissance, a suitable target was found at Aalesund, but owing to the lack of cloud cover a daylight strike was not feasible. In view of the moonlight however, a night attack was considered to be practicable. Ten Hudsons of No.220 Squadron participated in this strike of which six dropped bombs on the dock area, one attacked a 2,000 ton merchant ship south of Bremanger Island and claimed one hit, two returned to base without making a sighting and one turned back owing to engine trouble.

H.Q.
No.18 Group
Narrative
d/d 9.10.44

On 11 October, four Hudsons of No.220 Squadron were detailed for a moonlight ROVER in the STAB area. Just before midnight, one of the Hudsons P/220, sighted a convoy of two merchant vessels and two escorts in Sogne Fjord, and carried out a low level attack from twenty feet with 4 x 250 lb. bombs and claimed two hits amidships on the largest vessel estimated to be of 4,500 tons.⁽²⁾

H.Q.
No.18 Group
Narrative
d/d 11.10.41

RO/96/11/10

A moonlight ROVER in the Trost area during the early hours of the 12th was the next sortie to carry out an attack and record a damage claim. Having made a landfall south of

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- (1) Two Hudsons on ROVERS, two Beauforts on STRIKES, two Hudsons on STAB and one Catalina on photographic reconnaissance.
 - (2) According to post war records a vessel of 245 tons was sunk in this area on the night of the 11 October.

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Grip Holen at 0410 hours, Beaufort C/42 sighted a merchant ship of 1000 tons at anchor just behind a small group of islands. An attack was made from fifty feet with 4 x 250 lb. G.P. bombs, and two hits amidships were claimed. Before leaving the scene the aircraft circled the ship and reported her to be in a sinking condition.

RO/911/12/10

On the same day, the photographic reconnaissance sortie to Stavanger detected a probable target in the form of a large merchant vessel with two escorts entering Karmsund from the north, but although a strike force of three Beauforts was despatched the night was too dark for anything to be seen.

RO/910/12/10

At this phase of the moon, the period after midnight was the best time for night attacks, so ROVERS were laid on to commence about 0230 hours in the TROST and STAB areas.

H.Q.
No.18 Group
Narrative

Nothing was sighted in the TROST area during the early hours of the 13th, but two Hudsons of No.220 Squadron, found suitable targets on STAB and made attacks, one of which resulted in a claim for damage. In Hjeltefjord, a naval type of vessel resembling a corvette was sighted by A/220 and 4 x 250 lb. S.A.B. bombs were dropped from mast height. During a second run over the ship when front, turret and side guns were kept firing, two violent explosions were seen, but further observation was precluded by the intense fire from the ship resulting in damage to the aircraft and injuries to an air gunner. On leaving the area at 0510 hours the ship was still afloat and the guns silent.

The second attack, made off Floro (South of Bremanger) was against a merchant vessel of 1,000 tons and although the crew were certain a hit was registered there were no visible results.⁽¹⁾

In ideal weather conditions during the morning of the 14th, a ROVER was flown in the STAND area and all the routine reconnaissance areas were covered. A fair return of targets was produced, especially in the STAND and STAB areas.

RO/92/14/10

All the Beauforts on ROVER STAND made attacks, and hits were claimed on two merchant vessels. The first, on a ship of 2,000 tons sighted west of Lister and the second, on a larger vessel of 8,000 tons found in the same area.⁽²⁾ Both ships were in convoy.

Upon the receipt of the first sighting reports, the standby strike force of three Beauforts (P,0 and N/42) armed with torpedoes was ordered off from Leuchars, and in addition, two Hudsons already airborne and bound for the STAB area were diverted to search the area Obrestad to Lister.

One of the Beauforts (P/42) found two merchant ships of 1,500 and 2,000 tons on a northerly course south of Egersund, and proceeded to attack the smaller ship with a torpedo from fifty feet, which it was claimed, registered a hit.⁽³⁾ Heavy and light flak was experienced which damaged the aircraft and wounded the observer. The crew of this aircraft watched a second Beaufort (N/42) going-in to attack the larger ship, but this aircraft failed to return to base.

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- (1) According to post war records a merchant vessel of 480 tons was damaged by air attack near Floro on 13 October 1941.
 - (2) There is evidence of the sinking of one ship of 974 tons from post war records.
 - (3) One ship of 277 tons is substantiated from post war records.

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The third Beaufort and two Hudsons had nothing to report.

Another sighting of two merchant vessels south of Feje Light was made by a Blenheim of No.404 Squadron during the course of a STAB patrol, but there was no strike force available for this target.

H.Q.C.C.
Controllers and
Naval Staff Logs

RO/91/16/10

On the 16 October, a special effort was made to locate an 18,000 ton merchant vessel (loaded), which, according to an intelligence report, had arrived at Naeroy (61.38N-04.59E) from the north and was believed to be proceeding southwards. Although STAB, BERT and STAND were maintained throughout the day, this target was not detected. Several sightings of other shipping were made and two attacks developed, but no claims were registered. One Beaufort W/42, failed to return from a shipping strike in the Lister-Stavanger area.

H.Q. No.18 Group
Narrative.

Although the usual routine reconnaissances and ROVERS were flown for the next eight days, no attacks were made. During this period, two Hudsons, one Blenheim, and one Catalina on a special photographic reconnaissance of Tromso, failed to return.

RO/92/24/10

It was not until the 24th, that the next attack was recorded and this was made by a Beaufort of No.42 Squadron on a ROVER STAND. At 1850 hours when off the Naze a merchant vessel of about 7,000 tons was sighted and attacked from one hundred and fifty feet with 2 x 250lb. and 2 x 500 lb. S.A.P. bombs. No immediate results were observed, but as the aircraft set course for base a large glow appeared in the vicinity of the ship which was seen for about thirty miles.

RO/92/26/10

This attack was followed two days later by another from an aircraft of the same squadron. The target was a merchant ship of 3,000 tons located north of Egersund which was attacked from mast height with 2 x 250lb. and 2 x 500lb. S.A.P. bombs. After the attack a pall of whitish smoke was seen hanging over the stern of the ship which began to glow, and was seen burning fiercely up to a distance of 25 miles.

RO/94/29/10

During the concluding phase of the month's anti-shipping operations another large scale strike on Aalesund was made on the 29th, and led to many claims for damage and one sunk.

H.Q. No.18 Group
Narrative

A photographic reconnaissance earlier in the day confirmed the presence of several worth while targets, and in consequence nine Hudsons of No.220 Squadron were detailed to take-off at 1600 hours. Seven aircraft attacked ships in the target area while the remainder of the force found other targets. Merchant ships from 1-6000 tons, a Corvette type of escort vessel, harbour installations, a fish oil factory and a power station, were among the targets attacked. At least seven merchant ships were claimed as hit and bursts were seen on the escort vessel.(1)

Two further strikes on shipping at Bergen and Haugesund which took place on the same night could not be classified under the same heading.

No anti-shipping patrols were possible the next day as periods of rain and much low cloud ruled out all efforts to

(1) According to Lloyd's and German records, one ship of 3,101 gross tons was sunk and two ships of 1,371 and 1,108 gross tons respectively, were damaged in Aalesund during this attack.

get aircraft off the ground.

RO/95/31/10

An improvement in the weather of the 31st, however, allowed a resumption of operations during the afternoon and thereafter a very active period of shipping attacks followed. Eight aircraft were engaged on the routine reconnaissances STAB, STAND and BERT, while an attack against shipping, in harbour and the approaches to Kristiansand South was carried out by a mixed force of nine Beauforts and six Hudsons. In this attack two vessels of 2,000 tons and another of 700 tons were claimed as hit by the Beauforts, while the Hudsons claimed direct hits on vessels of 3,000 tons and 1500 tons respectively, the latter was reported to have been left burning. One of the Hudsons having failed to locate any shipping, dropped bombs on the quay side at Egersund where a vessel of 372 tons was sunk.

Thus ended a record month in anti-shipping activities for this area, in spite of the fact that days were getting shorter and weather more difficult.

(2) November 1941

The anti-shipping activities for the following month of November fell rather short of the efforts maintained during October.

Unsuitable weather conditions off the Norwegian coast and in the Baltic seriously interfered with photographic and visual reconnaissance, and on four days precluded altogether all anti-shipping activities.

Through incomplete photographic cover of the German Baltic ports at the beginning of the month, the whereabouts of the Admiral Scheer caused the Admiralty such concern that on the 5th they were obliged to order 'Fleet Reconnaissance' to take precedence over other trade duties.

Coastwise and ocean patrols were specially laid on for more than three weeks but adverse weather hampered their continuity.

Towards the end of the month, however, photographic cover was re-established and the tension eased sufficiently to allow the two new patrols 'CUP and SAUCER' to be tried out from the 23rd. Five days later the Scheer was discovered back again in Swinemunde, whereupon the 'Fleet Reconnaissance' order was rescinded and normal trade duties were resumed.

This diversion of effort to anti-raider commitments combined with the variable weather conditions, had an adverse effect on the number of aircraft engaged on the other activities of the Group; only thirteen merchant ships therefore, of 35,736 tons were attacked during the month, of which one vessel of 1,000 gross tons was assessed as sunk and four totalling 19,300 gross tons damaged. (1)

Due to the acute shortage of torpedoes, the chief weapons in use during the period were the 500 lb. and 250 lb. bombs of which 5.05 tons were dropped, whereas only one torpedo was released during operations.

(1) According to Lloyd's Shipping records one ship of 142 gross tons was sunk and ~~three~~ ships of 1,166 gross tons were damaged during November by air attack in the Norway area.

Wastage among the aircraft engaged on the anti-merchant shipping effort showed a slight reduction over the previous month, which was to be expected in view of the lesser number of aircraft employed. Six aircraft came within the category of 'total loss' for the month.(1)

In ideal weather conditions for attacks off the Norwegian coast, seven aircraft were employed on ROVER patrols and two on HORNLI during the first day of the month, but nothing of importance was sighted.

RO/92/2/11

During the morning of the second day, the first claim of the month was registered. At 0915 hours, a Hudson Z/220 on the ROVER-STAB patrol made a low level attack with 3 x 250 lb. S.A.P. bombs from fifty feet, on a merchant vessel of 1,200 tons found off Sogne Fjord. Only a splash near the stern of the vessel was seen but no bursts. As the aircraft was making a run, preparatory to dropping a fourth bomb and some incendiaries, a red glow was seen to commence within the stern.(2) Other aircraft engaged on the same ROVER attacked alternative land targets having failed to sight any shipping. The same procedure was adopted by two Hudsons of the Dutch squadron during the evening STAND patrol.

RO/G4/5/11

Poor visibility hampered the effectiveness of the patrol for the next four days, and it was not until the morning of the 6th that the next sighting was made. A Hudson O/320 Squadron on the morning STAND patrol sighted at 0820 hours what was estimated to be a 12,000 ton merchantman at the entrance to Kristiansund South. In preference to making an attack this aircraft sent a first sighting report so as to give the Group a chance to organise a proper strike on such an important target; unfortunately there was some difficulty in getting the report through to No.18 Group and it was not acknowledged, therefore, until 1030 hours, by which time contact had been lost.

RO/G11/5/11

A few hours later, a Hudson of No.220 Squadron on the morning STAB sighted two merchant vessels of 3,500 tons and 4,000 tons with a small flakship ahead, south of Stadtlandet. An attack was delivered from mast height with bombs and machine guns on the rearmost vessel, but later on it became known that the bombs had failed to release

RO/G1/6/11

During the afternoon two Blenheims of No.235 Squadron were sent out on a Special STAND to try and locate the large merchant ship sighted earlier in the day, but lack of cloud cover and the fact that neither aircraft carried A.S.V. hampered the effectiveness of the patrol, therefore, there was nothing to report.

RO/G3/6/11

The following morning another Hudson B/608 flying a special pre-dawn STAND patrol, sighted a merchant vessel of 800 tons east of Kristiansund South and at 0556 hours made a low level attack from twenty feet releasing 4 x 250 lb. G.P. bombs, three of which were claimed to have hit the vessel but there were no visible results.(3) Owing to a full moon and no cloud cover the pilot decided to set course coastwise for Lister thence to base.

- (1) One Blenheim each on STAB and BERT, one Hudson each on STAND, HORNLI and a special Vaagso reconnaissance, and one Beaufort on a strike.
- (2) Lloyd's Shipping records show that a vessel of 257 gross tons was damaged by air attack in this area during the night of 2 November, 1941.
- (3) *Postwar records indicate that a salvage tug of 210 tons was damaged by this attack.*

RO/G5/7/11

For the next four days the anti-shipping commitment was centred round the special STAND patrol instituted for the primary purpose of locating, and if found shadowing, a large enemy major unit expected to break out from the Baltic and proceed up the Norwegian coast. Weather permitting the patrol was to be flown every six hours by two aircraft. A secondary objective was the normal traffic of merchant shipping.

Nothing of any importance was sighted until the afternoon of the 10th when two Hudsons of No.608 Squadron sighted a convoy of six merchant ships off Egersund. One aircraft (N/608) attempted to attack but was driven off by two Me.109s; the second aircraft sent a sighting report and a few minutes later i.e. at 1412 hours, sighted twelve more merchant vessels, one of which was estimated to be about 10,000 tons and another of 8,000 tons. The larger vessel was attacked from 2000 feet with 4 x 250 lb. S.A.P. bombs two of which were seen to fall in the sea and the other two were both claimed as hits forward of the bridge. Nothing further was observed as cloud cover was reached. Light accurate flak was coming up from the escorting craft.

RO/G5/11/11

The same patrol was flown by three Hudsons of No.608 Squadron during the morning of the 11th, one of which sighted a merchant ship of 2,000 tons off Kristiansund South. An attack was attempted but the bombs failed to release, and as the starboard engine temporarily cut out, the aircraft returned to base. A later STAND patrol yielded no results.

H.Q. No.18 Group
Narrative

Adverse weather for the next two days resulted in all anti-shipping patrols being cancelled.

Two Hudsons and two Blenheims patrolled the Norwegian coast from Stavanger to Kristiansund South between 0930 hours and 1900 hours on the 14th, but owing to lack of cloud cover three aircraft did not complete the whole patrol, the fourth aircraft sighted a Do.17 on the way back but no action was taken by either aircraft.

Special STANDS continued for the next two days without any important results.

A reconnaissance on the 15th revealed the presence of ice in some of the Baltic ports for the first time this winter. There was a considerable amount of brash ice in all the ports and rivers photographed, but shipping had not, as yet, been seriously affected.

RO/G1/17/11

Two Hudsons of No.608 Squadron carried out the special reconnaissance from Stavanger to Kristiansand South during the forenoon of the 17th, and finding a Norwegian coaster at the eastern end of the patrol attacked with 4 x 250 lb. S.A.P. bombs. A large column of water was seen to rise to the height of the funnel on the starboard beam, but no further results were observed.

The same patrol was flown by two more Hudsons of No.320 (Dutch) Squadron in the afternoon, both of which attacked merchant vessels of 1,000 and 8,000 tons respectively. The first attack from sixty feet took place at 1443 hours off Lister on the 8,000 ton ship, and two hits amidships were claimed.(1) On leaving the area O/320 reported that the ship had developed a list to port and two distinct columns of smoke

(1) There is no confirmation of this claim among post war records.

were rising from amidships. The second attack by N/320 was carried out off Lindesnes at 1510 hours on a merchant ship of about 1,000 tons. From fifty feet 3 x 250 lb. S.A.P. bombs were dropped, but no explosions were seen. Shortly after the attack, the vessel stopped but no damage was apparent.

A reconnaissance of the Norwegian coast as far north as Trondheim was also undertaken by a Blenheim X/404 Squadron, but only fishing vessels were sighted.

RO/G2/18/11
RO/G3/18/11
RO/G6/18/11
RO/G7/18/11

Nine Hudsons and three Beauforts were engaged on patrols off the south west coast of Norway during the 18th which resulted in the sighting of three merchant vessels of approximately 8,000 tons and one of 3,000 tons with an escort, south of Lister, and a further five smaller ships south of Mandal, but no attacks were made owing to a total lack of cloud cover.

TROST, STAB, BERT and STAND patrols were flown on the 19th. A Blenheim on patrol south of Trondheim sighted numerous fishing vessels and a lightship which appeared to be signalling to the coast. Two Hudsons on the Bergen section had nothing of interest to report but two Blenheims on STAB had a much more remunerative sortie. One was fired on by two destroyers in Sogne Fjord, but took evasive action and escaped damage, the second aircraft machine-gunned a merchant vessel of 1,500 tons from mast height off Stadtlandet,⁽¹⁾ and also attacked a small wireless installation on shore.

A quiet period of two days followed during which no attacks were made. The only incident was the sighting of a convoy off Stavanger during the afternoon of the 21st by two Hudsons of No.320 Squadron which were kept at a distance by two M.E.109s which were escorting this convoy of four merchant and two escort vessels.

Much low cloud and occasional rain kept the majority of the Group's aircraft on the ground during the 22nd, but the next day conditions had vastly improved and there was a general resumption of operations.

RO/G1/23/11

Three patrols, off the Skaggerak and the south west coast of Norway⁽²⁾ were flown by three Beauforts and five Hudsons. In the early afternoon, one Hudson of No.320 Squadron on SAUCER sighted two merchant vessels of 2,000 tons each, accompanied by an escort vessel. Diving from 1500 to 200 feet aircraft dropped 3 x 250 lb. S.A.P. bombs on one merchant ship. No results were observed. Intense flak was encountered and the pilot was killed, but the second pilot brought the aircraft back to base.

A second Hudson sighted the same enemy force, but flak was so accurate and concentrated that it was driven off and was unable to bomb.

One Hudson was missing from the HORNLI patrol.

There was even more activity on the 24th with patrols and strikes from Horns Reef to Bremanger.

RO/G3/23/11

On the SAUCER patrol, one Hudson of 608 Squadron sighted

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- (1) According to Lloyd's Shipping records the Norwegian ship Mars of 699 gross tons was damaged by aircraft attack off Stadtlandet on 19 November 1941.
(2) Including the two new patrols 'CUP and SAUCER'. (See section (c)).

two convoys and sent first sightings reports. Against one of these convoys, consisting of two medium sized merchant vessels and four escorts, a strike force of three Beauforts E, J and K/42 Squadron was despatched. At 1457 hours when north of Lister the target was sighted on a northerly course. Aircraft E/42 was at sea level when convoy was first observed but owing to intense flak climbed to cloud base. Selecting the largest ship of 5,000 tons a diving attack was made along the length of the vessel from stern to bow. From one hundred feet 2 x 500 lb. and 2 x 250 lb. S.A.Ps were released in a stick. When aircraft was half a mile away a brilliant orange flash was seen. Side and rear guns were in full use as aircraft passed overhead and about four hundred rounds were fired. Light flak from the escort craft was very accurate and the aircraft was hit, which rendered the W/T unserviceable. As a result, the aircraft did not receive the diversion signal to land at Wick.

Aircraft J/42 lost touch with the other two Beauforts in poor visibility and as no shipping was sighted set course for base.

The third Beaufort K/42 also lost contact but made a landfall near Egersund and turned northwards. Immediately afterwards at 1449 hours a visual sighting was made on a coasting vessel of about 250 tons. Approaching the ship at sixty feet, an attack was made on the starboard bow with 2 x 500 lb. and 2 x 250 lb. bombs. Hits were claimed but no results were observed owing to heavy rain and evasive action.⁽¹⁾ Heavy flak was coming off the mainland.

Another convoy consisting of one merchant ship of 5,000 tons and another of 2,000 tons, two tankers of 6,000 tons and 10,000 tons respectively with an escort of one destroyer and four other craft was also sighted off Stadtlandet by a Hudson of No. 220 Squadron on the STAB patrol, and although a strike force of three Hudsons was sent out to destroy this convoy, the visibility deteriorated and much fog was encountered which rendered this sortie ineffective.

With the exception of one day, i.e. the 26th, patrols were maintained on every possible occasion for the remainder of the month, but only three more attacks resulted, and they were confined to the 28th. During the morning of this day three Hudsons (G.P.A./220) and three Beauforts (V.O.B./42) carried out reconnaissances from the north west coast of Denmark along the south west coast of Norway to Bergen. Attacks were made on a two-masted vessel of 350 feet length off Hardanger Fjord and a merchant vessel of 2,000 tons S.W. of Stavanger. On the latter one hit was claimed but full results were not observed owing to poor visibility.⁽²⁾

During the afternoon another strike against shipping sighted earlier by a Hudson on the CUP patrol was despatched by Wick. Hudsons B/220 was ordered off at 1313 hours and two hours later made a landfall just below Marsten Light. Ten minutes afterwards a tanker of about 1,000 tons was sighted on a north-easterly course at the mouth of Hardanger Fjord. A low level attack was delivered across the port bow with 4 x 250 lb. S.A.P. bombs, two of which were estimated to have hit. Immediately after the attack the ship was a blaze from bow to stern and within two minutes had sunk.⁽³⁾

(1) This claim has not been verified from post war records.

(2) There is no confirmation of this claim.

(3) According to Lloyd's Shipping records the Norwegian ship Vindafjord of 142 gross tons was sunk by this air attack.

(3) December

There was an increase in operations against enemy merchant shipping in this area during December 1941, compared with the previous month. The two factors which largely contributed to this welcome addition were (a) there was no major diversion to 'Fleet Reconnaissance' during the month, and (b) the weather, although predominantly cyclonic with poor visibility, low cloud and patches of fog, did not seriously interfere with operations except on three days when only a single visual or photographic reconnaissance was all that was permissible.

Towards the end of the month, the Group provided air cover for the first combined operation of the three services on Vaagso Island involving about twenty aircraft for one day.(1)

Excluding P.R.U., one hundred and forty-six reconnaissance sorties were made throughout the month, of which about 70% succeeded in completing a patrol. In addition fourteen STRIKES were flown involving a total of sixty-three aircraft (an average of 4-5 per strike) out of which eight succeeded in finding and attacking a target; not all of these were on the intended target.

These patrols and strikes resulted in the visual sighting of twenty-three convoys and twenty-three independent merchant ships of over 500 tons and few smaller craft. Of this total, twenty ships of 63,400 tons were attacked, of which three totalling 10,900 tons were assessed as sunk and seven totalling 27,000 tons assessed as damaged to various degrees.(2)

In spite of the increased activities, the wastage among the aircraft engaged remained steady at six, five of which were lost on visual reconnaissance and one on photographic reconnaissance.(3)

The 500 lb. and 250 lb. bombs were again the chief weapon in use to the extent of 8.92 tons, with the torpedo a bad second as only one was dropped during the month's operations.

RO/96/30/11
RO/91/1/12
RO/94/1/12

The month's activities commenced with fifteen sorties being flown on patrols VAARO, CUP, SAUCER and STAND, a photographic reconnaissance of Trondheim, Aalesund and Bergen and a moonlight STRIKE on Kristiansund.

H.Q.No.18 Group
Narrative
d/d 1.12.41

Daylight operations resulted in one attack on a merchant vessel of 1,000 tons in convoy off Ryvingen, but there was no visible result.

RO/94/1/12
H.Q.No.18 Group
Narrative
d/d 1.12.41

For night operations five Hudsons of No.220 Squadron visited Kristiansund in moonlight, two of which failed to locate any target, but the remainder found the target area and two dropped bombs, on a small merchant vessel discharging cargo at a quay in Nord Fjord, and a heavily laden merchantman of 1,500 tons just moving away from a jetty in Romsdal Fjord.

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- (1) For a more detailed account of this operation see section (f).
 - (2) According to Lloyd's Shipping records, three ships of 6,150 gross tons were sunk and one ship of 287 gross tons was damaged by air attack in the Norway area during December 1941.
 - (3) One Hudson each on STAND and CUP, one Beaufort each on CUP, STRIKE and ROVER, STAND, and one P.R.U. Mosquito on a photographic reconnaissance of Trondheim.

SECRET

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The weapons of the third aircraft failed to release after flak had rendered the bomb indicator unserviceable.

RO/911/12
RO/916/1/12

In the very early hours of the 2nd, two Hudsons were detailed to cover the southwest coast of Norway but neither aircraft had anything to report. Engine trouble was the cause of one Hudson curtailing the patrol. In addition one Liberator aircraft of No.120 Squadron (fitted with A.S.V.) undertook a special reconnaissance of the Kattegat but 10/10ths cloud at 600 feet rendered the patrol only 75% effective taking into account the use of A.S.V. Nothing of importance was sighted.

RO/916/1/12

A later reconnaissance of the south west coast of Norway by three Hudsons, one Beaufort and one Blenheim, revealed the presence of a southbound convoy consisting of four merchant vessels and one escort off Stavanger. The Hudson aircraft which located this force was unable to attack owing to such concentrated fire from ship and shore batteries.

RO/93/2/12

During the late afternoon a Blenheim (D/235) on CUP sighted another convoy of five merchant ships escorted by a U-boat which crash dived when aircraft approached. Two Beauforts (R and E/42) despatched from Wick to strike against this force failed to locate the intended target but each attacked an independent merchant vessel found south of Egersund, but no definite results were observed.

RO/99/2/12

Of the two Hudsons (O and M/320) which took off on the evening STAND patrol, one failed to return (O/320) and the other had nothing of interest to report.

RO/93/3/12

The early morning patrols of the 3rd produced no results but just after midday a Beaufort (D/42) on the BERT patrol sighted a convoy of three merchant ships of 2500/4000 tons with two escorts, north of Stavanger. Aircraft attacked one of the vessels with 2 x 250 lb. and 2 x 500 lb. S.A.P. bombs from twenty feet. One direct hit was claimed. (1) Heavy and light flak from the convoy considerably damaged the Beaufort.

A follow-up strike was considered but the approach of bad weather decided the issue.

RO/97/3/12

Normal CUP and SAUCER routine was maintained during the early hours of the 4th, but there were no incidents to report. The south west coast of Norway was covered mid-morning by two Hudsons on BERT, one of which was pursued by an ME.110 for ten minutes but there was no combat. The second aircraft (Z/220) sighted and attacked a merchant ship of 2,500 tons off Haugesund with 4 x 250 lb. S.A.P. bombs from thirty feet and claimed one hit abaft the funnel. The vessel was left on fire and in a sinking condition. (2)

This aircraft then continued the patrol and a few minutes later i.e. at 0849 hours sighted another northbound convoy off Haugesund consisting of one merchant vessel of 8,000 tons, four of 2,500 tons and two escort craft. A machine gun attack was made on the largest ship by turret and side guns but there were no visible results.

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- (1) There is no evidence among post war records to support this claim.
 - (2) According to Lloyd's Shipping records the Norwegian steamer Vestri of 499 gross tons was sunk by air attack during the morning of 4 December 1941.

RO/93/4/12

Against this convoy, a strike force of five Hudsons of the same squadron was despatched during the late afternoon. Two of this force (E and O/220) returned to base with engine and W/T trouble, a third aircraft (G/220) was unable to locate the target, and of the remainder one (K/220) made an excellent attack at 1828 hours on a merchant vessel of 2,500 tons at anchor off Norro Island and left the ship blazing furiously.⁽¹⁾ The aircraft was subjected to very intense flak from the docks at Aalesund and a flak ship lying off shore, and the first pilot was wounded in the arm. The second pilot took over and brought the aircraft safely back to base. The fifth aircraft (A/220) having failed to find a shipping target decided to investigate Vigra Island and discovered a wireless station thereon which was attacked with 4 x 250 lb. S.A.P. bombs some of which were seen to burst near the masts.

RO/96/5/12

During the following day four Hudsons did the same patrols, one of which (Z/220) sighted a large merchant ship of approximately 9,000 tons west of Stavanger at midday. As the aircraft turned to gain a favourable attacking position a destroyer with four merchant ships and another escort craft came into view about one mile to the northward. The Hudson sent a first sighting report immediately but poor visibility prevented a clear identification of the naval vessel for the amplifying report. However, some interference was experienced in getting the first sighting report through to No.18 Group but this was eventually overcome.

Meanwhile another Hudson (O/220) on the southern half of the CUP patrol had sighted a convoy of four merchant ships with three escorts off Skudesnes Fjord and attached the largest ship of 7,500 tons with 4 x 250 lb. S.A.P. bombs from sixty feet. The first of the stick was a near miss but the second was claimed as a hit on the bridge structure and the third was believed to have hit also abaft the funnel. The fourth bomb was not seen at all owing to a steep dive by the aircraft to sea level.

RO/93/6/12

RO/94/6/12

RO/96/6/12

Against the enemy force consisting of one destroyer, four merchant ships and one other escort craft, a strike of nine aircraft in three flights was ordered off during the afternoon. The first section of three Beauforts armed with bombs failed to locate the target but one aircraft encountered a convoy of one tanker (5,000 tons), two other merchant ships of 1,000 tons each and two flak ships south of Utsire Light. Aircraft (G/42) attacked the tanker with 2 x 500 lb. and 2 x 250 lb. S.A.P. bombs from 300 feet but owing to very rough seas no results were observed. Some few miles to the southward the second Beaufort (K/42) of the two had sighted another convoy of two merchant vessels each of 3/4,000 tons with three escorts and at 1514 hours had proceeded with an attack from fifty feet. The only result observed was an explosion from amidships followed by dense smoke. There was intense light flak from all vessels of the convoy. The third Beaufort had returned to base owing to engine trouble.

The second section of three Beauforts encountered some very bad conditions and returned to base without making a sighting; and the same can be said for the third section of three Hudsons. None of these aircraft were, as yet, fitted with A.S.V.

(1) There is no confirmation of this from German records.

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RO/91/7/12

An intense depression over the operational area with associated showers of snow, sleet and severe icing conditions cut down the anti-shipping patrols on the 7th to one ROVER in the STAND area by two Hudsons of No.608 Squadron, but no contacts were made.

Similar conditions prevailed on the 8th which again restricted operations to a morning CUP and SAUCER, neither of which produced any results apart from a brief encounter with an Me.109.

A pre-dawn moonlight strike at shipping in Kristiansand South was ordered for the morning of the 9th by six Beauforts of No.42 Squadron, all of which took-off, but visibility was so bad that the target area was not seen. One aircraft S/42 failed to return.

RO/92/9/12

During the afternoon a single Hudson (P/220) on the VAARO patrol had a sighting. At 1458 hours one merchant vessel of 6/7,000 tons with four trawler type escorts was seen on a South-westerly course off Kristiansund. A low level attack was delivered from twenty feet and three of the four bombs dropped were claimed as hits. Violent explosions followed and the bridge-house was seen to blow-up. The aircraft circled the ship which was ablaze throughout its length and definitely down by the bows. (1)

Coverage of the Skaggerak and the south-west coast of Norway continued normally during the next four days but lack of cloud cover rendered CUP and SAUCER generally ineffective. It was not until the morning of the 14th, therefore, that the next success was claimed by a Hudson of No.320 Squadron on the CUP patrol.

A northbound independent ship of 1,300 tons sighted at 1130 hours North of Stavanger was attacked from thirty feet with 3 x 250 lb. G.P. bombs two of which fell on the forecastle and amidships. An immediate explosion occurred followed by a large pillar of black smoke mingled with debris which was thrown up to 300 feet. The crew of the ship were seen running to the boats and jumping overboard. (2)

A quiet period of seven days followed during which only one attack was made by a Hudson (Z/220) on a merchant vessel of 3,000 tons off Stadtlandet, but no claim was made.

RO/92/21/12

On the 21st, the morning CUP provided the only attack of the day which was delivered by a Hudson of No.320 Squadron on a large coaster found north of Haugesund. From fifty feet, 3 x 250lb. G.P. bombs were dropped one of which was seen to overshoot but the third was not observed. Machine gun fire to the extent of 75 rounds was directed onto the bridge of the vessel registering some hits. (3)

RO/91/22/12

Prior to noon on the following day five Hudsons covered the south-west coast of Norway from Kristiansund to Stadtlandet

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- (1) According to Lloyd's Shipping records the Norwegian steamer Bjonn of 5,509 gross tons was sunk by air attack in 62.58N-06.39E on 9 December 1941.
 - (2) According to Lloyd's Shipping records the Norwegian ship Topaz of 142 gross tons was sunk as the result of air attack North of Haugesund at 1200 hours on 14 December 1941
 - (3) According to Lloyd's Shipping records, the Norwegian ship Karmsund of 287 gross tons was damaged by air attack while on passage from Bergen during 21 December 1941.

and Haugesund down to Kristiansund South. During those patrols three sightings were made each of which resulted in an attack.

H.Q.No.18 Group
Narrative d/d
22.12.41

The first was by Hudson T/220 on the OUP patrol at 1049 hours. A timber ship of 2500 tons was sighted on a northerly course N.W. of Stavanger and was attacked from thirty feet with 4 x 250 lb. G.P. bombs; two of which fell short, one dropped on the starboard side of the ship and the fourth was claimed as a direct hit forward of the funnel. Aircraft continued on course and observed the commencement of a red glow, but misty conditions prevented further observation.

Some ten minutes later a second attack was made by Hudson H/220 south of Stavanger. At 1100 hours a visual sighting was made on a convoy of two merchant vessels of 2500 tons and 1,000 tons with one escort. As the Hudson commenced to descend preparatory to making a low level attack on the largest ship, an Me.109 intercepted and opened fire at 800 yards range. The Hudson took evasive action and flew westward but was followed by the enemy for five minutes. The rear gunner of H/220 raked the decks of the smaller ship with machine gun fire as the aircraft passed overhead.

The third attack was made off Kristiansund just before midday by Hudson Z/220. A tanker of 6,000 tons accompanied by a cargo ship of 3,000 tons and one escort vessel was visually sighted at 1151 hours and two minutes later a low level attack was delivered from twenty feet with 4 x 250 lb. G.P. bombs. The placing of the bombs was not observed but an explosion occurred aft of the bridge structure and wreckage was thrown into the air. The aircraft in pulling up after releasing the bombs, struck the foremast and sustained slight damage. No further results were seen.

RO/91/23/12

Only one more attack was made before the end of the month and the year, 1941. This was made by a Beaufort of No.42 Squadron, part of a strike force ordered off to locate and destroy shipping found in the STAND area, but available to be diverted to any sighting by reconnaissance aircraft within range.

One Beaufort returned without sighting anything, the second aircraft sighted two 800 ton coasters which were not considered to be worth attacking, but the third found a 3,000 ton merchant vessel North of Lindesnes and dropped a torpedo from seventy feet at 1,000 yards range. Owing to very accurate flak from ship and shore batteries and the fact that a choppy sea was running, the track of the torpedo could not be followed; no results were observed. Decks and bridge structure were machine gunned as the aircraft flew low over the target; but no claims were made.

Reconnaissance patrols were maintained intermittently up to the 31st but only one convoy of a tanker and three small merchant ships was seen off Egersund on the 30th and although a strike force of three Beauforts was sent out, persistent fog rendered the patrol ineffective.

(f) Combined Operations off the Norwegian coast - Vaagso
(27 December 1941)

(1) The Plan

CC/S.15273
Encl.1A

On 24 October 1941, the Adviser on Combined Operations was instructed by the Chiefs of Staff to examine certain

proposals, submitted by the Joint Planning Staff, for harassing the enemy on his western seaboard.

The desiderata at this time was for an objective (a) within about 300 miles of a United Kingdom base which would come within the limited endurance of the available infantry assault ships (Class II), (b) with a reasonably easy and short navigational approach and (c) with only light defences.

Some of the objectives proposed were impracticable from the point of view of the limited forces available. For instance as no aircraft carrier would be free to participate, air support must be provided by long range fighters and bombers operating from the United Kingdom.

With all these considerations in mind, Vaagso in latitude 61.55 North longitude 05.07 East was selected for a combined operation by commando and light naval forces, with air cover. The operation was expected to take place during the latter half of December when there would be, approximately, five hours between sunrise and sunset.

The original object of this expedition was to seize and destroy enemy naval and military material, merchant shipping and industrial plant. Later on, a secondary object for the expedition was added, in the form of cover for another naval operation planned to take place at the same time (Operation Anklet).

The subsidiary aims were (a) to arrest local Quislings (b) to seize enemy documents and codes etc., (c) to withdraw Norwegian loyalist volunteers, and (d) to land S.O.E. material.⁽¹⁾

Ibid
Encl. 12A

Bergen/

The known disposition of enemy forces in Norway indicated that any immediate opposition which could be brought to bear on the landing party in the time available would be largely composed of aircraft. Including reinforcements it was estimated that approximately 23 bombers and 22 fighters, half of which were single engined type, were operationally serviceable. The majority were based at Stavanger, the remainder at Herdla in the ~~Tromsheim~~ area. The only aerodromes from which single-engined fighters could operate against the landing party were Herdla and Voss-Bomeon, and if fighter reinforcements were brought up from Stavanger they would have to refuel and operate from one or the other of these aerodromes, of which Herdla was normally the more active. Some of the bomber aircraft could carry torpedoes, but it was considered unlikely that the scale of attack would be great.

18Gp/S.1612/17/2
Encl. 5A

After some weeks of planning and exercising the assault force at Scapa, a final plan was drawn up and approved by all three services. It envisaged a naval force consisting of the cruiser Kenya in which the military Commander was to be installed; the destroyers Onslow, Oribi, Offa and Chiddingfold; the infantry assault ships Prince Charles and Prince Leopold; and the submarine Tuna to act as a navigational beacon off Vaagsfjord.

The troops selected to take part in the operation were:-

(a) Operational Headquarters of the Special Service Brigade;

(1) Special Operations Executive material, i.e. Radio sets, sabotage equipment for Agents' use.

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- (b) All ranks of No.3 Commando Unit;
- (c) The troops of No.2 Commando Unit, less one section;
- (d) Norwegian troops and guides.

Accommodation for the majority of the troops was in the two infantry assault ships; the remainder were either in the cruiser (Kenya) or one of the destroyers (Onslow).

Direct protection for this force was to be provided by a standing patrol maintained by sections of four Coastal Command Beaufighters from 0915 to 1600 hours on the day of the landing. These aircraft would be operated from Sumburgh, under No.18 (Coastal) Group control, using the advanced landing ground at Scatsca, if convenient. Twenty Beaufighters would be required for this task.

In the event of Sumburgh becoming unserviceable it was proposed to operate the standing patrol with Blenheim fighters provided by Nos.404 and 254 Squadrons, from Wick.

Diversionsary attacks intended to draw off enemy fighter opposition and to deny the enemy the use of Herdla aerodrome were to be made by Stirlings and Blenheims of Bomber Command. An offensive patrol by six Blenheims against enemy merchant shipping was also to be made south of Obrestad at 1200 hours.

To provide additional cover for the final assault, six Hampdens of Bomber Command were to drop smoke bombs from low altitude immediately on completion of the naval bombardment.

Finally, as a subsidiary air bombardment, six Hampdens of No.50 Squadron were detailed to attack the gun battery reported in position at Rugsundo (4 miles south of Maaloy Island) as soon as possible after 0830 hours.

It was planned that the naval force should reach a dispersal point off the Norwegian coast at 0600 hours, at which position two destroyers were to be detached and proceed North of Vaagso to the vicinity of Ulven Island, while the remainder of the force was to carry on so as to arrive off Vaagsfjord at 0800 hours. About five hours would be spent ashore, with the withdrawal taking place in the evening twilight.

Thus the stage was set for the first combined operation between the three services, planned to become effective on 26 December 1941 and known as Operation Archery. The naval force left Scapa on 24 December, arriving at Sullom Voe next day. Heavy weather on passage having caused several defects in the assault ships, the Naval Commander postponed the attack for 24 hours.

The ships eventually sailed on the evening of 26 December, arriving off the entrance to Vaagsfjord at 0830/27.

(2) The Assault

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Summary of Ops.
WK,1,2 & 3

The Kenya led in, followed by the two assault ships and the destroyer Chiddingfold. The last three altered course for a small bay south of Hollevik, where landing craft were lowered. Meanwhile, Kenya, Onslow and Offa had moved over to a position to bombard Maaloy Island. Just before the landing craft appeared round the south-eastern corner of Hollevik Bay, the Kenya, at 0842 hours, fired an opening salvo of star shell which illuminated Maaloy Island and thus pinpointed it for the Hampdens of Bomber Command which had been circling above since 0830 hours.

Kenya then proceeded to bombard the island with six-inch guns from about 2,500 yards and the two destroyers also joined in. Simultaneously one Hampden dropped 2 x 500 lb. G.Ps. on an enemy gun position on Rugsundo about 4 miles to the eastward, but in the almost complete darkness the results were not observed.

At 0851 hours the Assault Landing Craft fired red Verey lights as a signal that they were ready to proceed, upon receipt of which, Kenya answered with a red rocket and the naval forces ceased fire. The red rocket was also the signal for the Hampdens to descend and drop their smoke bombs. Four of the seven Hampdens detailed for this task dived to 50 feet and released their bombs along the edge of the island, setting up complete cover for the troops to land. One Hampden was hit by flak and went out of control and fell into the water, from which one of the crew was rescued. Its container of smoke bombs unfortunately fell on a landing craft, injuring 20 men. Another Hampden's container overshot, so an M.G. attack was made on gun positions on Vaagso Island, and silenced them for a time at least. A second Hampden was lost during this operation, and the navigator of a third was seriously wounded. At 0915 hours a further bombing attack by one Hampden was made on the gun position at Rugsundo.

The good work of the bombarding ships and aircraft ensured for the troops a practically unopposed approach and landing.

Coastal Cmd.
Operation
'Archery'
Resume of
Sumburgh Sorties
OPS/A.142
28/12

At 0928 hours the first section of fighters consisting of four Blenheims of Nos. 254 and 404 Squadrons arrived to give cover to the naval forces, and within half an hour were engaged in combat with three ME.109s, resulting in the loss of one Blenheim (X/254) and damage to another (A/254) which crashed at Sumburgh at 1145 hours with two injured crew. Enemy casualties claimed were the probable destruction of two ME.109s and damage to another. Blenheims B and Z/404 Squadron set course for base on being relieved by Beaufighters Z, J, K and T/235 Squadron, comprising the second section of the air cover force. They arrived at the rendezvous (61.56N- 0504E) at 1015 hours and commenced the patrol. At 1030 and 1045 hours two single JU.88s came to within eight miles of the naval force but were driven off by the Beaufighters. Fifteen minutes later one ME.109 was sighted in the sun at 200 feet and was speedily engaged by three Beaufighters. After several bursts of machine gun fire had been exchanged, the enemy aircraft made off. During the exchanges, which all took place at 300 feet, T/235 Squadron was seen to spin into the water from 300 feet. At 1222 hours, K/235 was attacked by two ME.109s but took evasive action and sustained no damage.

Bomber Cmd.
Forms 'D'
288.27/12

Bomber Command's first diversionary attack against Herdla aerodrome timed to take place at noon was made by 13 Blenheims of No. 114 Squadron carrying 52 x 250 lb bombs. At 1201 hours the first bombs were released over the wooden runways just at the moment when a number of ME.109s were about to take-off. The only aircraft seen to move down the runway promptly fell into a crater which suddenly appeared in its tracks. In addition to direct hits on both runways, one ME.109 received a hit and was seen to turn over on its nose. Gun emplacements and M.G. posts, huts and W/T masts were all subjected to machine gun attacks.

Two Blenheims failed to return from this operation, both of which were seen to crash into each other at 250 feet, and fell into a small inlet at the north western end of Herdla Island.

Bomber Cmd
Form 'D'
963 and 964
27/12

The second diversion in the form of an offensive patrol against shipping found off Obrestad was made by six Blenheims of No.110 Squadron operating from Lossiemouth. Four of the Blenheims found and attacked a convoy from 30 feet with 8 x 500 lb. G.P.s and one vessel was left in a sinking condition with its stern in the air. None of the four Blenheims returned. A fifth aircraft attacked a 1,500 ton merchant vessel in the same area with 2 x 500 lb. G.P.s from 50 feet, one of which was observed to fall near the stern of the ship.

The sixth aircraft was prevented from attacking as it was caught in the slipstream of No.5, causing its starboard wing to hit the water. After jettisoning its bomb the aircraft set course for base.

Coastal Cmd
Resume of
Sumburgh
Sorties
OPS/A.142
25/12

To return to the air cover being provided by Coastal Command for the naval force; the third sortie by Beaufighters Y,Z and U/236 was in process of execution just after midday.

From 1235 to 1255 hours, two HE.111s seen to be making for the surface forces were engaged by the Beaufighters, one of which did not return to base. One HE.111 with smoke pouring from its port engine was seen to dive vertically for the sea, the other, with its starboard engine on fire, was last seen losing height rapidly.

At 1333 hours three relieving Beaufighters arrived and four minutes later Y and Z/235 Squadron set course for base.

The fourth sortie of the day was carried out by Beaufighters P,Y and U/235 Squadron without incident.

For the final sortie, four Beaufighters N,F,C and J/248 Squadron commenced their patrol at 1445 hours. Fifteen minutes later an R/T message from the directing ship indicated the approach of an enemy bombing force, consisting of three HE.111s escorted by two ME.109s. The enemy aircraft released their bombs but missed the naval force by a considerable distance; a combat then ensued, resulting in claims for the destruction of two HE.111s. All the Beaufighters returned safely to base.

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(3) The results and withdrawal

Within an hour of the commencement of the landings the Halnoesvik area was clear, Maaloy Island was in our hands, and the Oribi and Onslow passed into Ulvesund to land the Northern Group of troops to deal with shipping in the convoy anchorage. One group encountered stiff opposition in South Vaagso where street fighting developed, and although reinforced from other groups it was not until 1230 hours that they gained effectual control of this area.

On shore, fish factories, oil tanks, army living quarters and ammunition stores were destroyed. About 150 Germans were killed and 98 taken prisoner, besides four Quislings. In the attack on shipping, five merchantmen two armed trawlers

and one armed tug (about 16,000 tons altogether) were also destroyed. (1)

Allied casualties were light in proportion to the opposition encountered, amounting to: Naval, two ratings killed, two officers and four ratings wounded; Military, two officers and 15 other ranks killed, five officers and 48 other ranks wounded; Air, 11 officers and 21 N.C.Os. missing and one officer and two N.C.Os. wounded.

The naval force suffered only very minor damage from gunfire and near miss bombs, but the air losses were of a higher order; of the 48 aircraft engaged throughout the operation, two Hampdens, seven Blenheims and two Beaufighters were lost. Claims for enemy casualties were:- Three HE.111s destroyed and one probably destroyed; four ME.109s probably destroyed, one damaged and one probably damaged.

Re-embarkation was ordered at 1250 hours and was completed by 1435 hours without opposition. The force commenced to withdraw ten minutes later and at 1500 hours was subjected to an attack by three HE.111s which released their bombs but no damage was sustained. After the Beaufighters had dealt with the enemy they returned to cover the withdrawal and remained until 1600 hours when having reached P.L.E., they set course for base, leaving the naval force intact and truly underway. Without further incident, the naval force arrived at Scapa at 1600 hours on 28 December 1941, their task successfully completed. Besides the prisoners, it brought back 77 loyal Norwegians.

Though small in comparison with subsequent combined operations, much was learned from this attack on Vaagso on 27 December 1941, which the C.-in-C. Home Forces described as, 'an, excellent example of careful planning and preparation, which, with close co-operation between the three services, was carried out in a most resolute manner'.

The adequate fighter cover provided throughout the day was aptly summed up by the remark of one of the destroyer's crew: 'It was nice to feel you hadn't got to be looking up all the time'.

(vii) The Bay of Biscay and the Western end of the English Channel

CC/S.15095
Encl.1A

The second region which was unaffected by the division of responsibility by areas for the attack of enemy merchant shipping was that of the Western end of the English Channel and the Bay of Biscay, for which No.19 Group at Plymouth was responsible.

First and foremost among the operational tasks of the Group was the hunting of U-boats and reconnaissance, both visual and photographic, in the approaches to the enemy

(1) From the records maintained at Lloyd's and those available from German sources the undermentioned merchant shipping was lost and damaged at Vaagso:-

<u>Destroyed</u>		<u>Damaged</u>	
<u>Anhalt</u>	(5,870 gross tons)	<u>Eismeer</u>	(1,004 gross tons)
<u>Anita L.M. Russ</u>	(1,712 " ")	<u>Nordland</u>	(725 " ")
<u>Norma</u>	(2,258 " ")	<u>Eystein</u>	(108 " ")
<u>Rermar Edvard Fritzen</u>	(2,936 " ")		
<u>Hadorov</u>	(207 " ")		
<u>D. Donner</u>	(223 " ")		
<u>Fohn</u> (patrol boat)	(250 " ")		

occupied ports. Second in importance came that of minelaying, and thirdly, the destruction of enemy merchant shipping.

(a) The disposition of Enemy traffic

CC/S.15211
Encl.10A

At the commencement of the period under review, i.e. mid-June 1941, the main traffic of merchant tonnage for enemy account in the Bay of Biscay was the carriage of iron ore from Bilbao to Bayonne.

From information available to the Ministry of Economic Warfare it appeared that seventeen vessels were normally employed in this trade, eight of them were Dutch and nine French owned. The Dutch vessels were all motorships but of the French vessels, five were motor driven, two were coal burning and two sailing vessels, one of which had an auxiliary motor. They were all small craft ranging from one hundred to four hundred gross tons. Each of these ships made on the average one trip from Bilbao to Bayonne every three days. On some days as many as eight or nine of them arrived at or sailed from either port. They had made the return voyage in ballast up to July 1941 but from then on a number loaded cargoes of coke at Bayonne for Bilbao. It was the frequency of their voyages rather than the size of the individual cargo that made their employment worth while. The aggregate tonnage reached the considerable figure of 1,000 tons per day, but later on in the year the tempo of shipments was substantially increased and further additions were made to the fleet of small ships engaged in this trade.

A number of medium sized ships with a gross tonnage of some 3,000 tons were also employed. These vessels loaded at Bilbao just the same as the smaller ships, but for the most part were too large to discharge at Bayonne and, therefore, proceeded to Bordeaux and occasionally to Nantes for unloading. Since May 1941, six such shipments had taken place, but only one vessel, the Italian 'Eugenio C' (4,078 gross tons) had made more than one voyage and could be said to be in anything like regular employment.

There did not appear to be any fixed time table for sailings, but it was believed that the vessels moved out into the harbour at Bilbao as soon as loading was completed, and the smaller ones having only a short trip i.e. twelve hours or so, probably tried to accomplish this during the hours of darkness. They undoubtedly hugged the coast throughout the passage, and apart from patrols by armed trawlers were not believed to participate in any convoy system. During the longer voyage to the River Gironde, which took thirty-five to forty hours, the larger vessels were believed to have an escort of three or four armed trawlers which almost certainly accompanied them throughout.

A regular contraband traffic was also carried on by small coasting vessels from ports in Portugal and Spain to Bilbao and Bayonne. A few Portuguese vessels participated in this traffic, but it was largely confined to Spanish ships. Originally the Portuguese vessels used to sail from Oporto, Leixoes and Viana de Castello and proceed direct to Bayonne, but fear of interception led to cargoes being unloaded at Bilbao, whence they continued to enemy occupied territory in the Dutch and French coasters.

The cargoes varied from minerals such as chrome, wolfram and tin to sardines, resin, pit-props and railway sleepers. A considerable traffic in canned fish was also carried between

Vigo and Bayonne whence it was railed to Italy. In the reverse direction, coal again featured both for Spanish and Portuguese account, together with tinplate, rails and the like. This traffic was distinguished not so much by its volume but in many cases by the importance of the commodity involved, such items as chrome and tin being of particular value to the enemy.

Little was known of the habits of the vessels engaged in this contraband traffic, but they undoubtedly sailed very close inshore and were difficult to distinguish from the local neutral traders.

Overshadowing all other shipping activities in this area was the development of blockade running between French west coast ports and the Far East, during 1942. While the transport of Spanish iron ore and the small contraband trade already mentioned were in themselves important they did not warrant consideration in comparison with this far more important function between two of the Axis countries.

Even before Japan's entry into the war on 7 December 1941, there were signs that indicated the enemy's intention to run an occasional ship from East to West and vice versa, but since Japan's conquests which presented her with vast quantities of valuable commodities, traffic between Europe and the Far East soon became a growing and almost a regular practice.

Possessed of the sources of an abundance of those materials most needed by Germany, such as rubber, tungsten, quinine, vegetable and mineral oils, Japan was denied the means of exploiting them either for herself or Germany. The leading Axis partner on the other hand, though lacking such materials, had the means and machinery for exploiting Japan's acquisitions. It had thus become vital that Germany and Japan should exchange each others riches. Such a situation left little doubt that a plan for running ships in each direction for the exchange of essentials would be prosecuted with the utmost energy from both sides. But just as the pooling of their mutual resources ranked as an Axis war aim of the highest order so the need to thwart them presented the Allied nations with a strategic problem of the first order.

Although the first movements in the campaign occurred during the period covered by this chapter, the major part of the battle took place during the latter half of 1942 and throughout the year 1943; it has been decided, therefore, that the complete narrative on 'Far Eastern Blockade Running' should be dealt with in a later chapter.

From this brief account of the type of shipping to be found in the Bay of Biscay it will be realised that only small quantities of rare and important cargoes were involved and comparatively little shipping was needed to maintain this traffic. In consequence, the anti-shipping effort of No. 19 Group was not commensurate with either of the other two Group's commitments in this respect. Moreover, the anti-shipping effort of No. 19 Group was almost wholly absorbed in keeping a constant watch on the three enemy major named units at Brest, the full story of which can be found in Chapter V, section (ii).

The air reconnaissance necessary for the maintenance of this close watch on Brest and the adjacent sea areas so that an unseen escape would be impossible, involved an immense expenditure of flying effort at the very time when Coastal Command's limited resources were taxed to the uttermost in the war against the U-boats and enemy merchant shipping.

(b) Forces available for the Anti-shipping role

Coastal Cmd.
Location
Statements
15.6.41 to
31.12.41

In June 1941, no specific forces were allocated, solely for the Anti-shipping role, but according to the availability of aircraft and the priorities of other commitments, a limited number of aircraft were made available from a Beaufort squadron,⁽¹⁾ not torpedo trained; a Blenheim bomber squadron⁽²⁾ about to be re-equipped with Hudsons; a Blenheim fighter squadron⁽³⁾, part of a Hudson squadron⁽⁴⁾ and a Flight of P.R. aircraft.⁽⁵⁾ Various changes in the disposition of squadrons occurred during the latter half of 1941 through re-equipment and postings so that by the end of the year, aircraft for the anti-shipping role were made available from one Hudson squadron,⁽⁶⁾ one Whitley squadron,⁽⁷⁾ part of one Beaufort squadron⁽⁸⁾ and one complete Beaufort squadron⁽⁹⁾ and the Flight of P.R. aircraft.⁽¹⁰⁾

(c) The introduction of Anti-Shipping reconnaissance in the Bay-- July 1941

H.Q.No.19 Group
Op.Order No.2
d/d 29 June 1941

Routine reconnaissance for the purpose of locating enemy merchant shipping in the Bay of Biscay was non-existent in Mid June 1941. Occasional offensive sorties were flown when aircraft could be spared from other duties, but, generally, the few movements which were taking place were covered by the P.R.U. sorties or by those aircraft engaged on Anti-U-boat or Anti-Raider commitments within the area. On receipt of reported movements a small strike force consisting of two or more Beauforts was despatched to deal with the target. During the latter half of June, there were four occasions when such reports warranted the despatch of strike forces to the extent of seventeen aircraft, of which seven delivered attacks, but only one hit was claimed.

Towards the end of the month, however, it was considered by Intelligence at Coastal Command that evidence existed which pointed to an increase in the amount of enemy shipping leaving and approaching French west coast ports, both singly and in convoy, which justified the introduction of routine reconnaissance on a limited scale.

A plan to locate and destroy this traffic was immediately outlined by Headquarters, No.19 Group and introduced as Operational Order No.2 on 29 June 1941. It was proposed to divide the area in which enemy shipping was considered most likely to be located into four sections.⁽¹¹⁾ On orders from No.19 Group a reconnaissance aircraft would patrol one or more of the areas

-
- (1) No.217 Squadron at St. Eval
 - (2) No.53 Squadron at St. Eval
 - (3) No.236 Squadron at Cavern Cheriton with a detachment at St. Eval
 - (4) No.206 Squadron detachment at St. Eval
 - (5) P.R. aircraft (Spitfire) at St. Eval
 - (6) No.224 Squadron at St. Eval
 - (7) No.502 Squadron at St. Eval
 - (8) No.86 Squadron at St. Eval
 - (9) No.22 Squadron at St. Eval
 - (10) Spitfires at St. Eval
 - (11) AREA 1. From 4630N to 4700 N and between 0500W and 0700W
 AREA 2. From 4600N to 4630N and between the French coast and 0500W
 AREA 3. From 4520N to 4600N and between the French coast and 0300W
 AREA 4. From 4700N to 4800N and between 0500W to 0700W.

as detailed. At night, or in conditions of poor visibility, the aircraft selected was to be equipped with A.S.V. On locating an enemy convoy or an important independent ship, the aircraft was to report to base and continue shadowing, but no attack was to be made. On sighting an unimportant single merchant vessel, however, an attack could be made, and the report to base was to include the result of the attack. The patrol would then be continued.

At the time the reconnaissance aircraft was due to arrive on patrol, a section of three aircraft armed with G.P. bombs, 11 seconds delay, was to be brought to immediate availability. The aircraft were to be taxied from dispersal and the crews standing-by in the Operations or Crew room. On receipt of a sighting report of sufficient importance, the strike force was to be despatched with the least possible delay. Normally a striking force would not be sent out if the report was of a single merchant vessel.

Throughout the month of July, nineteen sorties were flown under operational Order No.2, but the results were not very encouraging. Two attacks were delivered on merchant-vessels of 800 tons and 2,500 tons respectively, both of which were assessed as damaged. An additional attack on a minesweeper of 1,200 tons earned the assessed award of sunk.⁽¹⁾ A further fifteen sorties were flown by the Group's aircraft on reconnaissance and strikes against enemy merchant tonnage in the Bay of Biscay during the month, which resulted in five attacks being made against a variety of ships of 800 to 5,000 tons. Claims for hits on two medium sized vessels were made and earned assessment of one merchant vessel of 3,500 tons sunk and another of 5,000 tons damaged. The total expenditure of effort against enemy merchant shipping for the month was therefore thirty-four sorties, which produced sightings of fifteen independent merchant vessels and seven convoys besides sundry fishing vessels. Seven merchantmen and one minesweeper were attacked with 5.90 tons of bombs. With the routine watch on Brest and the move of Scharnhorst to La Pallice and back occupying a further sixty-six sorties the anti-shipping effort for July was fully extended.

An extension of reconnaissance to the North Spanish Coast

The existing plan for ascertaining the extent of enemy merchant shipping movements in the Bay of Biscay was extended from 31 July 1941, to include the traffic approaching Bordeaux from the west along the Spanish coast, at the request of H.Q. C.C.

The coastwise shipping traversing the north coast of Spain was outside the sink-at-sight area, but between Bilbao and Bayonne there was a stretch of shipping lane some one hundred and twenty miles long which came within the free bombing area. There was also the very definite possibility that enemy blockade runners from the Far East steered straight for Bordeaux, having probably made a landfall either at Cape Finisterre or Cape Ortegal.

With these factors in mind H.Q. C.C. requested No.19 Group to institute regular patrols to search for and attack such shipping when found.

(1) According to Lloyd's Shipping records, there is no evidence of damage sustained by any merchant tonnage in the Bay of Biscay during the month of July 1941.

On occasions special reconnaissance could be provided by P.R. aircraft from St. Eval, and in particular when Intelligence reports suggested the possibility of shipping movements.

The Admiralty had indicated the two areas most likely to be on the line of approach of enemy shipping to and from the Atlantic, and had stressed the importance of careful search in these areas in addition to the coastwise route to Bordeaux.

Essentially a job for long range aircraft, this commitment raised the problem of selecting a suitable type which could be spared for this task, bearing in mind the proximity of enemy aerodromes to the coastwise route which made fighter opposition a certainty.

This matter was raised several times at the A.O.C.-in-C.'s daily conferences during the last ten days of July, wherein it was made clear that there were no Catalinas available and the Sunderland aircraft were at this time all becoming due for major inspections and had been instructed, therefore, not to fly routine patrols in the Bay by night. In the circumstances the choice fell upon the Hudson which when fitted with a long range tank had an operational range of 1170 to 1570 miles according to the mark of aircraft.⁽¹⁾

H.Q.C.C. Daily
Conferences
d/d 6.8.41

At this time it so happened there was a desire to strengthen the anti-U-boat effort in the Bay and in consequence nearly all the available Hudsons⁽²⁾ were required for this commitment, so very few could be spared for Anti-shipping operations in the southern part of the Bay.

PL/98/8/41 and
H.Q.No.19 Group
O.R.B. d/d
9 August 1941

In point of fact the first sortie to be flown in the southern part of the Bay, was on 9 August 1941, by a Sunderland which having reached 45 degrees north was recalled to base owing to weather. A similar patrol⁽³⁾ was flown by another Sunderland on 14 August, which sighted and engaged an FW.200 about one hundred and fifty miles west of the Gironde, and claimed some damage to the enemy; and on the homeward leg sighted a submarine which dived within thirty seconds.

No further patrols for this commitment were flown during the remainder of the month.

(d) Operations - August to November 1941

In the northern part of the Bay the situation during the month of August had been a little more active. Thirty sorties were flown on reconnaissance and strikes against merchant shipping, during the course of which three ships were attacked, and one claim for damage to a 10,000 ton vessel located at Nantes on 5 August had been made, for which an assessment in

-
- | | miles | | hours | |
|--|-------|---|-----------|------------------|
| (1) Hudson III - operational range | 1170 | - | endurance | 9 $\frac{3}{4}$ |
| " V " | 1320 | " | " | 11 |
| " IV " | 1570 | " | " | 13 $\frac{1}{4}$ |
| (2) No.233 Squadron were posted to St. Eval for work in the Bay but No.206 Squadron was sent to Aldergrove. | | | | |
| (3) PL/98/8/41 - From Mount Batten to 4800N 0700W to 4422N - 0210W to 4422N - 0900W thence to Mount Batten. Object of patrol was to report movements of enemy shipping, but high level attacks could be carried out if suitable target presented itself. | | | | |

the same category was granted.⁽¹⁾ In regard to the other two ships, attacked at St. Nazaire on 11 August, no claims were made as all bombs were believed to have missed the targets. Activities against enemy naval units were confined to fifteen sorties of a routine nature.

H.Q. No.19 Group
O.R.B.
Sept. 1941

Although the number of sorties on reconnaissance and strike against enemy merchant shipping showed an increase during the month of September compared with the previous period, the results obtained were not very encouraging. During the course of forty-five sorties, only seven independent merchant vessels and two convoys were sighted, of which five ships of 6,500 tons were attacked. There were no substantial claims and no assessments awarded.

The type of shipping seen was generally of the coaster class between 400 and 800 tons, although a medium size vessel of 2,500 tons was sighted and attacked in the vicinity of Brehat Island at the western end of the English Channel. A Sunderland of No.10 (R.A.A.F.) Squadron on patrol in the south eastern part of the Bay sighted and attacked two small coasters of 400 tons each, but the bombs dropped short.

There was very little interference from enemy aircraft, in fact there were only two encounters throughout the month.

The routine watch against the three major naval units at Brest only called for fifteen sorties, but activities against fringe targets was stepped up to thirty-four sorties, out of which twenty-two attacks developed and were responsible for the expenditure of over eighteen tons of bombs.

Wastage among the aircraft engaged on these activities numbered four, two of which were lost on anti-shipping patrols and two during the attacks on fringe targets.

ibid
Oct. 1941

During October there was a complete lack of attacks against enemy merchant shipping which had, in fact, made very few appearances throughout the period, for only three independent ships were sighted during the course of the twenty-nine sorties flown. Catalina aircraft of No.209 Squadron, recently transferred to Pembroke Dock from Iceland, were now participating in the long range patrols off the north Spanish coast, but had so far only encountered Spanish vessels.

H.Q.C.C.
Naval Staff
Log 22.10.41

A report on 22 October concerning the likelihood of a sortie by the Prinz Eugen was sufficient to step up reconnaissance in the neighbourhood of Brest for more than a week, and thereby brought the month's total sorties for this commitment up to forty-seven. The tension was relaxed, however, when a few consecutive sorties established the unchanged state of the three ships which had been in dry dock throughout the month. Fringe targets at St. Nazaire, Lorient and Nantes received attention to the extent of nearly seven and a half tons of bombs released during the course of nineteen attacks.

(1) According to records maintained by the German Admiralty, the merchant vessel Leesee of 2,640 gross tons was damaged in Nantes during this attack.

H.Q.C.C.
Daily Con-
ference Folder

Earlier in the month at one of the A.O.C.-in-C.'s daily conferences it had been suggested that as No.217 Squadron had been through a strenuous time during its extensive employment in the Bay, and had suffered many losses, it should be given a rest by going to Thorney Island where it could be built up and torpedo trained. This was approved by the A.O.C.-in-C. on 21 October, and he also ruled that No.22 (Beaufort) Squadron should take over in the Bay area.

H.Q.C.C.
Location
Statements
No.14 d/d
16.10.41

Just prior to this change-over, reinforcements for No.19 Group had also arrived in the shape of the newly equipped No.53 Squadron with Hudsons.

A proportion of both squadrons participated in the anti-shipping programme from now onwards as far as their availability would allow, and as No.22 Squadron were torpedo trained, this type of weapon re-appeared among the armament expended in the Bay area during November, after an absence of six months.

H.Q. No.19 Group
O.R.B.
Nov. 1941

Although the November effort of twenty-four sorties against enemy merchant shipping produced five attacks, no claims were made and no assessments granted.

Among the eight independents and four convoys seen, the most important sighting - although not fully appreciated at the time - was that made by a Catalina of No.209 Squadron on patrol in the S.E. corner of the Bay.

At 1445 hours on 23 November, Q/209 on course 160 degrees at 800 feet, sighted an unidentified aircraft circling a merchant vessel (1) dead ahead in position 43.49N - 05.50W. The Catalina attempted to shadow the merchant vessel while maintaining cloud cover, but every time 'Q' left cloud, the enemy aircraft, now identified as an HE.115, forced her to regain cover. Over a dozen attempts to approach the merchant ship were prevented by the HE.115. At 1505 hours a combat ensued and 'Q' was hit by several bursts of cannon shell, including incendiary. Once during the encounter the enemy approached the starboard bow and passed over 'Q' offering a good target, which the guns in the blister and the nose took full advantage. Tracer was seen to enter the outer panel of the enemy's port wing, but no further results were observed as at 1547 hours in position 45.02N - 06.28W the HE.115 turned about and disappeared on a reciprocal course.

It was not until 1800 hours that this incident was reported to base, but the delay was intentional as the Captain was reluctant to break W/T silence in view of the state of his aircraft after combat, until nearer to base and the protection of approaching darkness.

H.Q.C.C.
Controllers
Log and H.Q.
No.15 Group.
O.R.B.

From an intelligence report, the arrival of this ship was expected, and in anticipation a Liberator of No.120 Squadron had been loaned by No.15 Group to patrol an area off the north west Spanish coast between Cape Finisterre and Cape Ortegal since daylight, hoping to sight her as she made landfall; however, this aircraft saw only two Spanish merchantmen and what was believed to be a U-boat-periscope.

H.Q. No.19 Group
O.R.B.
Nov.1941

Unfortunately the weather on the following day ruled out all hopes of a similar patrol being flown, but on subsequent days all the routine sorties were briefed to keep a sharp look-out for the merchant ship; however, she evaded attention and

(1) This ship was the homeward bound Raider 'B'.

was not seen again in the Bay area. Her next appearance was in the English Channel during the very early hours of 28 November when she was picked up by Dover C.H.L., and had, therefore, become the responsibility of No.16 Group. (1)

The remainder of the Anti-Shipping operations for the month were almost equally distributed between the routine watch on Brest and the attack of fringe targets. On the former the effort amounted to thirty-eight sorties and on the latter, forty sorties with twenty-five attacks and a bomb expenditure of 11.39 tons. Four torpedoes were dropped during shipping strikes but without result.

(e) The destruction of an enemy supply tanker

An increase in the number of enemy ships sighted during the month of December led to a substantial rise in the number of attacks made, but success was very elusive until the 23rd when a target in the form of a laden supply tanker was successfully dealt with by the combined efforts of a Sunderland of No.10 (R.A.A.F.) Squadron with bombs and depth charges, and a Beaufort of No.22 Squadron with a torpedo.

ibid
Dec. 1941

H.Q. No.19 Group
PL/G11/22/12
PL/G14/22/12
PL/G15/22/12
PD/01/23/12

At 0857 hours on 23 December 1941, Sunderland K/10 on Anti-Submarine patrol in the outer Bay area sighted a heavily laden tanker of 12,000 tons in position 45.45N - 11.48W on a westerly course at about twelve knots. The aircraft requested the tanker's name and the reply was 'Belinder'. A signal to this effect was sent to base requesting instructions, while 'K' continued to shadow. At 1002 hours orders were received to attack the tanker with depth charges. Meanwhile the ship had changed course to 160 degrees. Having attained a favourable position for attack the Sunderland approached the target down sun and at 1047 hours released 6 MK VIII D.Cs. set at fifty feet and 2 x 250 lb. A/S bombs at half a second delay in a stick spaced at forty feet. The stick was dropped from 1000 feet, and was believed to have straddled the ship at an angle of forty-five degrees from starboard bow to port quarter as tall columns of water completely obscured the target. When the columns subsided a large column of smoke was observed rising from the ship which had now reduced speed to about four knots and was trailing astern an oil streak some two hundred feet wide. Thirteen hundred rounds of M.G. were also fired from all guns in turn and hits were claimed on the vessel's bridge. The Sunderland did not escape unscathed for as she passed overhead the tanker's guns opened fire with M.G. and cannon, some of which penetrated the skin below the waterline. One of the gunners also received a piece of cannon shell in his right arm.

Two or three minutes before the attack, the second pilot believed he saw a disturbance of water some 300 yards ahead of the tanker which resembled the swirl of a submerging U-boat, but this was not confirmed by any other member of the crew.

H.Q. No.19 Group
PL/G2/23/12

STE/010/23/12

Within fifteen minutes of the receipt of the sighting report at No.19 Group, instructions were despatched to St. Eval for all available Beauforts of No.22 Squadron to take-off forthwith to attack the tanker. By 1117 hours six Beauforts were airborne, but, apart from seeing a Focke Wulf 200, nothing had been sighted by the time P.L.E. had been reached.

(1) For the subsequent events including No.16 Group's effort to locate this incoming Raider, see Section (V), (c)(iv).

PD/03/23/12

In the meantime another Sunderland (S/10) flying an Anti-Submarine patrol in the area, but with W/T receiver unserviceable, had contacted the tanker at 1210 hours in position 45.20N - 1114W on a course of 135 degrees at an estimated speed of 10/12 knots. The tanker opened fire but the aircraft did not return fire as it was considered to be out of range. Photographs were taken but no attack was made.

MB/01/24/12

MB/02/24/12

MB/03/24/12

On the receipt of this report which made it clear that the ship was making for territorial waters, No.19 Group instructed three Catalinas of No.209 Squadron engaged in Anti-submarine patrols in the vicinity to proceed to the area of the sighting, continue to shadow throughout the rest of the day, and attack at last light.

H.Q.C.C. Naval
Staff Log
23.12.41

At 1510 hours in position 45.10N - 11.57W, Catalina S/209 sighted an oil streak heading in a south-easterly direction which it was decided to follow, and within an hour the tanker was sighted dead ahead, having reached 4432N - 1047W. Her progress was signalled to base accordingly. From the streak of oil trailing astern the vessel appeared to be damaged. Unfortunately the Catalina now developed slight engine trouble, but it continued to shadow the ship until driven off fifty minutes later by an HE.115 which had been sent out to escort the tanker. Another Catalina sighted the destroyer Vanoc which was endeavouring to intercept the enemy before she made territorial waters. This destroyer was crossing the Bay area at the time the first sighting report was made and was diverted on instructions from the C.-in-C., Plymouth. The relative positions of the Vanoc and the tanker at 1630 hours placed them about one hundred and seventy miles apart, with the enemy about one hundred and five miles to make before reaching the safety of territorial waters. The chances of the destroyer catching her were considered to be very small.

H.Q. No.19 Group

In view of this, three Whitleys of No.502 Squadron were hurriedly despatched to intercept and attack if possible. However, one returned to base with W/T unserviceable and the other two aircraft failed to find the target, but instead made contact with an eastbound U-boat in position 4352N - 0900W which was allowed to proceed unmolested in view of the bombing restriction which was in operation at the time. (1)

H.Q. No.19 Group
PL/G2/24/12

The failure of the Whitleys to locate the tanker, and the lack of any news from the destroyer Vanoc, meant that the ship had not been seen since about 1700 hours on the 23rd. It was therefore imperative that contact should be regained at the earliest opportunity after dawn on the 24th. This task was allotted to one of the Sunderland aircraft (S/10) which had been engaged on a U-boat hunt the previous day but had sighted the tanker. The servicing of this flying boat was expedited and she was airborne at Pembroke Dock at 0429 hours with depth charges on board, as there had not been time to re-arm with bombs.

PD/01/24/12

At 0848 hours on the 24th, contact was regained with the tanker which had now reached position 4355N - 0750W, but her

-
- (1) A total of three German U-boats were ordered by the High Command to go to the aid of the damaged tanker. One of these boats sighted a British destroyer on an easterly course at high speed (presumably Vanoc) but none located the tanker. The sighting of a U-boat by T/502 (Whitley) was very likely one of these three searching for the damaged surface vessel (B. d. U. War Log d/d 23/24 December 1941).

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course was not observed as the Sunderland was immediately engaged in combat with a JU.88, which continued spasmodically for twenty-five minutes after which time the enemy disappeared in cloud.

At 0915 hours the Sunderland went in to attack approaching the tanker in level flight at an angle of twenty degrees on the port quarter and dropped 5 x 250 lb. MK VIII D.C.s (one hung up) and 2 x 250 lb. A/S bombs from 1700 feet without the use of a sight; the observer was acting as fire controller at the time, and so it was left to the pilot to aim the D.C.s and bombs at the ship, by eye. All the weapons overshot, the nearest bomb was about thirty yards ahead of the ship. Front and rear gunners raked the ship's decks with M.G. fire as the Sunderland passed overhead, and some hits were estimated.

The aircraft continued to shadow.

No further sighting of the JU.88 had been made, but at 1015 hours in position 4404N - 0758W a bomb explosion was seen very close to one of our own destroyers (Vanoc) which had just come into view, and immediately after a JU.88 was sighted climbing into cloud. The Sunderland continued to circle the destroyer and the enemy aircraft was sighted several times approaching out of cloud. On two occasions, at 1025 and 1040 approximately, S/10 turned to meet the JU.88 head on and passed over it with front and rear guns firing. Hits were estimated on the enemy's mainplane. Although the JU.88 passed over the destroyer after each of these engagements no bombs were seen to fall in spite of the fact that bombs could be seen in the racks.

At 1056 hours the Sunderland was obliged to set course for base having reached P.L.E. The enemy aircraft was last seen two minutes earlier entering cloud.

STE/012/24/12

Just about this time a Whitley aircraft of No.502 Squadron, self-diverted from a U-boat hunt in the area, reported the tanker in position 4345N - 0752W at 1058 hours, with no way on her, having just completed a turn to starboard. Photographs were obtained.

H.Q. No.19 Group
PL/G384/24/12

Immediately the Sunderland's report on the attack was received at base, instructions were issued for a strike force of Beauforts and Whitleys to take off forthwith.

STE/014/24/12
STE/015/24/12
STE/016/24/12

Only three Beauforts of No.22 Squadron and one Whitley of No.502 Squadron were available, and were despatched between 1115 and 1130 hours. Two of the Beauforts returned with nothing to report, but the third aircraft (H/22) sighted the tanker at 1443 hours in Santa Mart Bay with her bows heading in a north westerly direction. The pilot flew the aircraft up the eastern side of the bay and when almost abeam of the ship turned in and commenced the run-up from a distance of $1\frac{1}{2}$ - 2 miles. From seventy feet at a range of six hundred yards one torpedo was released and a direct hit amidships was registered. As the Beaufort headed out to sea a pyramid of black smoke seen to be rising from amidships had reached a height of 100/150 feet, and eventually enveloped the whole of the after part of the ship which also appeared to be settling down by the stern.

When the Whitley arrived on the scene at 1535 hours the tanker seemed to be aground with a marked list to starboard and the after deck partly submerged. There was a mass of black oil between the ship and shore and a lifeboat full of men had just pulled away from the vessel.

DS 64294/1(194)

SECRET

The aircraft attacked from dead ahead and released 3 x 250 lb. A/S bombs from 800 feet, circled and repeated the attack with another three bombs, all of which undershot. The rear gunner raked the decks with M.G. fire and after the second attack the tanker's gun opened fire from two positions, both of which were eventually silenced.

H.Q.C.C.
Naval Staff Log
26.12.41

The Admiralty and the Central Interpretation Unit examined the photographs of the vessel which had been taken by various aircraft during operations against this target, and in spite of slight discrepancies were satisfied that she was the ex Norwegian Ole Jacob of 8,306 gross tons, renamed Benno when captured by a German raider in the Indian Ocean in November 1940.

This was later confirmed by the German communique which referred to the Benno being sunk by British bombers and torpedo aircraft.

PL/G5/29/12
STE/02/30/12
STE/03/30/12
STE/05/30/12

It was believed that this supply tanker was associated with Raider E, whose presence in a Biscay port was suspected and whose sailing consequently, might be postponed. The possibility of a relief tanker being sent out was not overlooked, and although there was no definite information available to this effect, aircraft of No.19 Group were warned to keep sharp look-out and were rewarded on the 29th when a tanker of about 6,000 tons was sighted alongside the mole at La Pallice. She was promptly attacked by two Beauforts of No.22 Squadron, one of which was awarded an assessment of damage. The following evening the same ship was sighted and attacked in the same position by another Beaufort, but no claim was made.(1)

(f) Operations - December 1941

H.Q. No.19 Group
O.R.B. Dec. 41.

In addition to the seven attacks on the two tankers mentioned above, a further eleven attacks were made on a variety of merchant shipping between 400 and 5,000 tons in the Bay area during the month, and five ships were assessed as damaged.(2)

The month's total effort of thirty-nine sorties on reconnaissance and strikes against merchant vessels was the second best in this six monthly period, and the number of attacks, which amounted to eighteen, was the highest ever achieved by the Group's aircraft. Only one torpedo was expended during the month but the bomb tonnage of 7.39 tons was also the highest in this type of operation.

H.Q. No.15 Group
O.R.B. Dec. 41

It is of interest to record that Liberator aircraft of No.15 Group had participated to a limited extent in the anti-merchant shipping offensive in the Bay area during the month, particularly in the vicinity of the North Spanish coast, and had made three attacks, two of which came within the assessed category of 'damaged'.

H.Q. No.19 Group
O.R.B. Dec. 41

The remainder of the anti-shipping operations for the month were, as usual, confined to the watching patrols in the Brest area and the attack of fringe targets.

With the increasing probability of the three enemy major naval units at Brest approaching a state of readiness for sea,

- (1) There is no evidence in Lloyd's Shipping records of any ship receiving damage by air attack at La Pallice on either of these dates.
- (2) There is no confirmation of these assessments.

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the watching patrols were stepped upwards with emphasis on the maintenance of 'STOPPER' without gaps. Consequently, the total number of sorties on this account, i.e. eighty-seven, showed a marked increase and was the highest total of any month in the second half of 1941.

To round off the busiest month in respect of anti-shipping operations in No.19 Group's operational area, fringe targets at Donges, Brest and La Pallice were visited by thirty-two aircraft, twelve of which made attacks and accounted for the expenditure of 7.64 tons of bombs.

Wastage among the aircraft engaged on these patrols totalled six, four of which were lost during attacks on fringe targets.

Enemy aircraft did not interfere with our patrols to any extent, and although encountered on seven occasions only one combat resulted.

CHAPTER V

OPERATIONS AGAINST THE GERMAN MAIN NAVAL UNITS AT BREST BETWEEN
MARCH 1941 AND FEBRUARY 1942 AND DURING THEIR ESCAPE UP THE
ENGLISH CHANNEL TO GERMANY

(i) Introduction

The arrival of the "Scharnhorst" and "Gneisenau" in Brest at the end of March 1941 put into train three parallel lines of action which were pursued conjointly for nearly eleven months. The appearance of the third ship - the "Prinz Eugen" in the same port early in June merely gave added incentive of these measures which were:-

- (a) To make air attacks on the ships in harbour with the object of so damaging them that they would be unable to proceed to sea.
- (b) To institute and maintain the closest watch by air reconnaissances on the port of Brest and over the adjacent sea area so that an unseen escape would be impossible.
- (c) To perfect a scheme of combined action by Bomber, Coastal and Fighter Commands with the object of attacking any or all of these ships should they succeed in breaking out.

The first was effected as the result of four successful separate attacks, two in April and two in July 1941. The extent of the damage inflicted was not fully realised in England at the time. The many other bombing attacks failed to hit their target though the indirect effects on the dockyard organisation at Brest were considerable. (1)

The second involved an immense expenditure of flying effort over a long period and at a time when Coastal Command's slender resources were stretched to the uttermost in the war against the U-boats, blockade runners and anti-shipping operations. The final failure to intercept was directly attributable to the vagaries of the still imperfect A.S.V.

The third was rendered nugatory, although theoretically sound, by the lack of practice in the difficult technique of attacking fast moving targets at sea and was further hampered by poor weather conditions.

(ii) Attacks delivered by Bomber and Coastal Commands to keep these units immobilised

The employment of major naval units on occasional commerce raiding cruises was part and parcel of the German policy against British sea communications. The occupation of the French naval bases on the Atlantic enabled the enemy to plan in terms of a force permanently stationed on the flank of the vital Atlantic trade routes. The exploits of the Hipper in February 1941 had been a foretaste of these possibilities and the arrival at Brest of the two battlecruisers - "Scharnhorst" and "Gneisenau" - at the end of March gave added weight to the strategic threat being developed by the Germans against British supplies from overseas.

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Section (i)

(1) For full details of bombing raids, tonnage and types of bombs dropped see Appendix XIV.

Naval target priority for the Bomber Offensive

The battle of Atlantic Directive of the 9 March had ruled that the efforts of Bomber Command should for the next three months be devoted to defeating the enemy's attempts at blockade and constituted a major diversion from oil and industrial targets in Germany. (1) Consequently a new directive was issued to Bomber Command giving a list of naval targets with orders of priority. These targets were chiefly U-boat construction yards and naval ports in Germany and the operational U-boat and F.W. 200 bases on the Bay of Biscay.

The "Scharnhorst" and "Gneisenau" had been operating against Atlantic shipping during February and March. They had last been sighted by a Coastal Command Hudson on the 21 March steering an easterly course in the Bay of Biscay but fog had prevented any further observation of their movements after 2030 hours. The two ships entered Brest undetected the next day. Although the battlecruisers had arrived in Brest on the 22 March, their presence had not been confirmed by air reconnaissance owing to bad weather. Admiralty intelligence had indicated their probable arrival on the 27th and a token attack on Brest was made by two Blenheims of Bomber Command on the night of the 27/28 March. (2) On the 28 March photographic reconnaissance established that one of the ships was in dry-dock (3) and the other lying alongside a jetty surrounded by anti-torpedo netting. They immediately became a high priority naval target for both Bomber and Coastal Commands. Minelaying outside (4) and bombing raids on Brest were initiated but weather conditions at first interfered with these offensive measures. Special watching patrols were inaugurated by Coastal Command to give early warning of any sally on to the trade routes. These continued at varying intensity until the ships' finally left in February 1942 and are dealt with more fully in section (iii).

- (1) When the immediate danger of invasion had receded at the end of October 1940 the strategic aims of our Bomber Force were reconsidered. Small though this force was, it was the only means of striking at Germany. A directive on its use was issued on the 30 October giving two major objectives:-

Oil and Industrial towns. A revised directive was approved on the 15 November in which Oil was the Primary target with industrial towns as the secondary objective. The only diversions which were to be allowed were:-

- (a) Invasion ports, if invasion was considered imminent.
- (b) Enemy naval forces when specific instructions were issued by the Air Ministry.

References:- BC/S.46368 Part II encls. 43A and 71A also C.O.S.(41) and D.O.(41) 4th meetings.

- (2) No damage was inflicted on either ships. For details of this and all subsequent raids on Brest see Appendix XIV.
- (3) From German records, this was the "Gneisenau".
- (4) Minelaying commenced on the night of the 29/30 March and was continued almost nightly for the next six weeks. For details of the sorties see Appendix XV.

The "Gneisenau" immobilised

Air attacks by Bomber Command took place on the nights of the 30/31 March, the 3/4 and 4/5 April by 99, 62 and 49 aircraft respectively.⁽¹⁾ No hits were obtained but on the 5 April the "Gneisenau" was moved out of dry dock as an unexploded 250 lb. bomb was discovered in the bottom of the dock. She was moored to a buoy in the outer harbour. This move was revealed by that day's photographic reconnaissance and on the 6th, a dawn strike by Coastal Command torpedo aircraft was launched. Three of the attacking aircraft failed to locate the target but the fourth, X/22 Squadron, succeeded in spite of very intense flak from the ships and breakwater defences. A very high degree of skill and determination was necessary to bring off a torpedo attack on a ship in Brest harbour. There was only one angle of approach for a possibility of success and the torpedo had to be dropped as the aircraft was passing low over the breakwater in order to ensure the requisite running distance before it arrived at the target. The aircraft's subsequent get-away had to be attempted over the massed flak defences of Brest. The attack was perfect, the torpedo hit the "Gneisenau" in the stern and inflicted serious damage to the starboard propeller shaft, the hull of the ship and the after gun turret. Immediately after the attack X/22 was shot down with the loss of all the crew.⁽²⁾

See Appendix XII

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See Appendix XII

A further attack was made by 48 Bomber Command aircraft on the night of the 6/7 April⁽³⁾ but no hits were secured on either ship. After considerable difficulty the "Gneisenau" was re-docked on the 7th. Insufficient cloud cover frustrated the Coastal Command strikes attempted on the 7 and 8 April. An attack was launched by 47 Bomber Command aircraft on the night of the 10th/11th⁽⁴⁾ during which four direct hits, one of which did not explode,⁽⁵⁾ were obtained on the forward part of the "Gneisenau". Though the armoured deck was not penetrated, there was extensive damage to "B" turret, and the gunnery and damage control rooms. Fires broke out and one third of the crew accommodation was destroyed. Two further bombs exploded on the edge of the dock causing damage on the upper deck. Casualties by bomb or fire amounted to 50 killed and 90 wounded.

Ibid

Although hits on the ship in dry dock had been confirmed by intelligence, the extent of the damage was not known in England neither at this time was it realised that a torpedo hit had been secured on the "Gneisenau" on the 6 April. The double dose thus received by the "Gneisenau" was estimated by the enemy at the time to require at least four or five months to make good. Later in the summer it transpired that the torpedo damage to the starboard propeller shaft necessitated a complete new shaft and bearings which would not be completed until the end of 1941. Further attacks on the 12 and 14 April were made by 35 and 90 aircraft of Bomber Command but no hits were secured. The "Scharnhorst" thus

- (1) A total of 266 tons of bombs were dropped. Details of bomb loads are given in Appendix XIV.
- (2) The pilot - Flying Officer Kenneth Campbell - was posthumously awarded the Victoria Cross.
- (3) 67 tons of bombs were dropped in the area.
- (4) 47 aircraft took part dropping 46 tons of bombs.
- (5) When repair work was commenced on the 25 April, a 250 lb. bomb was found intact on the battery deck. Reference Appendix XII.

remained undamaged but was still refitting after the Atlantic cruise and was therefore not ready for sea.

Meanwhile minelaying in the approaches to Brest had been continuing since the 28 March by Bomber Command augmented after the 12 April by aircraft of Coastal Command. Up to the 14 April 65 mines had been successfully laid.

Bomber Command Protest

This concentration of effort gave rise on the 15 April to a letter from the A.O.C.-in-C. Bomber Command protesting to the C.A.S. against further wastage of bomber sorties in continual attacks on these two ships. He outlined the operations already carried out, (1) quoted reports of damage to the "Gneisenau" and stated that "the ships had now been sewn in by mines - Are we therefore to continue ad nauseum to cast hundreds of tons more on to the quays and into the waters of Brest harbour?" This appeal resulted in permission being given by the Air Ministry, subject to Cabinet approval, to transfer the primary effort of Bomber Command back to targets in Germany but under the following three stipulations:-

- (a) A daily P.R.U. reconnaissance of Brest harbour to be carried out.
- (b) The maintenance of frequent attacks on Brest by small forces when the weather was favourable.
- (c) First priority would again be given to the battle-cruisers when any movement was seen or suspected.

R.E.C.P/D.O/6
A.M. Signal X143
17.4.41.
BC/S.46368 Part II
encls. 81A and 84A

W.C. meetings
49th conclusions

Attacks continued to be made at a high frequency until the 8 May when this new arrangement received approval by the War Cabinet after which they ceased until early in June. (2)

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A.M. Signal
X 924-27/5

German records show that no further hits were made in these attacks on the "Gneisenau" nor was the "Scharnhorst" damaged. They do show, however, that the damage previously inflicted on the former and the continued refitting of the latter prevented either from taking part in the Bismark Group's cruise or in any sally to aid that ship when she was disabled and sunk in the Bay of Biscay on the 27 May. The British authorities considered it advisable at this time to re-open the attacks on these two ships and the 35th meeting of the Defence Committee (Operations) noted with approval on the 27 May that instructions had been issued to the A.O.C.-in-C. Bomber Command to take an early opportunity of favourable weather conditions to deliver a heavy attack on the battle-cruisers at Brest. The arrival of the "Prinz Eugen" at Brest, which was confirmed by reconnaissance on the 4 June, gave added weight to this decision.

- (1) Between the 27 March and the 15 April, Bomber Command had expended 595 bombing sorties dropping 538 tons of bombs and 80 minelaying sorties laying 61 mines.
- (2) Raids were made on the nights of the 22, 23 and 28 April and the 3, 4 and 7 May by 22, 59, 12, 28, 92 and 89 Bomber Command aircraft respectively.

Bomber aircraft dropped a total of 438 tons of bombs and laid 79 mines. Coastal aircraft made attacks on 12 nights totalling 68 aircraft who dropped 37 tons of bombs mostly 500 lb. S.A.P. and 1500 lb. Magnums and laying 61 mines outside Brest.

From 16 April-
31 May. (incl.)

Handicaps to accurate bombing

From the middle of May onwards, a balloon barrage was instituted around the town of Brest. Early in June, the Germans installed smoke generators around the port and augmented these in August by mooring numerous small vessels, fitted with this equipment, across the Rade de Brest so that a smoke screen could be operated at short notice over the dockyard area irrespective of the direction of the wind. Henceforward the bombing raids seldom found a clear target to attack.

The Bombing priority returns to land targets in Germany.

C.O.S.(41)
195th meeting

Ibid
204th meeting

Ibid
216th meeting

The three months of major diversion to naval targets which was laid down in the Prime Minister's March directive were drawing to a close. A resumption of the previous strategic aim in the bombing offensive had been discussed but the oil target policy was losing favour. A new policy was finally approved by the Chiefs of Staff on the 7 June whereby, subject to the requirements of security, including the Battle of the Atlantic, the bombing offensive should be directed against German transportation and civilian morale targets. A more precise allocation of attack was proposed by the C.N.S. in which he requested that 1/3rd of the bombing effort should be earmarked for Battle of Atlantic targets. This was disallowed after the C.A.S. had stated that, in his opinion, the new bombing policy covered naval targets sufficiently having regard to diversions caused by moon and weather conditions. During June, therefore, attacks on Brest were made by Bomber Command only as and when they fitted in with weather conditions over the targets in Germany.⁽¹⁾ No damage was inflicted on any of the ships.

The "Prinz Eugen" immobilised

See Appendix XII

On the night of the 1/2 July an attack by 41 aircraft of Bomber Command took place in the course of which a direct hit was secured on the "Prinz Eugen". The bomb struck the port side of the upper deck in the fore part of the ship, pierced the armoured deck and exploded below. The switch room compartment, compass room, and the transmitting station were destroyed together with 51 men killed and 32 wounded. The German estimate at the time was that it would take until the late autumn or winter of 1941 before the damage was made good and the ship seaworthy. Further attacks took place on the nights of the 4 and 6 July by 80 and 101 aircraft respectively of Bomber Command but no further hits or damage were inflicted on the three ships.

Naval targets became a secondary objective

The German attack on Russia, which commenced on the 22 June, materially altered the general strategic picture. On the 8 July an appreciation of the new situation was circulated to the three A.O.Cs. in C. in a memorandum by the Air Staff which outlined the directions in which action by

- (1) Bomber aircraft attacked on the nights of the 7, 10, 13 and 18 June employing 35, 96, 95 and 50 aircraft respectively.
(Bomber aircraft dropped a total of 432 tons of bombs and laid nil mines.
(Coastal aircraft dropped a total of 1½ tons of bombs and laid 48 mines.

During June 1941

Great Britain could best relieve the pressure on Russia. The bulk of the German army and air forces were engaged on this new front, leaving the minimum in western Europe and where, although considerable, the fighter strength was much reduced. A military expedition at this time being out of the question it fell to the Air Striking Force to hit the enemy where it produced the most reaction. It was considered that daylight bombing attacks in N.W. Germany escorted by fighters would not only damage the German war effort but would precipitate air battles necessitating the recall from the Russian front of many fighter squadrons.(1) Among secondary objectives was a renewed attack on the three enemy capital ships in Brest and it was suggested that daylight attacks escorted by fighters should be possible.

BC/S.46368
Part II
Encl. 90A

A directive embodying these measures was issued by the Air Ministry on the 9 July giving a detailed list of targets in Germany and stating that naval targets, in particular the projected daylight attacks on Brest, were to be regarded as diversions from the main policy and only to be carried out periodically when not missing good opportunities on the primary targets unless necessity required special action. No further raids were made on Brest until the 23 July.(2)

The "Scharnhorst" immobilised

During July the "Scharnhorst" completed the refit found necessary after her Atlantic cruise and was thus the only one of the Brest Group to be seaworthy.(3) In view of the constant watch on Brest it was decided by the German Command that her essential sea trials and crew training exercises should be carried out from a more southerly port in the Bay of Biscay. Accordingly at 2200 hours on the 21 July the ship left Brest and proceeded undetected to an area off the Ile de Ré where, during the 22nd, she carried out torpedo practices. On completion of these she proceeded to La Pallice entering the harbour at 1600 hours on the 22 July.

See Appendix XIII
for Scharnhorst's
itinerary

Air reconnaissance on the 22nd revealed that the "Scharnhorst" had left Brest. Reconnaissance sorties over likely ports failed to locate her until at 0915 hours on the 23 July she was discovered alongside a jetty in La Pallice. During the evening twilight and subsequent dark hours of the 23rd, bombing attacks were carried out by six Stirlings(4) and 27 Whitleys of Bomber Command and seven Beauforts (armed with magnums) of Coastal Command. No damage was inflicted on the warship. These attacks were followed early in the afternoon of the 24th by a daylight attack by 15 Halifax aircraft, while later on a heavy attack was delivered on Brest by 85 aircraft. The ships in Brest were not damaged but the attack on La Pallice was successful. At 1420 hours the "Scharnhorst" received five

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- (1) It was primarily the operations of these squadrons which, at this time, gave the Germans air supremacy over the Russian front.
 - (2) July 1-7 (Bomber aircraft dropped a total of 326 tons of bombs and laid nil mines. Coastal aircraft laid 7 mines between 1 and 22 July.
 - (3) The extent of the damage and the likely duration of repairs to the other two ships was not known in England.
 - (4) Of the 6 Stirlings - one did not locate the target. One returned early owing to engine trouble and one crashed, on return, into the sea some 50 miles west of Hartland Point.

See Appendix XII
for details of
damage

direct hits, two of which however, though penetrating the armoured deck, did not explode. These hits resulted in extensive flooding of compartments by water and oil while serious damage was done to electrical installations. Losses in personnel were relatively small. All ideas of remaining at La Pallice were given up and at 2210 hours on the 24th the ship, with 3000 tons of flood water in her, sailed for Brest.(1)

See
Appendix XIII
for Scharnhorst's
itinerary

Intelligence had indicated the probability of this move and offensive patrols by Coastal Command were in the air early on the 25th but the visibility was poor. At 0643 hours in foggy weather off Brest the "Scharnhorst" sighted a Beaufort type aircraft. Momentarily in the mist the aircraft was sighted again at 0700 and 0706 hours. Both the "Scharnhorst" and her escorting destroyer fired at the aircraft which attacked at 0708 hours, releasing a "torpedo"(2) which exploded as it touched the water. Immediately after, the aircraft was shot down and three survivors were picked up. The "Scharnhorst" secured alongside in Brest harbour at 0930 hours on the 25 July. She was dry docked the next day and it was discovered that, although the structural damage could be repaired in a fairly short time, much work was involved in refitting the electrical installations. The estimated time for completion of repairs was given as at least four months. German planning therefore had to be resigned to the immobilisation of all three ships until the end of 1941.

A lull followed by frequent light attacks

A.M. Signal
X.483
5.8.41

B.C. S.46368
Part II
encl. 104A

No heavy attacks on Brest were made for more than a month.(3) The Air Ministry had, on the 5 August, requested Bomber Command to make at least one attack during the moon period should weather conditions prohibit attacks on Germany and be suitable over Brest. Such conditions, however, did not arise and on the 26 August the Air Ministry made a direct request to Bomber Command for a heavy scale of attack on the port of Brest during the September moon period in order to damage the three ships to such an extent that they would be prevented from going to sea for some considerable period.(4)

Accordingly 56 aircraft attacked on the night of the 3/4 September and a heavy raid by 120 aircraft took place on the night of the 13/14. In neither cases were the three ships hit or further damaged.(5) However, intelligence from various sources indicated that all three ships had suffered damage at some time during the spring or summer although no specific raid could be instanced. This was confirmed by their continued presence in dry dock since the 27 July as revealed, by the almost daily sorties by the photographic reconnaissance aircraft.

- (1) A total of 81 tons of bombs were dropped on La Pallice on the 23 and 24 July. A total of 108 tons of bombs were dropped on Brest on the 24 July and 15 mines laid outside the harbour. 1500
- (2) In point of fact this was a magnum - a standard ~~400~~ 1500 lb. mine but fitted with an impact fuse.
- (3) On the 6 and 16 August two Bomber Command Fortress aircraft carried out day high altitude attacks on Brest dropping a total of 8 tons of bombs but did no damage to the warships.
- (4) During August and September, Coastal aircraft laid 9 and 6 mines respectively outside Brest. No mines were laid by Bomber Command aircraft in this area.
- (5) On these two raids 259 tons of bombs were released over the target area.

In October a policy of light attacks during the moon period on the dock area of Brest was adopted. Up to 10 heavy bombers of the Stirling and Halifax types were used on each occasion. This policy continued throughout October and November.⁽¹⁾ German records establish that no further damage was received by the ships and in point of fact all three were still refitting from the effects of the April and July raids.

Priority for bomber attacks on Brest

Early in December, although P.R.U. aircraft continued to report all three ships still in dry dock, it was considered that a heavier scale of attack should be made and 23 Bomber Command aircraft dropped 43 tons of bombs on the night of the 7/8th. After the demonstration of air success against capital ships as exemplified by the Japanese attack on Pearl Harbour, the Air Ministry requested A.O.C.-in-C. Bomber Command in a signal dated the 10 December to regard attacks on the three enemy units in Brest as a primary task until further notice. This signal was followed by a letter in which plans for a day-light bombing operation over Brest were called for.

Agents' reports and other intelligence were now indicating the early completion of repairs to all three vessels and nightly raids and minelaying were instituted from the 11 December.⁽²⁾ The Chiefs of Staff Committee plans for a heavy night followed by a day attack were approved by a Defence Committee meeting on the 15th. Reconnaissance revealed on the 16th that the "Prinz Eugen" had undocked and on the night of the 17/18 December 101 aircraft raided the Port⁽³⁾ followed early in the afternoon of the 18th by 41 heavy aircraft escorted by fighters.⁽⁴⁾ The daylight raid dropped 140 tons of bombs including 5 - 4000 lb. G.P. bombs. Hits were claimed on both "Scharnhorst" and "Gneisenau" in dock. No damage was done by the night attack neither were hits secured in the day raid but the "Gneisenau" suffered damage to her outer plating aft on the starboard side by splinters from bombs which fell around the dock and the lock gates of the "Scharnhorst" dock were hit and damaged to such an extent that it was impossible to undock the ship for four weeks. On the night of the 18/19th a further attack was made by 15 Bomber Command aircraft without causing any more damage to the ships.

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- (1) Light raids were carried out on the nights of the 2, 3, 22, 23, 24 and 29 October and the 1, 3, 18, 23, and 25 of November. A total of 82 Bomber aircraft participated and altogether dropped 261 tons of bombs. During October and November, Coastal aircraft laid 13 mines outside Brest. None were laid by Bomber Command aircraft in this area.
 - (2) Raids took place on the nights of the 11, 12, 14, 15 and 16 December by 19, 21, 1, 12 and 16 aircraft respectively. A total of 141 tons of bombs were dropped but no hits on the three ships were obtained.
Minelaying outside Brest during December amounted to 20 by Bomber Command and 1 by Coastal Command aircraft.
 - (3) 138 tons of bombs were dropped.
 - (4) This day raid was named "Operation Veracity I". Fighter protection was given by 10 squadrons of Fighter Command.

A.M. Signal
X.355 - 10/12.
S.46368 Part II
encl. 144A

C.O.S.(41)
423rd meeting

See
Appendix XIII

C.O.S.(41)
430th meeting

See
Appendix XII

On the 22 December the Chiefs of Staff re-affirmed that the Brest Group remained a first priority target. On the 23rd, photographic reconnaissance revealed that the "Gneisenau" had undocked and that night 43 aircraft attacked, followed on the night of the 27th by 16 aircraft and a daylight attack on the 30 December by 14 Halifaxes with fighter escort.(1) Attacks continued to be made whenever weather conditions permitted and were almost a nightly occurrence up to the 11 January 1942 with particularly heavy raids on the nights of the 5th and 8th.(2) With one exception none of these attacks secured hits or inflicted damage; the exception occurred on the evening of the 6 January when a bomb exploded between the "Gneisenau" and the side of the jetty. Slight damage to a section of the outer plating on the starboard side caused the flooding of two water-tight compartments and the ship redocked on the 8 January. Photographic reconnaissance revealed this move and, although interrupted by much bad weather, similar reconnaissance disclosed that the "Prinz Eugen" and "Scharnhorst" had undocked by the 10 and 18 January respectively.

On the 25th, the photographs of Brest harbour showed that the "Gneisenau" had undocked and that five torpedo boats as well as extra minesweepers were in the harbour. It was plain that preparations were being made for a move from Brest and air attacks were re-opened from the night of the 25 January onwards.(3) On the 3 February the executive order was signalled to all concerned to put "Operation Fuller"(4) into effect and a redeployment of torpedo bomber aircraft took place during the next few days. Between the 25 January and the 8 February photographic reconnaissance disclosed that both the "Gneisenau" and "Scharnhorst" again went into dry dock. At the time it was hoped that this was on account of damage sustained in the frequent air raids but enemy records establish that no such damage was inflicted and the dockings were of a routine nature connected with final trials for seaworthiness.

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- (1) These three raids dropped a total of 166 tons of bombs. No hits were secured and no further damage inflicted. The day raid was called "Operation Veracity II" and fighters from 9 squadrons were provided by Fighter Command.
 - (2) Attacks were made on the nights of the 2, 3, 5, 6, 7, 8, 9 and 11 January by 27, 14, 140, 27, 62, 116, 60 and 24 aircraft respectively. A total of 687 tons of bombs were dropped.
 - (3) Attacks were made on the nights of the 25, 26, 27 and 31 January 1942 by 45, 21, 23 and 54 aircraft and on the nights of the 6 and 10 February by 33 and 13 aircraft. During these raids a total of 274 tons of bombs were dropped in the area but no hits or damage to the ships was inflicted. Only 3 mines were laid outside Brest but the main minelaying effort was directed to the waters off the Dutch and North German Coasts on routes likely to be taken on a break back to Germany. Between the 3 and 9 February, Bomber Command aircraft laid 98 mines in five specified areas off the Frisian Islands.
 - (4) "Operation Fuller" was the measure co-ordinating action by Bomber, Coastal and Fighter Commands against the Brest Group should they actually break out and proceed up the English Channel. The full history of this measure and the sea reconnaissance to give warnings of such a break is given in Section (iii).

At 1620 hours on the 11 February reconnaissance photographs revealed that six destroyers were present in the harbour in addition to the previously reported torpedo boats and auxiliary craft and that all three heavy units were out of dry dock. The sailing of the Group was now obviously imminent.

- (iii) Reconnaissance and patrols maintained by Coastal Command during the period and the development of Schemes for attack at sea should the ships break out

The confirmation by photographic reconnaissance on 28 March of the presence of the two battlecruisers in Brest harbour was followed by the institution of a cross over patrol during the dark hours to the westward of the Brest Peninsula to prevent an unseen departure. This was backed up from the 31 March by an additional patrol more to the westward which was flown daily from 0730 hours until close reconnaissance of the port had established that the ships had not left during the night. As an extra precaution, a watch was kept to the seaward of Brest by the institution from the 29 March of patrols maintained by our own submarines.

On the 6 April the system of air patrols was expanded. The positions of the day and night crossover patrols to the westward were slightly amended, a line patrol to the northward was established to guard against a break up the English Channel and a patrol by torpedo carrying aircraft was instituted from Pierres Noires to Basse du Lis to prevent egress to the southward along the Biscay Coast. See Map X.

Just before the patrol time of the submarine screen was exhausted, the Admiralty sent a signal to the C.-in-C. Plymouth and H.Q. Coastal Command, dated the 8 April, to the effect that as these submarines were leaving their patrols it was of increased importance that air reconnaissance should be designed to give the best chance of detecting the departure of the battlecruisers. All other considerations must stand aside. Accordingly a new schedule of watching patrols was brought into force from the 10 April.

Four main patrols were standardised. (1) See Map X

- (i) Line "A" - to be flown throughout the hours of darkness.
- (ii) Crossover "B" - to be flown from one hour after dawn to two hours after dusk.
- (iii) Coastal "C" - to be flown to the South and return on reciprocal track so as to leave the last position at dusk.
- (iv) Patrol "Z" - to be flown by torpedo aircraft from half an hour after dusk to prudent limit of endurance.

Photographic reconnaissance sorties were flown over the port of Brest as early as possible each day and persevered with

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- (1) In addition the old patrol "Bust" was amended and could be flown either from the east or the west. This was a daylight sweep and only flown on special occasions at this time when it was thought that enemy shipping was present. See Map X.

No. 19 Group
O.R.B. March
Appendices

ibid
April Appendices

CC/S.15,152
encl. 1A

No. 19 Group
O.R.B. April
Appendices

Ibid

until photographic confirmation⁽¹⁾ was obtained of the presence of the two battlecruisers. If, from weather or other causes, no such confirmation was possible it was the invariable rule to institute immediately one or two distant cross-over patrols much further west in the Bay of Biscay in case the ships had broken out in the interval. These were continued until a close reconnaissance sortie had established their continued presence in the harbour.

Operation Fuller

AM/D.O.N.C.
Ops. 15 and
CC/S.15, 152
encl. 2A

Towards the end of April, intelligence had indicated that at least one of the battlecruisers had been damaged by air attack and it was considered likely that the ships might attempt to get back to Germany for repairs. On the 29 April, the Air Ministry sent a letter to the three A.O.C's. in C. informing them that there was reason to expect a break up the English Channel during the period 30 April to the 4 May inclusive and that it was considered probable that the Straits of Dover would be navigated during darkness. Information had been received that 120 - Me 109 fighters had been moved from the Pas de Calais and Brest areas to Cherbourg. These aircraft together with the Me. 110's already in the Brest area would be capable of providing a high degree of protection for the ships on passage during daylight in the Cherbourg area. It was intended that, if the attempt was made, the ships should be attacked by our air and surface forces.

Regarding reconnaissance, Coastal Command was instructed to continue the existing patrols and to make dawn and dusk reconnaissances of Brest and Cherbourg. If the dawn sorties over Brest did not establish the presence of the ships in that port, Bomber and Fighter Commands and the Air Ministry were to be informed and a forenoon reconnaissance made of the sea area Brest to Cherbourg followed by an afternoon reconnaissance of the sea area Cherbourg to the meridian of Caen. Fighter Command was to arrange for a special R.D.F. watch to be kept on the Channel area and any unusual enemy aircraft activity in this area was to be reported immediately to Coastal and Bomber Commands and the Air Ministry.

Ibid

In the event of the Coastal Command dawn reconnaissance failing to establish the presence of the battlecruisers at Brest, Coastal and Bomber Commands were to prepare striking forces. Such forces were not to be launched before 1200 hours or to the west of the Cherbourg Peninsula. The A.O.C.-in-C. Bomber Command was to co-ordinate his bombing attacks with the torpedo attacks by Coastal Command and to concert with the A.O.C.-in-C. Fighter Command for fighter cover. The latter was to provide fighter protection for each attack on a scale not less than six squadrons, deployed tactically in accordance with plans agreed between the A.O.C's-in-C. concerned.

The letter continued to outline the intentions for night attacks by naval craft in the Straits of Dover and stated that no air attacks would be delivered during the hours of darkness but should the estimated position of the enemy ships at one hour after dawn be south of the latitude of Walcheren,

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- (1) From the first arrival of these units, efforts were made by the enemy to conceal the ships from the air by the use of camouflage netting but, although occasionally deceiving visual observation, the photographic reconnaissance was never misled.

joint air attacks in the early morning hours under fighter cover were to be arranged among the three A.O.C's-in-C. If north of the latitude of Walcheren and weather conditions were suitable, cloud flying attacks by Bomber Command against the ships could be undertaken at the discretion of the A.O.C.-in-C.

ibid

In a further paragraph, it was considered unlikely that the enemy would attempt the passage of the Straits of Dover in daylight but should such an attempt be made a unique opportunity would be offered to both our surface vessels and air striking forces to engage the enemy to the maximum.

Finally it was stated that the evidence for the move up Channel was not strong enough to justify the holding of striking forces in readiness and Bomber Command were, therefore, to continue their normal programme until information had been received from Coastal Command that the ships were not located in Brest. On the following day the Air Ministry ordered that all measures taken to implement these instructions were to be known under the code name of "Operation Fuller".

ibid encl. 7A
A.M. Signal
X.372-30/4

It will be noted that, right from the start, it was assumed that the most probable course was for the enemy to leave Brest before dawn and make the passage of the Dover Straits during the dark hours.

CC/S.15,152
encl. 8B

F.C./S.24043
encls. 2A and 3A

A conference was held on the 30 April at H.Q. Fighter Command to discuss the details of "Operation Fuller" at which were present representatives of all three Commands. It was noted that the reconnaissance called for from Coastal Command was, in fact, already established as a routine measure and that a special R.D.F. watch had just been arranged by Fighter Command to report any unusual enemy air activity in the Morlaix to Caen area of the English Channel.

CC/S.15,152
encl. 8B

Regarding the organisation of attacks, Coastal Command proposed to seek permission to launch attacks as soon after dawn as possible using the squadron of Torpedo aircraft operating from St. Eval and were prepared to undertake this without any special fighter protection.

Ibid

For attacks on the enemy ships between Cherbourg and the Straits of Dover, Coastal Command would have available two squadrons of Torpedo aircraft at Thorney Island and Bomber Command their No. 2 Group which consisted mainly of Blenheims but might include some Hampdens. If attacks took place independently, Fighter Command would provide for each operation a close escort of one wing of three squadrons with additional high cover of three squadrons or more at the discretion of the A.O.C. No. 11 Group. On the other hand, if Bomber and Coastal operations were timed to take place simultaneously, the high cover squadrons could cover both and up to 10 squadrons would be provided. The A.O.C's of B.C. No. 2 Group and C.C. No. 16 Group would make their arrangements direct with the A.O.C. of F.C. No. 11 Group. Nos. 10 and 12 F.C. Groups would each make an additional supporting wing of three squadrons available to operate at the request of No. 11 Group. The rendez-vous of strike aircraft with their fighter escorts would be over Tangmere.

After the night passage of the Straits of Dover attacks would be renewed and if one hour after dawn it was estimated that the enemy vessels were still south of the latitude of Walcheren, fighter protection would be provided on a similar scale. It was agreed that no attempt in this area should

be made to combine torpedo and bombing attacks.

In the event of the enemy attempting the Dover Straits in daylight, Bomber Command might decide to use aircraft other than those in No. 2 Group and to operate singly or in small formations over a period of time. In this case Fighter Command would arrange support in the area but, in view of the strength of enemy fighter forces in the Straits, adequate protection could only be maintained for a comparatively short period. To avoid the heavy concentration of flak in the narrow part of the Straits it was recommended that attacks should be made either south of Cap Gris Nez or north of Gravelines.

ibid
encl. 9A

Later in the day a further direction from the Air Ministry was received to the effect that as it was probable, once through the Straits of Dover, the enemy ships would proceed along the Ruytingen Channel Bomber Command were to be prepared to lay mines in this area. In view of the difficulty of correct laying during darkness the operation might have to be carried out during daylight and the A.O.C.-in-C. Bomber Command was to consult with the A.O.C.-in-C. Fighter Command as regards fighter cover.⁽¹⁾ It was emphasised that if this operation was undertaken, it was not to take place until information had been received that the battlecruisers had left Brest and were proceeding up Channel.

The Operational Orders

To implement the measures agreed upon, each Command issued their own operational instructions.

ibid
encl. 11A

Those of Bomber Command formed their operational order No. 133 dated 1 May. The intention was to attack the "Scharnhorst" and "Gneisenau" if they attempted to reach a German port using the Channel route. During the passage, unless suitable cloud cover was available, attacks would only be ordered in areas where Fighter Command could give protection. Fighter escort could be given anywhere east of Cherbourg to a line Dungeness/Boulogne but in the area Dungeness - Boulogne - Dunkirk - North Foreland a fighter screen only could be given and this could be maintained for limited periods enabling attacks to be made by Bomber and Coastal Command aircraft without direct Fighter escort. It was not intended that aircraft should attack by night and it was considered unlikely that the enemy would try to pass the Straits of Dover by daylight. But if he did, the opportunity must be taken to attack with the largest possible striking force.

The operation was to be known by the code word "Fuller" and would be put into effect by the order "Executive Fuller". On receipt of the executive, Groups were to be prepared to operate as follows:-

- (a) With direct Fighter escort, all available Stirling aircraft from No. 3 Group.

-
- (1) The area in which sea mines were to be laid was:-
Along a line 090° from "W" buoy (51°11'50"N x 2°06'30"E) in two groups the centres of which should be 3 and 7 miles from "W" buoy. This buoy was confirmed as in place and lit.

- (b) In the restricted area of the Straits under the Fighter Screen, all available aircraft in Nos. 1, 2, 3, 4 (Halifax and Wellington aircraft only), and 5 Groups.

For operations with Fighter escort, arrangements were to be made direct between Nos. 3 and 11 Groups. If possible these attacks would be co-ordinated with attacks by torpedo carrying aircraft of Coastal Command. If operations were ordered under general Fighter Screen in the Straits of Dover, a definite period would be given during which the screen would be available. This period was unlikely to exceed 45 minutes and Groups were to attack with as many aircraft as possible, using single aircraft, sections of three or boxes of six at the discretion of Group Commanders.

No. 5 Group was to hold two squadrons of Hampdens at readiness for sea mining operations which would be ordered during dusk or at night according to circumstance. Fighter escort could not be provided but, if ordered during dusk, fighter patrols would be maintained in the area.

Bomb loads for Stirlings, Halifaxes, Manchesters and Hampdens were to be 2000 lb. A.P. bombs made up in weight as necessary with 500 lb. S.A.P. Provided that eight Stirlings were operating, two were to carry a full load of "B" bombs.⁽¹⁾ Of the Wellingtons in No. 3 Group, up to 30% were to carry maximum loads of "B" bombs and the remainder together with all Blenheims were to carry 500 lb. S.A.P. bombs.

Where possible, high level attacks were to be made whatever bomb load was carried.

Similar orders were issued by Coastal Command in their operational instruction No. 97 dated 2 May. The forces available were No. 22 Squadron (Beauforts) at St. Eval, Nos. 827 (Albacore) and 816 (Swordfish) squadrons of the fleet Air Arm at Thorney Island⁽²⁾ and No. 42 squadron (Beauforts) at North Coates in reserve.

Routine reconnaissances were being maintained as under:-

- (i) Dawn and dusk reconnaissance of Brest and Cherbourg.
- (ii) Cross over patrols with A.S.V. aircraft off Brest.
- (iii) Forenoon reconnaissance between Brest and Cherbourg.
- (iv) Afternoon reconnaissance between Cherbourg and the meridian of Caen.

The latter two reconnaissances would only be flown if the dawn reconnaissance of Brest had not established the presence of the two battlecruisers in Brest or if reports from the crossover patrol had suggested that the vessels had moved.

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- (1) This was a 250 lb. mine type of bomb. It was to be dropped ahead of a moving ship. A fuze setting (generally 11 seconds) caused it to rise to the surface a set time after entry and an impact fuze ensured detonation on being struck by a ship. After 20 minutes a safety device operated which caused it to sink permanently.
 - (2) Nos. 827 and 816 squadrons F.A.A. had been placed by the Admiralty under the operational orders Coastal Command - Reference Signal X.1384 of 30.4.41. They reverted to R.A.N.A.S. on 4.6.41.

also
F.C./S.24043
encls. 20A and
27A

C.C./S.15,152
encl. 13A

SECRET

199

If the dawn reconnaissance reported that Brest was empty, all torpedo bomber squadrons would be brought to the ready and No. 22 squadron would attack as ordered by the A.O.C. No. 19 Group. Subject to weather condition the bombing attack would be delivered after 1200 hours B.S.T. or when the warships were east of Cherbourg. If practicable the torpedo attack from Thorney Island would be synchronised with the bombing attack in order to take advantage of the fighter cover and the fighter escort would rendez-vous over Tangmere. In the event of both Beauforts and F.A.A. aircraft being used, the Beaufort's rendez-vous over Tangmere would be timed for the arrival of the Albacores and Swordfish in the vicinity of the target. A supporting wing was being provided by Fighter Command to cover the withdrawal of the attacking forces.

Should the battlecruisers survive the passage through the English Channel and Straits of Dover, they would be attacked the following morning south of the latitude of Walcheren one hour after dawn under fighter cover but no close escort would be provided for either bombing or torpedo aircraft.

If the enemy attempted the passage of the Straits of Dover in daylight, Fighter Command would provide a strong protective force for a short period in the area and torpedo attacks would be made either south of Cap Gris Nez or north of Gravelines during this period.

The A.O.C. No. 16 Group was to co-operate direct with the A.O.C. No. 11 Group regarding details of the operations which came within his area. No. 42 squadron was to move from Leuchars to North Coates and might be required to operate from Thorney Island. The Rear Admiral Naval Air Service was being asked to move Nos. 827 and 816 squadrons to Thorney Island.

ibid
encl. 12A

In like manner Fighter Command No. 11 Group issued their operations order No. 21 dated 2 May which gave effect to the various descriptions of fighter escort, cover, and protection mentioned above. Rendez-vous points were laid down and details provided of the scale of co-operation required from Nos. 10 and 12 Fighter Groups.

Routine Watch

ibid
encl. 15A

The state of preparedness for this expected move of the German warships in Brest continued until the 5 May when it was considered that immediate readiness might be relaxed and Air Ministry Signal x.340 of 5/5/41 ordered that "Operation Fuller" was to be in abeyance until further orders were issued. No. 42 squadron returned to Leuchars, No. 22 squadron went to North Coates to finish their night training and the F.A.A. squadrons were employed on mine-laying and anti-shiping duties in the Channel Area. The bombing raids on Brest by Bomber and Coastal Commands, which had been sustained at high frequency, ceased from the 7 May.

The routine watching patrols carried out day and night by Coastal Command continued on the same lines as standardised early in April with frequent extra patrols interpolated as weather conditions necessitated. On the 2 May these patrols were reviewed and reformed into six main patrols in addition to the daily close reconnaissance of Brest. The three patrols - Line A, Coastal C and Bust remained the same but crossover B was moved slightly to the S.W. and the

distant crossover patrols standardised into patrols D and E.⁽¹⁾ See Map XI.

These patrols were maintained until the end of May when they were temporarily changed and much augmented during the latter stages of the "Bismarck's" cruise and in efforts to locate the "Prinz Eugen".⁽²⁾ When it was confirmed, on 4 June, that the "Prinz Eugen" had joined the two battlecruisers in Brest the day and night routine watching patrols were resumed and continued throughout June and up to the 21 July.

It must be noted that these were purely anti-breakout patrols. In addition to these a great deal of anti-shipping⁽³⁾ and, from the latter part of June, an increasing amount of anti-U-boat sweeps and patrols⁽⁴⁾ were carried out in the inner and middle areas of the Bay and to the north of Brittany. All had the underlying advantage of providing additional chances of intercepting any of these enemy warships should they attempt to break out to the north or westwards. The vagaries of weather and the unreliability of A.S.V. equipment at this time made it impracticable to maintain Line A patrol with the desirable degree of continuity during the dark hours so that an unseen breakout to the southeast keeping close to the Biscay Coast was quite possible. In this case it was considered that the middle and, if necessary, special outer Bay patrols would locate the ships before they got clear away into the Atlantic.

A move to La Pallice

The "Scharnhorst" had suffered no damage from any of the bombing attacks on Brest and had been refitting after the commerce raiding cruise in the Atlantic. She had undocked on the 24 April, and by the middle of July was in all respects seaworthy. As is customary after any long refit it was necessary to work the ship's company up to a state of battle efficiency by weapon exercises and steaming trials at sea. The German Naval Staff considered that such gunnery, torpedo and tactical exercises could be carried out with greater freedom from British attack in the La Rochelle area basing the ship temporarily in the harbour of La Pallice.

Signs suspicious of a possible move were noted during the 21 July. Line A patrol had sighted five minesweepers at 0539 hours in the outer approaches to Brest. The photographic reconnaissance at 0815 hours had confirmed all three major units in their usual positions but five destroyers were entering the inner harbour and six minesweepers plus 16 patrol craft had left their usual billets in the Port de Commerce by the time the next photographic sortie was over Brest at 1045 hours. At 1430 hours the major units were again viewed in the same positions but minesweeping was continuing in the outer

No. 19 Group
July O.R.B.

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- (1) Crossover B - 4821N x 0700W - 4647N x 0642W - 4702N x 0602W - 4806N x 0740W.
Crossover D - 4822N x 0933W - 4647N x 0950W - 4653N x 0908W - 4817N x 1018W.
Crossover E - 4642N x 0858W - 4514N x 0802W - 4534N x 0729W - 4621N x 0930W.

Ref. PL/G11/2/5/41.

- (2) A full description of these measures was given in Volume II, Chapter VII, Section (ii).
(3) See Chapter IV.
(4) See Chapter II.

H.Q.C.C. Naval
Staff Log

approaches. It was considered by the Admiralty Operational Staff that the "Scharnhorst" was ready for sea and might be going to move, probably to St. Nazaire. The normal Line A and crossover B patrols were ordered for the dark hours and, in addition, two overlapping crossover patrols L and M further to the westward.⁽¹⁾ See Map XI. Strike forces consisting of six torpedo Beauforts of No. 22 squadron were brought to two hours' notice at Thorney Island, and six Beauforts of No. 217 squadron armed with 500 lb. S.A.P. bombs were available at St. Eval. The last photographic sortie of the day confirmed that all three ships were in the same positions at 2115 hours but that the "Scharnhorst" was emitting smoke and the camouflage netting over her had been removed.

Hudson P/206 squadron commenced Line A patrol at 0006 hours on the 22 July. A.S.V. indications were obtained at 0340 and 0415 hours but the intense darkness prevented any visual recognition of their source. At 0430 hours both the W/T and A.S.V. installations broke down.

ibid
and H.Q.C.C.
Controller's Log

Meanwhile the evidence pointing to a move during the dark hours had made the Admiralty Staff suspicious of the gap in positive reconnaissance between 2115/21, when the "Scharnhorst" was last photographed in Brest, and the arrival of P/206 squadron on Line A patrol at 0006/22. After telephonic conversations between the Admiralty and H.Q. Coastal Command, P/206 squadron on Line A patrol was instructed by W/T at 0440 hours to make a sortie from his patrol in a south easterly direction as far as St. Nazaire keeping at A.S.V. distance from the coast and at first light to return but keep further out to seaward; also, a visual close reconnaissance was to be made over Brest harbour at first light before the normal first photographic sortie took place.

Scharnhorst's
Log
Appendix XIII
and Map X for
place names

In point of fact the Admiralty were right in their suspicions. The "Scharnhorst" had left Brest at 2200 hours on the 21 July with four destroyers as escort. By 0042/22, in very dark weather conditions, the party was proceeding at 25 knots along the swept channel towards the outer end of the Chaussée de Sein shoal. This was rounded at 0138 hours (thereby crossing Line A Patrol) and on a course of 119° the ships proceeded down the Biscay Coast passing close to the Iles de Glenan at about 0400 hours and Belle Isle at 0540 hours so that not only did P/206 squadron not pick up the enemy as they crossed Line A but, the W/T installation having broken down at 0430 hours, the order to patrol coastwise down to St. Nazaire was not received. This diversion, if acted upon, should certainly have located the enemy.

ibid

The "Scharnhorst" was met at 0613 hours by a fighter escort of Me. 109's and two He. 115 aircraft as anti submarine escort. The course was continued until 0912 hours to position 4618N x 0200W and in this area, between the Roche Bonne Bank and the Ile de Ré, torpedo firing practices were carried out until noon. After this the "Scharnhorst" and the four destroyers proceeded for La Pallice, entering the harbour at 1600 hours on the 22 July.

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- (1) Crossover L - 4820N x 0745W - 4640N x 0815W - 4640N x 0745W - 4820N x 0815W.
Reference - PL/G16/21/7.
Crossover M - 4930N x 0945W - 4800N x 1015W - 4800N x 0945W - 4930N x 1015W.
Reference - PL/G19/21/7.

No. 19 Group
July O.R.B's

The first light visual reconnaissance of Brest at 0700 hours reported a shape, presumed to be the "Scharnhorst" still in the usual place - the photographs taken were of no use owing to the poor early light. The second sortie at 0815 hours was abortive due to weather conditions. The third, landing at 1240 hours reported that visually all three major units were in their usual positions but the photographs developed and interpreted by 1430 hours revealed that the "Scharnhorst" had gone and in her place was a 530 ft. tanker with two other 100 ft. vessels moored close ahead and astern to give a false impression of length.

The Search for the "Scharnhorst"

The Admiralty had been convinced before this interpretation that the "Scharnhorst" had sailed and at noon had instructed H.Q. Coastal Command to lay on the necessary interception patrols. Photographic sorties to Douarnenez Bay, Lorient, St. Nazaire and Cherbourg⁽¹⁾ during the afternoon and evening revealed no sign of the warship.⁽²⁾ The mid-Bay crossover "L" was maintained all day until dusk and a more distant patrol was established from 1845 to 2330 hours in a north westerly direction from Cape Ortegal. A long range Hudson took off at 2250 hours, flying from Ushant to the mouth of the Gironde keeping close to the coast, and with orders to investigate suspected A.S.V. contacts with flares. Mines were laid during the night off Brest and crossover "B" and Line "A" were flown all the dark hours in case the "Scharnhorst" should return to Brest. None of these flights succeeded in locating the battlecruiser and at dawn on the 23rd renewed photographic sorties were ordered to Cherbourg, Lorient, St. Nazaire, La Pallice, Bordeaux and the coastal

- PL/G9/22/7
- (1) The Admiralty appreciation was that the "Scharnhorst" had gone south to St. Nazaire or Bordeaux, therefore operation Fuller was not put into operation. However, a false alarm occurred in the channel area. A reconnaissance by three Blenheims of No. 59 squadron had been ordered between Le Havre and Cherbourg as part of the measures taken to locate the "Scharnhorst". At 1800 hours they sighted a large tanker with 4 escort vessels a few miles north of Cherbourg. On turning into attack, the leading aircraft - H/59 - saw what he took to be a battlecruiser closer inshore and made a sighting report. On receipt of this report, the Air Ministry urged Bomber Command at 1930 hours to make every endeavour to attack before dark and for Coastal Command to launch a torpedo attack with fighter escort. At 2035 hours the C.-in-C. Bomber Command telephoned the D.C.A.S. that 40 Blenheims from No. 2 Group were airborne for the attack armed with 250 lb. S.A.P. bombs but that they had been recalled following a message from the Vice-Admiral Dover area to the effect that "the sighting of the "Scharnhorst" outside Cherbourg was a mare's nest. Coastal Command despatched a strike of 11 Beaufort torpedo aircraft of No. 22 squadron escorted by fighters which set course for Cherbourg at 2140 hours but they saw nothing of either the warship or the tanker. A second photographic sortie at 2055 hours saw no sign of these targets either in or near Cherbourg nor subsequently on a sweep eastward as far as Le Havre. Photographs taken during the sorties confirmed this negative visual evidence. Reference AHB/IJK/24/15 encl. 24A. H.Q.C.C. Naval Staff Log and CH/G5 and G7/22/7.
 - (2) The sortie that was ordered for La Pallice and Bordeaux had to be cancelled owing to cloud and icing conditions in the area.

PL/G14/22/7
 PL/G9/23/7
 PL/G5/23/7

regions. The crossover patrols in the middle and southwest area of the Bay were maintained and seven aircraft were detailed to fly searches in the inner and southern sections of the Bay of Biscay. Strike forces consisting of 23 Beauforts and five Hudsons were held in readiness and eight Stirling heavy bombers from Bomber Command were available from 0600 hours.

The attack on the "Scharnhorst" in La Pallice and her return to Brest

PL/G17/23/7
 crossover "H"

Photographs taken at 0915 hours by the sortie to La Pallice revealed the "Scharnhorst" lying inside the pierhead of the outer jetty at La Pallice with two destroyers in the outer port and two in the wet dock. The Biscay Patrols were recalled and strike forces organised by Bomber and Coastal Commands. Further photographic reconnaissance over the harbour at 1830 hours confirmed that the "Scharnhorst" was still in the same position and with camouflage netting nearly in place over her. The strikes consisted of six Stirlings which took off so as to arrive over the target at 2200 (sunset) followed by 14 Whitleys between 0030 and 0130 hours and seven Beauforts of No. 217 squadron around 0230 hours. None of these attacks inflicted any damage on the "Scharnhorst" or destroyers. During the dark hours, a Hudson of No. 206 squadron carried out a patrol about 90 miles to the W.S.W. of La Pallice to guard against an unseen breakaway towards the Atlantic or a Spanish port. See Map XI.

No. 19 Group
 July O.R.B.

At 0800 hours on the 24 July, the first photographic reconnaissance confirmed the continued presence of the warships in the same positions and in the early afternoon a daylight attack was pressed home by Halifax aircraft of Bomber Command who secured five direct hits on the "Scharnhorst" at 1420 hours. (See section (ii) for details of damage.) Another photographic sortie was sent to La Pallice and photographs taken at 2130 hours disclosed the "Scharnhorst" still lying off the jetty but surrounded by tugs and other small vessels.

Significantly enough, the evening sortie over Brest disclosed that five of the six "M" class minesweepers had left the port since midday.

Logs of H.Q.C.C.
 Naval Staff and
 Controller

The presence of tugs around the "Scharnhorst" in La Pallice and the departure of the Brest minesweepers together with intelligence reports convinced the Admiralty that the ship was on the point of sailing for Brest. The usual night watching patrols were ordered but had to be cancelled at 2030 hours owing to the bad weather closing down over No. 19 Group's stations. One of our own submarines was being diverted to an interception position off Brest but was unlikely to reach the position in time unless the battlecruiser could be disabled on the way. Coastal Command were therefore asked by the Admiralty to strike at dawn and an estimated position was given for the "Scharnhorst" at 0545 hours on 25 July. (1)

Details of the strike were discussed between H.Q.C.C., No. 16 and No. 19 Groups resulting in the despatch at

- (1) Assuming that she would leave La Pallice at about 2200 hours (sunset) it was estimated that, at 0545/25, she would be in position 4747N x 0442W steering for Brest at 25 knots.

PL/G4/25/7

CH/G2/25/7

0530 hours of five Beauforts of No. 217 squadron(1) from St. Eval. These aircraft were armed with Magnums and 500 lb. S.A.P. bombs; their task was to attack and disperse the destroyers escorting the "Scharnhorst". The torpedo strike consisted of nine Beauforts of No. 22 squadron from Thorney Island and was timed to arrive at the target 10 minutes after the Beaufort bombers. No. 10 Group of Fighter Command maintained fighter patrols out to 50 miles south of the Lizard until 0730 hours to cover the return.

Nos. 16 and 19
Groups O.R.B's
and Logs of
H.Q.C.C. Naval
Staff and
Controller

Four of the St. Eval strike reported that, on reaching the attack area, they ran into foggy weather and saw nothing of the enemy or each other and set course for base at times varying between 0705 and 0750 hours. The fifth aircraft - X/217 squadron - never returned. The torpedo strike of nine Beauforts took off as planned but shortly afterwards it was realised at base that two of the aircraft had not had their torpedo stop valves opened. A signal was sent recalling these two but unfortunately was obeyed by five others as well so that only two aircraft - A and W/22 squadron - continued the sortie. Neither of them sighted the target in the foggy conditions.

Scharnhorst's
Log

Appendix XIII

The "Scharnhorst" with her destroyer escort had left La Pallice at 2210 hours on the 24 July and, at 25 knots, proceeded up the swept channel close to the Biscay coast. At 0600 hours on the 25th, when approaching the Brest peninsula, the weather became increasingly foggy. At 0643 hours when in position 4820N x 0510W a Beaufort type aircraft was sighted momentarily through the mist. This occurred again at 0700 and 0706 hours. Both the "Scharnhorst" and her nearest destroyer fired at the aircraft which attacked at 0708 hours dropping what the "Scharnhorst" took to be a torpedo which exploded on entering the water.(2) The aircraft was then shot down and three survivors were picked up. This was the missing X/217 squadron. At 0744 hours the enemy ships passed the Brest net boom defence and at 0930 hours on 25 July the "Scharnhorst" made fast alongside Laninon jetty in Brest harbour.

PL/G9/25/7

Although all the available evidence pointed to the probable arrival of the battlecruiser in Brest, no positive confirmation of the move could be obtained. A long range Hudson was sent to reconnoitre La Pallice and the coastal route but was unable to effect this owing to absence of cloud cover in the La Pallice area. The first photographic sortie to Brest at 0830 hours found conditions of 10/10th cloud with rain and hail spreading south. Similar conditions for the rest of the day thwarted all efforts to locate the ship. Although crossover B was maintained during the night of the 25/26th, the weather did not improve sufficiently to fly Line A patrol until 0200 hours on the 26th. The first photographic sorties at 0815 and 0830 hours were successful and revealed the "Scharnhorst" in Brest harbour in her customary billet alongside the torpedo boat station.

The resumption of Watching Patrols

The routine Watching Patrols by day and night were resumed and distant crossover patrols instituted whenever photographic reconnaissance failed, through weather conditions,

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- (1) A sixth aircraft had to return soon after take off owing to the rear turret becoming unserviceable.
 - (2) In point of fact this was a Magnum - A standard 1700 lb. mine but fitted with an impact fuze.

Logs of H.Q.C.C.
Naval Staff and
the Controller

to establish the continued presence of the three major units. It was noted that the "Scharnhorst" had entered a dry dock by the 27 July which tended to confirm that she had been damaged by the bombing attacks at La Pallice. All three major units were thus in dry dock. On the 29 July it was decided to replace "Line A" patrol by one which more completely boxed in the possible exits from Brest, was not so close to rocky islets which gave false A.S.V. contacts and which was of greater overall length so as to avoid the quick succession of 180° turns at the ends of the patrols. The new patrol was called "Stopper" and was maintained nightly between last light and dawn by an aircraft fitted with A.S.V. (1) These routine watches continued all through August and September during which time the Brest Group of three major units remained in dry dock. No attacks on them were made by Bomber Command in August and only two in September.

C.C/S.15,152
encl. 18A

ibid
encl. 20A

ibid
encl. 22A

The operational orders of the three Commands for "Fuller" remained unaltered except that on the 28 August the subsidiary operation of laying mines in the Ruytingen Channel was allotted a separate code word "Mafia". On the 7 September, the A.O.C.-in-C. Coastal Command had suggested to the Air Ministry that, in view of the equipment of certain twin engine fighter squadrons with long range tanks, the instructions co-ordinating fighter escort with Bomber and Coastal strikes against the Brest Group, if they attempted a channel dash, should be reviewed with the aim of extending the scope. This was not considered practicable by the Air Ministry as the enemy were held likely to mount a very strong single-engine fighter defence over the whole route. (2) However, it was hoped that in due course a majority of Fighter Command's single-engine fighters would be provided with jettisonable long range tanks and when this stage had been reached it would be practicable to modify "operation Fuller" in such a way as to enable striking forces with efficient fighter escort to be launched at the enemy ships while they were still west of the Cherbourg Peninsula.

The scheme of patrols in the Outer Bay to prevent any of the Brest Group from breaking out undetected into the Atlantic was reviewed on the 20 September. To supplement "Stopper" and the crossover patrols "B", "D" and "E", a ring of outer Biscay patrols, numbered from 1 to 8, was standardised so that any one or more could be initiated when the occasion arose without a lengthy signal to the station concerned. (3)

Throughout October and November 1941 the Brest Group remained in dry dock. During this time Bomber Command carried out light raids choosing the moon periods but no

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- (1) "Stopper" - From 4835N x 0525W to 4803N x 0523W to 4743N x 0440W. PL/G10/29/7/41. See Map XI.
 - (2) It is interesting to note that in this reply, the Air Ministry stated that "Operation Fuller" was governed by certain characteristics:-
 - (a) The time of high water in the Ruytingen channel.
 - (b) The necessity for the enemy ships to make the Straits of Dover in the dark.
 - (c) The enemy had the initiative and therefore some time would elapse between the moment when reconnaissance reported their departure and the preparation and launching of any attack.
 - (3) Reference PL/G2/20/9/41. See Map XI for the positions of the patrols.

Logs of H.Q.C.C.
Naval Staff and
the Controller

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October O.R.B.

further damage was inflicted on the ships. On the 22 October agents in the Brest area reported the possibility of a sortie by the "Prinz Eugen". This report was rated by the Admiralty operational Intelligence centre as "B3".⁽¹⁾ However, in view of the increasing probability of sea worthiness after the ship's long presence in dry dock, it was not considered wise to ignore even a "B3" report. Accordingly, in addition to the routine night patrol, a Hudson aircraft carried out a crossover patrol about 150 miles to the westward of Brest in a direct line between Brest and convoy SL.89 which, at this time, was being heavily attacked by U-boats and F.W. 200 aircraft. On the 23 October photographic reconnaissance confirmed all three major units still in dry dock but showed minesweeping activity outside Brest and disclosed that two destroyers had left La Pallice. All Commands were warned that Operation Fuller might be put into effect. "Stopper" patrol was backed up by "Line C" down to latitude 46°N and all available torpedo aircraft of No. 22 squadron brought to immediate readiness. The Hudson on "Stopper" left patrol at 0445 hours owing to the A.S.V. breaking down and "Line C" was diverted by signal to take its place. To cover the inevitable gap in reconnaissance two other crossover patrols were immediately instituted between latitude 50° and 47°50'N on the meridian of 7° West. The first photographic sortie on the 24 October established the arrival in Brest of the two destroyers from La Pallice and the continued presence of all three major units in their dry docks under their usual camouflage netting. Tension was relaxed but did not return to normal until a few more days of consecutive reports regarding the unchanged state of the three ships. This incident was typical of lesser scares which took place during the long watching period and illustrates the amount of flying which had to be done over and above the pure routine patrols. A few hours gap in patrols or a couple of days without photographs of Brest necessitated special backing up measures "just in case".

Small changes in orders for Operation Fuller

Early in October, a modified operational instruction - (No. 104) was issued by Coastal Command to take the place of the original "Fuller" orders. Certain paragraphs were reworded for clarity but the intentions and measures were the same except that the early morning torpedo attack by aircraft from St. Eval was cancelled, it being considered that a more concentrated and adequately escorted strike could be made from Thorney Island by which time the geographical position of the enemy units would have been better established. The location of the strike units was not laid down as heretofore because it was not possible to forecast what squadrons would be available and a flexible redeployment at the last moment was preferable when the weather and precise location of the enemy must govern the despatch of bomber attacks.

This was followed on the 5 November by a new operational order - (No. 127) - from No. 11 Group, Fighter Command which replaced their original No. 21. Here again no change was made in the intention but minor details of procedure and communications were brought up to date.

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- (1) Intelligence reports were graded as to estimated reliability. The letters A to D being used to represent the reliability of the informant source and the numbers 1 to 5 the likely accuracy of the information.

ibid
encls. 33A, 35A
and 36A

A special modification in the "Fuller" orders of all three Commands was introduced on the 6 December to the effect that, should the "Prinz Eugen" alone attempt to make the channel passage, only a scaled down operation would be ordered. In this case the action signal would be "Executive Fuller Minor".

Rising Tension

PL/G1/6/12/41

During December the scale of bombing attacks on the three ships was stepped sharply upwards in line with the increasing probability of their readiness for sea. More specific orders were issued by Coastal Command regarding the routine night patrols. On moonlight nights the "Stopper" patrol could be replaced by "Line C", in which case the first sortie was to be on patrol within one hour of dusk and a second sortie at about midnight. When the moon was late in rising, "Stopper" was to be flown during darkness and then be followed by one sortie of "Line C".

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Staff Log

Tension rose rapidly on the 12 December. Reliable intelligence reports indicated an early date for the completion of repairs to all three ships and, while appreciating that a spell of suitable bad weather would be awaited by the enemy before moving, the Admiralty required maximum precautions to be put in train from the 13 December with emphasis on the maintenance of "Stopper" without gaps. (1)

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However, a gap in the "Stopper" cover owing to A.S.V. failure occurred on the night of the 12/13th and although partially covered by "Line C" this necessitated the flying of the two crossovers "D" and "E". Unfortunately, after only two hours patrolling, both aircraft had to be recalled owing to the weather closing down at base. This necessitated the institution of Biscay No. 8 by No. 15 Group to guard the Outer Bay exit. Day reconnaissance in the channel area was already being flown between Boulogne and Ushant to locate an armed raider believed to be en route down channel. Meanwhile strike forces, consisting of 12 Torpedo Beauforts of No. 22 squadron and 15 Torpedo Beauforts from Nos. 42, 86 and 217 squadrons were held in readiness at St. Eval and Thorney Island while all the Whitley and Hudson aircraft of Nos. 502 and 233 squadrons that could be spared from the routine patrols were armed with 500 lb. and 250 lb. S.A.P. bombs. (2)

Foul weather had prevented any close reconnaissance of Brest since the 12 December and it was thought this might be the weather opportunity which the enemy awaited. The bad weather conditions so upset the continuity of all the watching patrols that at 1630 hours on the 14th the A.O.C.-in-C. Coastal Command told the Admiralty that it was useless to continue attempting the various breakout patrols and that he proposed to concentrate on obtaining visual or photographic

- (1) Gaps or even cancellations of patrol due to bad weather conditions had to be accepted but the Admiralty request stressed the importance of avoiding gaps due to A.S.V. or W/T breakdowns. Up to this date, and indeed after, A.S.V. failures while on night patrols were distressingly frequent.
- (2) Bomber Command attacked Brest on the night of the 11/12th and mines were laid off Brest on the 13 December. Nightly attacks continued from the 14/15th to the 18/19th and mines were again laid on the 16/17 December. See Section (ii).

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reports of Brest itself at the earliest possible moment. Baffling changes in the cloud conditions during the 15th prevented such reconnaissance though the weather improved sufficiently to fly "Stopper" and "Line C" but further A.S.V. troubles rendered them of doubtful value. Attempts were made to avoid gaps in the A.S.V. cover by double banking the patrols and by having relief aircraft at immediate readiness to take off when breakdowns were reported but shortage of suitable aircraft handicapped these precautions, while rough seas at seaplane bases prevented any flying boats from taking off to carry out the distant Biscay patrols.

No. 19 Group
December O.R.B.

On the 16 December the photographic reconnaissance of Brest was successful and disclosed the two battlecruisers still in dry dock but the "Prinz Eugen" had undocked and was alongside the coaling jetty. (1) Both "Stopper" and "Line C" were flown on the night of the 16/17th but were somewhat vitiated by the prohibition of illumination to identify any A.S.V. contacts obtained. This restriction was imposed to safeguard a naval minelaying operation that was being carried out near Ushant by H.M.S. Welshman.

Tension temporarily relaxes.

Logs of the
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Controllers

Discussions took place during the afternoon of the 17 December between the A.O.C.-in-C. and A.C.N.S.(H) regarding the maintenance of adequate A.S.V. patrols and the high expenditure of flying effort necessary to close all loopholes in the watch on Brest. It was decided in view of the latest Admiralty appreciation that the 21 December was the danger date, to revert to normal patrols to avoid wearing out the aircraft and that gaps in A.S.V. cover could be accepted provided a maximum effort was maintained from the night of the 20 December onwards. Photographs of Brest could not be obtained on the 19th but those taken on the 20th showed the "Prinz Eugen" back in dry dock and no change in the other two. The watching patrols continued therefore at normal intensity and the two torpedo Beaufort squadrons - No. 42 and 86 - returned to their home stations.

Operation "Offspring".

19 Group
December O.R.B.

Weather prevented photographs being taken of Brest on the 22nd but when obtained at 1615 hours on the 23 December they disclosed the "Gneisenau" undocked and lying alongside the torpedo boat jetty, emitting smoke but with the camouflage netting in place over her. Mindful of the "Scharnhorst's" July cruise, doubled night patrols were flown and a special sweep carried out as far south as La Pallice returning at dawn on the 24th. Nothing unusual was reported by these sorties but no photographs could be obtained of Brest on the 24th or the 25th.

A.M. Signal
X.433. 24/12

On the afternoon of the 24 December, the Admiralty signalled the three Air Commands that the Admiralty considered a breakout likely at anytime with a further possibility that it might be to the southward.

The three A.O.Cs.-in-C. were to concert as to the special measures which could be taken in the latter event. Accordingly operational orders were prepared and issued the same day,

(1) See Map XII of Brest harbour for the positions of jetties and place names mentioned in the subsequent pages.

under the code name of "Operation Offspring" - B.C. operational instruction No. 60.

C.C/M.S.15,153
encl. 10A and
IHK/24/15
encl. 34A

It was designed to attack the enemy warships if they should break out to the southwest or down the Biscay Coast. If this was their intention, it was expected that they would sail soon after dark and it was hoped that the move would be reported by Coastal Command reconnaissances, in which case the A.O.C.-in-C. Bomber Command would issue the signal "Warning Offspring". If, next day, Coastal Command aircraft succeeded in locating and shadowing the enemy, the A.O.C.-in-C. Bomber Command would make the signal "Executive Offspring" followed by the latest information of the enemy's position, course and speed. If the target was within torpedo bomber range the bombing attack would be co-ordinated with a torpedo attack. On receipt of the executive, No. 3 Group would brief and despatch a striking force of 12 Stirlings. As soon as the strike became airborne it would come under the operational control of the A.O.C. No. 19 Group Coastal Command for homing on to the shadowing aircraft using the signal procedure attached in the appendix to the order. Bomb loads were to be a maximum number of 2,000 lb. A.P. bombs, made up as necessary with 500 lb. S.A.P. bombs.

As the eventuality for which this operation was designed did not occur, it was never put into action, but it was clear that the whole success depended, once the enemy had been located, on the accuracy with which the strike homed on to the shadowing aircraft. This had been the stumbling block in the early days of the war, and was caused primarily by the strike force being drawn from a Command other than the one providing the shadower. Moreover the strike Command was not trained in sea navigation or the art of homing. See Volume II Chapter I, Section (v). In the interim years, no training or practice had been carried out in either of these techniques.

Exercise "Firstborn"

C.C/M.S.15,153
encl. 13A
ibid. encl. 15A

ibid.
encs. 17A and
18A

ibid
Minutes 26 and 28
and encs. 30A
to 37A

Realising this weak point, H.Q. Coastal Command, on the 27 December, requested H.Q. Bomber Command to provide two aircraft to practice homing on a Coastal aircraft. Though admitting that such an exercise was desirable, Bomber Command replied that none could be spared. On the 8 January 1942, H.Q. Bomber Command instructed No. 3 Group to detail one Stirling to test the homing procedure and allotted the code name of "Firstborn" to such exercises. Accordingly No. 19 Group ordered a Hudson to simulate a shadowing aircraft and the trial was arranged for the 9 January in an area 60 miles to the west of the Scilly Islands. Lack of complete success resulted in alterations in signal procedure which were embodied in an amendment to operation "Offspring" on the 22 January. However no further exercises were carried out and on the 27 February the whole question was reviewed but it was the 10 April before the next "Exercise Firstborn" took place, by which time the venue of such practices had moved up to the North Sea off the east coast of Scotland.

The Watch on Brest continues

Following the two days scare when no photographs of Brest were available after the disclosure on the 23rd that the "Gneisenau" had undocked, the 1315 hours sortie on the 26 December confirmed that all three ships were still in harbour. "Stopper" and "Line C" continued to be flown until the 2 January 1942 with a somewhat reduced intensity, permitted by the fairly regular photographic confirmation of the

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Staff Log

unchanged positions of the enemy ships. Gaps in the night cover were, however, always followed by the flying of the distant Biscay patrols. On the 2 January, the Admiralty relaxed this commitment to the extent that if the gap occurred after midnight these crossover patrols need not be flown.⁽¹⁾

ibid and
No. 19 Group
January O.R.B.

In the early hours of the 3 January there was another scare following the landing report from a Bomber Command Hampden that the pilot, at 2110 hours on the 2nd had sighted a large warship inside the island of Belle Ile. 10 Torpedo Beauforts were brought to readiness and Biscay patrols and sweeps were instituted. Close reconnaissance of Brest had not been obtained since the 1 January and conditions of 10/10th cloud over Brest and the other Biscay ports persisted throughout the 3rd. The scare continued until 1130 hours on the 4 January when the Brest sortie was successful in identifying all three ships unchanged. It was considered that, in the darkness, the pilot of the Hampden had mistaken the old French warship "Voltaire", aground in Quiberon Bay since 1940, for one of the German major units.

The photographic sortie on the 6 January revealed that the "Gneisenau" was still alongside but her camouflage and protective torpedo boom had been removed. On the other hand, her usual dry dock was flooded and the lock gates were open which inferred a re-docking. As a precaution, however, the night patrols were intensified and torpedo aircraft were warned for readiness. These measures were continued as photographs on the 7th and 8th showed no change except that on the latter date the dock was empty and dry. However, on the 9 January the "Gneisenau" was seen to be once more in dock but the camouflage over the "Prinz Eugen" in her dry dock had been removed. Photographs on the 10th showed the "Prinz Eugen" out of dock and proceeding, accompanied by tugs, towards the torpedo boat station jetty where she was confirmed alongside by reconnaissance on the 11 January.

Section (ii) and
Appendix XII

F.C/S.24043
encl. 54A dated
12.1.42

Bomber Command had been attacking nightly since the 2nd but had not secured any hits on or near the warships with the exception of splinter damage to the outer plating of the "Gneisenau" on the evening of the 6 January. When the "Prinz Eugen" was seen to have undocked, a precautionary warning was made by H.Q. Bomber Command to Nos. 2 and 3 Groups that it might become necessary to order "Operation Fuller Minor" and that crews were to stand by at four hours notice from first light on the 13th.

A spell of foul weather prevented all reconnaissance of Brest from the 14 to the 18 January and no flying at all was possible on the nights of the 15/16th and 17/18th but at 1600 hours on the 18th photographs were secured which showed that the "Scharnhorst" had undocked and was alongside a jetty while the "Gneisenau" and "Prinz Eugen" were in dry dock. A further spell of bad weather interrupted night patrols and all close reconnaissance of Brest until the 25 January when it was seen that both the battlecruisers were lying alongside the torpedo boat station and about the same time the Admiralty

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- (1) In addition, the A.O.C. in C. ordered that, during moonlight periods only, if there was a breakdown in the A.S.V. of the aircraft on "Stopper" patrol a W/T report was to be made immediately but the aircraft was to remain on patrol until relieved by another aircraft which was to be despatched forthwith. References:- C.C./S.15,151 encls. 31A and 32A.

Intelligence Centre received reports from agents that five torpedo boats were arriving from St. Nazaire and seven minesweepers from Lorient.

Signs of an early move by the Brest Group

H.Q.C.C. Naval
Staff Log

The Admiralty considered, in view of the arrival of these auxiliaries in Brest, the obvious near-conclusion of the battlecruisers' long refit and the recent transfer of the battleship "Tirpitz" to Trondheim, (1) that a move of the Brest Group was imminent. They considered it most important to prevent a concentration of enemy major units in northern waters. It was requested, therefore, that full scale night patrols should be maintained and that torpedo aircraft should be kept in such a degree of readiness as was compatible with efficiency. (2) In addition, Bomber Command was asked to recommence attacks on Brest which had ceased since the 11 January. (3)

No. 19 Group
January O.R.B.

At 2115 hours on the 25 January, Hudson K/224 squadron on "Stopper" patrol sighted and attacked five torpedo boats in position 4803N x 0500W. No damage was inflicted and the next day the photographic sortie at 1645 hours disclosed these torpedo boats in Brest harbour. It also revealed that the "Gneisenau" had left the inner harbour and was moored in the Rade de Brest just to the north of Lanveoc. Early the same morning the C.H.L. station at Dover (4) had plotted nine objects passing westwards through the Straits of Dover. A Fighter Command strike of Hurribombers (5) had later attacked shipping outside Boulogne and one aircraft had identified at least two destroyers amongst other vessels seen. Several attempts were made during the rest of the day to re-locate this party but without success. Photographic reconnaissance of Boulogne on the 27th disclosed eight "M" class minesweepers in the harbour but no destroyers and it was presumed that they were on their way to Brest.

At 0950 hours on the 27 January, Hudson K/224 squadron returning from "Line C" patrol with A.S.V. unserviceable sighted several minesweepers in position 4830N x 0530W in

- (1) The "Tirpitz" had made the journey from Kiel to Trondheim between the 17 and 23 of January unseen in spite of intense flying by Coastal Command. After the photographic confirmation of her arrival, anti-break out patrols in northern waters and close reconnaissance of Trondheim, similar to the watch on Brest, were maintained continuously. See Chapter VII.
- (2) The Beaufort situation on the 26 January - 4/217 squadron and 14/86 squadron at St. Eval and 4/217 squadron at Thorney Island. No. 42 Squadron were at Leuchars but No. 22 squadron had gone overseas.
- (3) The cessation of attacks was mainly due to the bad weather but this improved on the 25 January and allowed a heavy attack to be delivered that night. Nightly attacks were maintained for the remainder of January. See Section (ii).
- (4) D.H.L. = "Chain home low" and was a type of R.D.F. designed to pick up "low" targets such as ships at sea as opposed to "high" aircraft.
- (5) Hurribombers were Hurricane type fighter aircraft fitted with bomb racks. They could carry 2 - 250 lb. or 1 - 500 lb. bombs.

ibid very poor visibility. An unsuccessful attack was made on one of them and the aircraft was hit and damaged by flak. The bad visibility continued all day and the next. It was not till the 29 January that a view of Brest was secured. This showed that the "Gneisenau" had again gone into dry dock and her place off Lanveoc had been taken by the "Scharnhorst". The "Prinz Eugen" was out of dock alongside the coaling wharf and two destroyers were secured in the inner harbour together with four newly arrived "M" class minesweepers. It was noted that the "Scharnhorst" had protective booms around her so a strike of three Beauforts armed with magnums and depth charges instead of torpedoes was planned against her but had to be cancelled on account of weather. No further reconnaissance of Brest was possible until 1315 hours on the 31 January. The photographs revealed all three major units alongside the torpedo boat station and coaling wharf jetties. The two destroyers and five torpedo boats were in the harbour while eight "M" class minesweepers were at work just to the south of the Rade Abri. Bad weather again intervened that night and all the night patrols had to be recalled at 0100 hours on the 1 February. No further flying at all was possible during the next 36 hours.

At 0210 hours on the 2 February the Dover C.H.L. station picked up two ships, believed to be destroyers, proceeding down channel at 18 knots but weather conditions prevented any aircraft operations until noon. Armed reconnaissances were then flown off but in poor visibility conditions no signs of the supposed destroyers were found and only a small east bound convoy was located off the north coast of Brittany. Cloud conditions frustrated photographic reconnaissance of Brest but the pilot of the 1430 hours sortie caught a glimpse of a large ship dimly seen to be in the Goulet de Brest. It was thought this might be one of the major units on the way round to Douarnenez or Audierne Bay for exercises. During the morning of the 3 February five torpedo Beauforts of No. 86 squadron were despatched on sweeps in this area but they saw no signs of any warships. Low cloud over Brest harbour frustrated all attempts to obtain photographs during the remainder of the daylight hours.

Admiralty appreciation of the situation

An appreciation had been drawn up by the Admiralty on the 2 February. This summarised the significant events pointing to an early departure of the Brest Group and surveyed all the possible courses of action open to the enemy. It was considered that far the most likely plan was a short cut to Germany up the English Channel. Arguments and reasoning in favour of this passage included the probability of the ships not being fully battle-efficient and therefore more prone to rely for their security on the destroyer and shore based aircraft escort which was at full efficiency, moreover the enemy knew well that we had no heavy ships with which to oppose them in the Channel. Whilst the Brest Group could make the passage from Brest to Cherbourg or from Cherbourg to the Dover Straits in a dark period, they could not make the complete passage in one night. Having recently lost a destroyer, the enemy was presumably aware of our minelaying activities in the Dover Straits and it was highly probable that this part of their route would be timed for around high water. Finally it was pointed out that we had very slender Naval or Coastal Command torpedo forces with which to oppose this sortie and that experience had shown that not much reliance could be placed on our bomber aircraft to inflict damage on enemy ships at sea.

A.H.B. IIC/7
Part I

Executive Fuller

This appreciation was read out to the naval staff officers attached to the three Air Commands at a special meeting in the Admiralty on the 3 February and they were requested to pass it on to their respective A.O.Cs.-in-C. The Admiralty further requested the Air Ministry to bring into force at once the arrangements for "Operation Fuller". This was done in a signal at 1639 hours by the Air Ministry to the three Commands ordering "Executive Fuller and Mafia" and adding that the latter operation was only to be undertaken after agreement with the Admiralty and the concurrence by the Vice-Admiral Dover.

AHB/IHK/24/15
encl. 38A

The three Commands immediately informed their Groups. H.Q. Coastal Command ordered "Stopper"⁽¹⁾ and "Line C" patrols as usual but in addition two special line patrols, one from Ushant along the north coast of Brittany and the other between Le Havre and Boulogne. The torpedo strike force standing by consisted of Nos. 86 and 217 squadrons at St. Eval and Thorney Island while No. 42 squadron at Leuchars was warned to be ready to move south if necessary.⁽²⁾ Arrangements were made at Manston in No. 16 Group to receive up to six Torpedo Swordfish aircraft of No. 825 squadron F.A.A. who were being placed under the operational control of the Vice-Admiral Dover as an additional striking force.

C.C/S.15,152
encl. 53A

C.C/S.15,155
encl. 1A

Attachment to
C.C/S.15,152
encl. 9A

ibid
encls. 7A and 8A

H.Q. Bomber Command ordered available aircraft to be bombed up and crews brought to two hours readiness from 0630 hours on 4 February. No. 5 Group was to prepare to execute operation "Mafia" at dusk on the 4th but later in the day "Mafia" was deleted and instead No. 5 Group prepared to lay 48 mines in the "Nectarine" area.⁽³⁾

H.Q. Fighter Command instructed the A.O.C. No. 11 Group to co-ordinate fighter action with No. 10 Group and informed No. 12 Group that they would not be required to provide support. Bomber and Coastal Commands were requested to

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- (1) On this night the aircraft on "Stopper" - Whitley M/502 squadron never returned and was presumed shot down by enemy night fighters.
 - (2) No. 42 squadron had been ordered, on the 31.1.42, to transfer to Iceland in order to be in a better position to attack the "Tirpitz" should she attempt to break out into the Atlantic but the imminent move of the Brest Group was held to be of prior importance and the order was cancelled on 3.2.42. In addition to the torpedo aircraft all those Hudsons which could be reasonably spared from the various reconnaissance patrols were ordered to stand by, bombed up with 250 lb. S.A.P. bombs.
 - (3) This deletion resulted from a recommendation, forwarded by H.Q. Bomber Command to the Air Ministry on the 1 February, that, in view of the recent discovery of the removal of "W" buoy from the Ruytingen channel and the unfeasibility of accurate minelaying in this channel by timed runs from the British coast, the operation "Mafia" should be cancelled. References - AHB/IHK/24/15 encls. 36A and 42A. The "Nectarine" area lay along the coast between Terschelling Island and the mouth of the Elbe. Between the 6 and 11 February Bomber Command aircraft laid 98 magnetic mines in this area (69 on 6th, 25 on 7th and 4 on 11th February). Of the 69 laid on the 6th, 31 were planted within five miles of the two positions where the battle cruisers were mined to the north of Terschelling Island during the evening of 12 February.

SECRET

DS 64294/1(225)

Ref: B.C. No. 5 Group O.R.B. and squadron records of Nos. 49, 50, 83, 207 and 408 Squadrons.

ibid
encl. 10A

inform No. 11 Group direct of the times of their attacks and their requirements for fighter cover. At half an hour before first light on the 4th, all day fighter aircraft at Middle Wallop, Exeter and Portreath and 50% of those at Colerne were to be at 15 minutes notice.

AHB/IIK/7
Part I

The naval dispositions included the bringing, to six hours' notice of six destroyers in the Thames estuary, to short notice of six M.T.Bs. at Dover and to immediate readiness of the Swordfish aircraft at Manston. Two fast minelayers - H.M. Ships Manxman and Welshman - were placed under the orders of the Cs.-in-C, Portsmouth and Plymouth respectively for mining operations⁽¹⁾ and H.M. S/M. Sealion was ordered to join the two submarines already patrolling a line to the west of Brest.

The final stages in the watch on Brest

No. 19 Group
February O.R.B.

No comprehensive photographs of Brest had been obtained since the 31 January and the outer Biscay patrols had been instituted on the 2 February. On the 4th a partial view through clouds of the outer harbour was secured which showed the "Prinz Eugen" accompanied by minesweepers entering the Rade de Brest from the Goulet. A similar glimpse on the 5th disclosed the "Prinz Eugen" once more alongside the coaling wharf. The battlecruisers were not seen. In spite of attempts by low flying Beaufighter sorties, nothing at all was seen of the harbour during the 6th and 7th but two photographic sorties on the 8 February were successful and showed the "Scharnhorst" in dry dock again and the "Gneisenau" moored off Lanveoc. The "Prinz Eugen" was at the coaling wharf and two fresh destroyers making four in all, were in the inner harbour. On the 9 February, reconnaissance at 1100 hours established that the "Gneisenau" had returned to harbour and was alongside the torpedo station but the weather once more prevented any photographic evidence on the 10 February.

During this period between the executive for Operation "Fuller" on the evening of the 3rd and the forenoon of the 11 February the watching patrols had been maintained at the highest possible intensity but were hampered by bad weather and occasional A.S.V. failures in the night patrols. By the 5 February the patrols had settled down to the following:-

C.C/G.1/3/2/42

FL/G.6/3/2/42 and
CH/G.2/6/2/42

FL/G.1/4/2/42

- (1) The usual "Stopper" backed up, if necessary, by "Line C". Flown from half an hour after dusk till dawn.
- (2) A line patrol from Ushant to Brehat Island called "Line S.E." Flown for one sortie only from dusk.
- (3) A line patrol between Le Havre and Boulogne called "Habo". Flown from 0100 hours till dawn.
- (4) Occasionally a sweep between Le Havre and Cherbourg called "Hach".
- (5) A daily sweep by three torpedo Beauforts off the Coast between Brest and Lorient.
- (6) The distant Biscay patrols Nos. 5 to 8 if there had been a gap in "Stopper" the previous night or after two days' absence of photographs of Brest harbour.

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- (1) In the period between the 3 and 9 February, these two ships laid 1,000 contact and magnetic mines in six fields between Ushant and Boulogne.

PL/G.9/7/2/42

Enemy fighters prevented any sustained coastal reconnaissance during daylight and their night fighters did their best to upset our night patrols round the Brest peninsula. On the night of the 6/7 February, Hudson Z/224 squadron failed to return from "Line S.E." patrol and, until exhaust flame dampers could be fitted to these Hudsons, this patrol was discontinued. In compensation, "Stopper" was modified so as to start on the north coast of Brittany at longitude 3° West and continue right round the Brest Peninsula. "Line S.E." patrol was re-introduced from the night of the 10/11 February and the "Modified Stopper" reverted to the normal "Stopper" patrol.

Appendix XIV

The C.H.L. station at Dover had reported vessels, generally suspected as destroyers, moving through the Dover Straits down channel at high speed in the early hours of the 3rd and 9th; fighter patrols, known as "Jim Crows" had located a destroyer on a southerly course off Alderney at 1050 hours on the 10 February. On each occasion armed reconnaissance sweeps had been despatched as soon as light or weather conditions allowed but without success. Bomber Command had attacked Brest on the night of the 6th/7th with 50 aircraft and again in the 10th/11th with 20 aircraft. Post war evidence establishes that no damage was inflicted on any of the warships in the harbour.

A review of the situation by the A.O.C.-in-C. Coastal Command

C.C/S.15,155
encls. 2C and 2D
also
F.C/S.24043
encls. 85A and B

On the 8 February after the successful photographic sorties of that day, Sir Philip Joubert addressed an appreciation to the A.O.Cs.-in-C. of Bomber and Fighter Commands expressing his views that the enemy force was likely to make a break out from Brest very soon and that the most probable time would be from the 10 February onwards. He reviewed the possible directions in which the break out might develop and, like the earlier Admiralty opinion, arrived at the same conclusion which, in the light of recent increases in the numbers of destroyers, minesweepers and small patrol craft, now pointed unmistakably to a decision to make the Channel passage back to Germany. The weather and hour of sailing could be chosen by the enemy so as to cause us the maximum difficulty in intercepting the force. With regard to the latter, the general conditions in the channel would be reasonably favourable for a break through in darkness as from the 10 February. On the 15th there would be no moon and the tidal conditions in the Dover Straits would favour a passage between 0400 and 0600 hours. The scale and scope of Coastal Command's watching patrols was given and the location of the torpedo squadrons re-affirmed. It was stated that the St. Eval and Thorney Island squadrons were responsible for night attacks in the Channel aided by flares dropped from the reconnaissance aircraft and that, if the enemy succeeded in passing through the Dover Straits, a daylight attack would be carried out by the torpedo squadrons then based at Leuchars.

FC/S.24043
encl. 88A

ibid
encl. 84A

It is evident from this review that the A.O.C.-in-C. was primarily expecting a night passage through the Dover Straits with presumably a daylight pause by the enemy at Cherbourg. No important changes in the "Fuller" dispositions took place following the receipt of this appreciation except that the general expectancy became even sharper. No. 11 Group issued orders to the cannon and bomber Hurricane squadrons to be prepared to attack the light forces which were likely to accompany the German heavy ships; No. 10 Group made minor changes in the disposition of their squadrons in south west England; and H.Q. Fighter Command warned No. 12 Group that Coastal Commands

ibid
encl. 86A

No. 42 Torpedo Beaufort squadron would be operating from Bircham Newton or North Coates⁽¹⁾ and any fighter co-operation required was to be arranged direct with H.Q. No. 16 Group Coastal Command.

The Situation on the 11 February 1942

No. 19 Group
February O.R.B.

"Stopper" had returned early with an A.S.V. breakdown at 0235 hours but "Line C" had carried on from 0442 to 0652 hours. "Habo" had been completed though landing back a little early at 0623 hours owing to increasing bad visibility. Weather conditions later on were not good but a photographic sortie over Brest at 1230 hours secured partial cover showing the "Prinz Eugen" alongside with one fresh destroyer (making five in all) and five fresh "M" class minesweepers in the visible part of the harbour. A further sortie at 1500 hours was thwarted by cloud conditions but the final flight at 1615 hours obtained complete photographic cover disclosing the "Scharnhorst" and "Gneisenau" at the torpedo boat station, the "Prinz Eugen" at the coaling wharf - all with their anti-torpedo booms in position - and still another fresh destroyer, making six, in the Rade Abri together with the increased numbers of mine sweepers in other parts of the port.

Sunset came with somewhat improved weather conditions and no particular reason to fear that this large force would not be located should they put to sea that night.

(iv) German intentions for the use of their major units -
June 1941 - February 1942

N.I.D. 24
X.120/47

At a "Führer Conference" in June 1941, the C.-in-C., German Navy - (Admiral Raeder) - outlined to Hitler his plans for the use of the German Fleet against the British Atlantic trade routes. He visualised the use of small homogeneous task forces, bringing such squadrons together by regulating their times of refit. The "Lutzow" would be ready by July and should be sent up to Trondheim⁽²⁾ to influence the British against any naval operation in the north while the attack on Russia⁽³⁾ was being commenced. The "Admiral Scheer" would be ready for sea by August but the "Tirpitz" was to remain at Kiel for exercises in the Western Baltic. In the Brest group the "Gneisenau" required a new propellor shaft and would not be ready before the autumn.

The loss of six supply ships in the Atlantic during June 1941⁽⁴⁾ was a severe blow to German planning for continuous and protracted operations by major units against British trade,

- (1) No. 42 squadron was ordered down to North Coates on the 11 February but bad weather and snow on the runways there prevented a move from Leuchars being made till the 12th. Even then the snow conditions compelled the squadron of 14 Beauforts to carry on down to Coltishall in northeast Norfolk where they arrived at 1145 hours on the 12 February.
- (2) "Lutzow" had commenced her journey to Trondheim when she was intercepted and torpedoed by Coastal Command torpedo carrying aircraft on 12 June - See Vol. II, Chapt. VII (iii).
- (3) Operation "Barbarossa".
- (4) After the sinking of the "Bismarck" these supply ships had been located one by one during June by the Royal Navy and destroyed.

Fuhrer Conferences
in July 1941.

moreover the occupation of Iceland by the U.S.A. early in July and the intensification of her "neutrality patrols"⁽¹⁾ over a larger area of the Atlantic was realised to be most damaging to the German war effort on the trade routes including any deployment of further supply ships. In spite of this, Hitler insisted that no incidents must occur with any U.S. forces until the campaign against Russia was in full and successful motion. Increased freedom of action south of latitude 45°N was envisaged if and when the occupation of N.W. Spain and the Canary Islands took place⁽²⁾ but this again depended on a favourable strategic situation being created by the early defeat of Russia.

At another "Fuhrer Conference" in August, Hitler silenced protests by Raeder, regarding the restrictions placed on the U-boat and commerce raiding war in order to avoid incidents against the U.S. forces, with an assurance that he expected a decision in the Russian campaign during September. At this conference Hitler also raised for the first time the question of moving the "Scharnhorst" and "Gneisenau" from Brest to north Norwegian waters so as to form a force to secure Murmansk and Archangel.

Admty.
N.I.D. 24
X.120/47

September came with no decisions taken and Rear-Admiral Wagner - Chief of the Naval Operations Division - in a memorandum stated that the new bases in Spain had not become available and that the increasing activity of the U.S. naval forces was relieving the British of many duties thus allowing them to concentrate in decisive areas.⁽³⁾ However, in view of the recent success of several blockade runners and an armed merchant cruiser in regaining German waters it seemed to him possible to organise a new system of supply tankers in the Atlantic. The "Tirpitz" would be ready at the end of September, the "Admiral Scheer" in December, but the Brest group would not be seaworthy until early January 1942, and the "Lutzow" not till February 1942.⁽⁴⁾ Thus no operations with strong forces could take place before the end of February 1942. In the interim it was proposed that the "Tirpitz" should move to Trondheim to undertake short operations against convoys en route for Russia. The ultimate break out of the Brest group should be the prerequisite for that of the "Tirpitz" and "Hipper" through the Denmark Straits and for the two groups to join up quickly. If, however, the activities of the U.S. naval forces made it impossible to organise supply tankers, the "Tirpitz" group could create diversions in the north while the Brest group made lightning raids on the North/south convoy route. These suggestions and recommendations were adopted by Raeder and

ibid

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- (1) See Chapter II.
 - (2) This was operation "Felix". It was to be carried out with General Franco's acquiescence if possible and included the occupation of Western Spain, the transfer of all major naval units to Ferrol, the occupation of the Canary Islands, the elimination of Gibraltar and the creation of new U-boat bases.
 - (3) This alluded to the measures taken after the Atlantic Charter meeting by the United States in assuming responsibility for the safeguarding of North Atlantic shipping to the west of longitude 26° West. See Chapter II.
 - (4) Torpedo and bomb hits sustained by the Brest group in April and July 1941 had immobilised all three ships. Repairs were not expected to be completed to any one of them before December 1941. Similarly the torpedo hit on the "Lutzow" necessitated major repairs.

approved by Hitler on the 26 September. On receipt of the subsequent programme the flag officer commanding Group West observed that no more than three large ships could be safely based in Brest and, failing the implement of "Operation Felix", there were no other suitably protected harbours; moreover the ships now in Brest must do sea trials before undertaking any operations and these could only be satisfactorily done from Spanish ports.

In November 1941 Raeder gave Hitler the reasons for the current inability to carry out large scale naval operations:-

- (a) The political - strategical situation on the Atlantic Seaboard had not developed as hoped for.
- (b) Spain's attitude and the prolongation of Russian resistance precluded Gibraltar from being tackled.
- (c) The refusal of the French to co-operate meant there were insufficient French forces in West Africa to guarantee German use of Dakar.
- (d) The only bases left on the Atlantic Seaboard were on the west coast of France and these were imperilled by local British air superiority.
- (e) The increased U.S. naval and air activity in conjunction with Roosevelt's "open fire" order freed British heavy naval units from convoy duties and might involve German surface ships in actions with U.S. forces.⁽¹⁾ To operate in the Atlantic outside the Published blockade area⁽²⁾ would be impossible without incidents with U.S. forces which were contrary to the Fuhrer's orders to "avoid at all costs" incidents with U.S. forces.
- (f) In view of the American "Neutrality Patrols" it was impossible to build up a system of supply tankers in the Atlantic.

Future action was proposed under two alternative headings:-

- (1) When ready, the Brest group should attack specified convoys on the North/South Shipping route and repeat if successful.

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- (1) On 23 October 1941 the mission of the U.S. Atlantic Fleet had been stiffened by the U.S. Navy Board to the utmost limits of "neutrality".
 - (a) To protect U.S. and foreign shipping other than German or Italian against attack by
 - (i) Escorting, covering and patrolling convoys and convoy routes.
 - (ii) Destroying any German and Italian naval, land and air forces encountered.
 - (b) To insure the safety of sea communications with U.S. strategic outposts.
 - (c) To support the defence of U.S. territory and bases in Iceland and Greenland.
 - (d) To trail any merchant vessels suspected of supplying or otherwise assisting the operations of German or Italian naval vessels or aircraft.
 - (2) The waters round the British Isles had been declared by the Germans on 17.8.40 as a blockaded area in which neutrals sailed at their own risk.

Admty.
N.I.D. 24.
X.120/47

- (2) When ready, the Brest group should move to Norway.

Fuhrer
Conferences

In support of the second alternative Raeder considered the group's further stay in Brest was undesirable because of the British air menace, in spite of the strategic advantages which its presence in Brest exerted.⁽¹⁾ He considered that a concentration in Arctic Waters would promise even better strategic results. Hitler agreed and in view of the U.S. neutrality patrols suggested that the ships should return to Germany via the English Channel. At first Raeder was dubious about this but promised to examine the proposition. In the interim Raeder requested permission to use the "Admiral Scheer" in raider warfare in the central and south Atlantic but this was refused by Hitler who considered the vital area now to be in the Arctic.

ibid.

At a conference on the 12 December, Hitler spoke of his fears of a British landing in north Norway and required a concentration as soon as possible of battleships and "Panzerschiffe" in these waters whose additional task would be to attack the Russian convoys.⁽²⁾ He wished the Brest group to return via the English Channel as soon as possible and without carrying out any previous sorties from Brest for training or trials as these would cause fresh British air attacks. If this move was not thought possible by the Naval Division he thought it best to pay off the ships and employ the crews and guns ashore. In this connection Hitler emphasised the value of torpedo aircraft and denied the value of battleships in future wars.⁽³⁾

A further conference on the 29 December was mainly in discussion of the future of the Brest group. The dates for readiness of the units were:- Prinz Eugen 31 December 1941, Scharnhorst 5 January 1942 and Gneisenau 10 January 1942 but before putting to sea all three required a period for trials in harbour and at sea if possible. There were four alternatives before the conference:-

- (1) A return to German waters through the Denmark Strait on south of Iceland.
- (2) An operation against the North/South convoys.
- (3) A return to Germany through the English Channel.
- (4) To decommission the ships.

ibid

After his examination of the problems, Raeder preferred No. 3 though there were many difficulties, among them being the shortage of minesweepers which made impossible a complete clearance of mines on the route and would make any swept channels so narrow that it would be unsafe to take avoiding action in the event of attacks by torpedo aircraft. He was very much against No. 4 if only because of the poor impression

- (1) These included the tying down of British naval forces in the Atlantic and some distraction of British bombing effort from German cities.
- (2) The "Tirpitz" was transferred to Trondheim on 16.1.42 and Admiral Scheer and "Prinz Eugen" on 23.2.42 followed by the "Hipper" on 21.3.42. See chapter VII.
- (3) Influenced no doubt in his opinion by the loss on 10 December 1941 of the "Prince of Wales" and "Repulse" by Japanese air torpedo and bomb attacks.

it would make on the Japanese and Italians. Hitler plumped for No. 3 or if proved impossible, for No. 4 in view of the shortage of personnel in other branches and his opinion that the era of the large ship was over. Accordingly Hitler gave orders on 12 January 1942, for plans to be completed for the break up Channel and that eventually the ships were to operate from Norwegian waters.(1)

(v) The Break up Channel and arrival in German Ports

(a) The German Narrative.(2)

Preparation

The task of planning the operation - code name "Cerberus" - was entrusted to Vice-Admiral Ciliax who commanded the Brest Group of warships. The route was very carefully selected to take advantage of deep water where possible in order to mitigate ground mines and to attain a maximum speed for the big ships, but at the same time to keep outside British shore R.D.F. range as far as was practicable. Channels through known and possible moored-mine fields were swept and buoyed by mark boats or such areas were by-passed by the planned route. The operation was fixed for four days before a new moon so as to get maximum darkness conditions and the move was timed to start at around 1930 hours to get a full dark period and all advantage of a spring flood tide up Channel. The most dangerous point was considered to be the passage of the Dover Straits and this was scheduled for the middle of the day so as to facilitate strong fighter cover and the best visibility for the ship's flak armament.

After the British loss by air attack of H.M. ships "Prince of Wales" and "Repulse" the question of air protection was considered most important. This was provided in the plan by aircraft of the 3rd Luftflotte under General Field Marshal Sperrle with directing headquarters at Le Touquet shifting, as the ships progressed, to Schipol near Amsterdam. Fighter Squadrons were to be used in such a way that there were constantly 16 aircraft with the ships between 0730 and 1700 hours.(3) Diversionary air raids on English South coast ports and airfields were planned to take place on the morning following the sailing and were undertaken by the 9th Flieger Corps.(4) Protection against air attack at night was to be given by the destroyer escort.

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- (1) From early December Hitler had been convinced that the British intended a full scale invasion of Norway in co-operation with Sweden backed by Russia. No doubt colour was lent to this obsession by two successful combined services raids at Vaagso, just south of Stadlandet, and up the Vestfiord on 27.12.41.
 - (2) References for the German account - No. 6 Supplement to Admiralty Battle Summary No. 11, the German FG/18547 and the log of the "Scharnhorst". Map XIII gives the route of the German squadron and the location of the various British attacks.
 - (3) In point of fact 176 fighter aircraft actually took part in this protection.
 - (4) At 0830 hours 12 February 2 aircraft bombed Exeter airfield and 2 aircraft bombed Warmwell airfield. Others attacked Honiton and Torquay between 0815 and 0845 hours.

By the 4 February the "Scharnhorst" and "Prinz Eugen" and, by the 9th, the "Gneisenau" had completed steaming trials and had held calibration shoots with all gun armaments in the Rade de Brest⁽¹⁾. The final timing for the start was fixed for 1930 hours on the 11 February. The three major units, with Admiral Ciliax in the "Scharnhorst", were to be escorted by six destroyers on the first part of the journey being joined the following morning in position 5000N x 0030E by 10 torpedo boats and off Cap Gris Nez by another five torpedo boats together with E-boats, R. boats and other small escort craft.

Execution

See Map XIII

There was an air raid alarm at Brest from 1935 to 2114 hours on the 11 February⁽²⁾ which delayed the sailing but by 2245 hours the force was formed up outside the Brest net barrage and headed out to sea at 17 knots increasing to 27 knots at 2343 hours. The night was very dark with a light south-westerly wind and scattered clouds. Ushant Island was rounded just after midnight and course shaped up channel keeping well away from the coast of Brittany. The island of Alderney was passed at 0530 hours on the 12 February and thereafter a more easterly course was steered until dawn when the first contingent of 16 fighters joined up.

St. Eval
/02/12/2

Log of
Controller:
No. 19 Group

St. Eval
/02/12/2

On Map XIII can be seen the track followed by the German Squadron and the patrols around Brest flown by Coastal Command. The first sortie on "Stopper" patrol - Hudson W/224 Squadron - was airborne at St. Eval at 1827 hours and when on the way out to the patrol encountered a JU.88 night fighter. The A.S.V. was switched off at 1917 hours while avoiding the enemy aircraft. Having successfully accomplished this, the A.S.V. was switched on again at 1920 hours. This was done in a wrong sequence of movements and the main fuze blew rendering the equipment unserviceable. The cause was not recognised by the operator so a signal to the effect that the A.S.V. had broken down was transmitted to base at 1925 hours and the aircraft set course for base. Owing to W/T difficulties this signal was not finally cleared to base until 2025 hours just as the aircraft was about to land. No relief aircraft was despatched as it was considered by St. Eval that it would be simpler and quicker to transfer the crew on landing to the "stand-by" aircraft. This was done and the same crew took off in K/224 Squadron at 2130 hours with orders to complete one circuit of the patrol. The northern point of the patrol was reached at 2238 hours, the southern point at 2309 hours and the patrol completed at 2343 hours after which the aircraft set course for base. Reference to Map XIII shows that at this time the

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- (1) This was the explanation of the frequent moves observed by photographic sorties in the Goulet de Brest and off Lanvoc between the 26 January and the 9 February - see Section (iii).
 - (2) Following the photographs obtained at 1615 hours on the 11 February disclosing all three ships alongside in the Rade Abri, a Bomber Command raid of 16 Wellingtons was launched that evening but no hits or damage was inflicted on the warships.

St. Eval
/03/12/2

German force was out of A.S.V. range⁽¹⁾ and approaching Ushant Island. The next sortie, by Hudson A/224 Squadron, arrived at the northern point of "Stopper" at 2326 hours, and at the elbow of the patrol at 2341 hours, still out of A.S.V. range of the enemy. At 2356 hours the southern point was reached and the aircraft returned up reciprocal tracks, reaching the elbow again at 0012 hours as the German squadron was rounding Ushant 22 miles to the northward.

S.15,155
encl. 10D
page 8.

According to the plotted positions of the aircraft and the ships, the enemy came within A.S.V. range from about 0020 to 0028 hours as the aircraft approached the northern point of the patrol. After the latter time the aircraft turned south again and no A.S.V. contact would be obtained on a stern bearing. No mention is made in the log of the aircraft of any A.S.V. contact which could be taken for surface vessels though the operators both reported satisfactory land echoes at distances which enabled checks to be made on the navigation. As the distance between the aircraft and the enemy (from the plot) was never less than approximately 9 miles, no visual sighting could be expected in the very dark conditions.

PL/G3/11/2

St. Eval
/07/11/2

The "Line S.E." patrol was flown that night by Hudson G/224 Squadron and was ordered for one sortie only, from dusk. The aircraft arrived at the western end at 1936 hours. No A.S.V. indications of the coast were received which raised the suspicions of the operator as the coastline could be faintly seen about six miles away. At 1951 hours bomb flashes were noted some 20 miles away to starboard. This was the Bomber Command raid on Brest mentioned previously. At 2000 hours, in position 4855N x 0340W, inaccurate fire was opened by a vessel about one mile to starboard, of which no previous A.S.V. indication had been received. The aircraft reached the eastern end of the patrol at 2015 hours, turned and was back at the western end by 2051 hours. At 2055 hours the second A.S.V. operator reported the equipment definitely unserviceable and a signal to base was made asking for instructions. This signal took until 2135 hours before getting through. On receipt, the controller at No. 19 Group immediately asked H.Q. Coastal Command if a relief sortie should be despatched. The reply was that it was not required and St. Eval were told that, on return, the crew should be conserved in case of further break downs in patrol "Stopper". The reasons for not sending a relief aircraft were two - (a) shortage of aircraft. If one had been detailed it would have detracted from the limited number of aircraft available for the next night's programme. (b) Even if detailed, the relief aircraft could not have been on patrol before 2330 hours and the A.O.C.-in-C. considered that if the ships had broken out before "Stopper" was established by K/224 Squadron at

Log of
Controller
No. 19 Group
and St. Eval
narrative.

Board of Enquiry
evidence -
pages 511-513.

- (1) In a letter to D.C.A.S., dated 13.2.42, the D.O.N.C. stated that the range of Mk.II A.S.V. on large ships was:-

<u>Height of aircraft in feet</u>	<u>Range in miles</u>
500	8
1,000	11
2,000	15
3,000	19

The "Stopper" and "S.E." patrols were normally flown between 1,500 and 2,000 feet altitude, and at cruising speeds of 120 to 130 knots.

2238 hours, they would be a long way past "Line S.E", by 2330 hours and would certainly be picked up by patrol "Habo" between Le Havre and Boulogne. Accordingly, a signal was sent recalling the aircraft. This was received at 2150 hours and G/224 landed back at St. Eval at 2251 hours. Thus there was no aircraft flying this patrol when the German Squadron actually crossed its position at about 0050 hours. In point of fact if a relief sortie had been sent it would have stood a good chance of picking up the enemy ships. (1)

CH/G3/11/2

CH/O1 and 2/12/2

Theoretically there was a final possibility of at least discovering that the enemy squadron had left by means of the routine photographic reconnaissance early on 12 February. This sortie actually took off from St. Eval at 0930 hours so as to be over Brest by first photographic light. The aircraft landed back at 1050 hours with a report that neither camera nor visual evidence was possible owing to the port being shrouded in low cloud and smoke screen. A follow-up sortie at 1230 hours found similar conditions.

the enemy squadron because at the latter time they were still well to the westward of the southwest corner of the patrol. Soon after first light, at 0745 hours, the first batch of 16 German fighters joined up with the squadron as air escort. Thereafter a continuous umbrella of fighter protection was maintained until dusk. At 0915 hours the 2nd and 3rd Torpedo boat flotillas from Le Havre joined the force, followed at 1005 hours by the E. boat flotilla from Boulogne. At 1025 hours a new British minefield off Berck was safely negotiated. (3) Shortly after this time a British fighter patrol sighted the force but did not identify the presence of the three major naval units. The positive recognition of the Brest Group did not eventuate until 1042 hours and was effected by another fighter aircraft. The news was not circulated in England until after this aircraft had landed back at base at 1109 hours. See Sub-heading (b) of this section for the sequence of events.

By this time the German force was passing Le Touquet. At 1156 hours they rounded Cap Gris Nez and the E. boats were ordered to lay a smoke screen to port in order to mask the capital ships from the English coast. The weather was rapidly deteriorating in visibility with a rising southwesterly wind and drizzle. At 1218 hours the first fall of shells

- (1) This point was made by Mr. Justice Bucknill during the subsequent enquiry although no-one in England at that time knew how much later the enemy ships had put to sea. Everyone assumed they had escaped before the "Stopper" patrol was established. Reference Board of Enquiry evidence Pages 458.
- (2) Owing to a forecasted risk of fog by dawn at Thorney Island, G/233 had been told to make two complete circuits of the "Habo" triangle and return irrespective of whether it was still dark on completion. The aircraft left the southwest corner of "Habo" at 0631 and landed back at Thorney Island at 0715 hours. It is very debatable whether an interception would have been made even if G/233 had been allowed to remain on patrol until first light. The detailed evidence from the pilot and the shore base are in the Board of Enquiry evidence - Pages 101-103 and 430-436.
- (3) This field had been laid by H.M.S. Welshman a few days earlier. It had only been discovered by the Germans on the previous night and a narrow channel had been hastily swept through it and marked with a mark-boat.

were noticed from the British coastal batteries. They all landed short. Soon afterwards came an attack by British motor torpedo boats but no torpedoes hit. While this attack was still in progress, four Swordfish aircraft appeared at 1243 hours flying low and approaching from the port quarter. Three of them were seen to be shot down by the fighter escort and the fourth was hit by A/A fire from the "Scharnhorst". The torpedo from this latter aircraft exploded as it entered the water.

At 1245 hours the 5th torpedo boat flotilla from Flushing relieved the Havre flotillas. The Straits of Dover had been successfully negotiated and in ever worsening weather conditions the three ships continued up the Belgian coast.⁽¹⁾ The first set-back occurred at 1431 hours when, in position 5132N x 0252E, a ground mine exploded under the "Scharnhorst" causing slight damage and minor leaks. The ship maintained her station with the "Gneisenau" for another 70 minutes but thereafter commenced to drop astern.

Meanwhile air attacks developed from British bomber aircraft from 1500 hours. For the next $3\frac{1}{2}$ hours almost incessant attacks were delivered by various types operating singly or in twos and threes including one formation attack by torpedo bombers at 1610 hours. No direct hits were sustained by bombs and all torpedoes were successfully avoided.⁽²⁾ The weather during this period was rain squalls, low clouds and a wind of force 7 from the W.S.W. with visibility at best never more than 3 or 4 miles.

At 1543 hours an attack was delivered by British destroyers. The torpedoes were avoided as were the bombs from some British aircraft which were attacking at the same time.

Air attacks ceased with the coming of darkness soon after 1815 hours and the "Gneisenau" and "Prinz Eugen" with the "Scharnhorst", by now some 30 miles astern, proceeded at slightly reduced speed along the curve of the Frisian islands. At 1955 hours, when in position 5334N x 0508E, a ground mine exploded underneath the "Gneisenau" but, again, only slight damage resulted and the ship's speed was not affected. She carried on without further incident arriving in the River Elbe at 0700 hours on the 13 February and afterwards proceeded through the Kiel Canal to the floating dock in Kiel harbour.

The "Scharnhorst" was not so fortunate. At 2134 hours, when following some 40 miles astern of the other two, a second ground mine exploded under the ship in position 5338N x 0522E. The steering gear and port engine were seriously damaged.

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- (1) Between 1350 and 1420 hours the German fighter umbrella was attacked by British Whirlwind and Spitfire aircraft but the increasing low cloud made combats indecisive; indeed the poor weather conditions not only hampered action by both British and German fighters but itself gave good protective cover to the German naval force.
 - (2) Bomb splinters from near misses and machine gun strafing by attacking aircraft caused superficial damage and some casualties in all three major units. Two of the escorting craft however - the destroyer "Jaguar" and the torpedo boat "T.13" were hit and damaged by bombs sufficient to force their return to Rotterdam. The German report gives the actual attacks on the major units as 12 torpedo bomber and 38 bomber aircraft.

bringing the ship to a standstill. At 2223 hours she once more got underway but with 1000 tons of water shipped, the port engine out of action and speed limited to 12 knots. She limped into Wilhelmshaven arriving in the roadstead at 0900 hours on the 13 February, afterwards berthing alongside the south wall of the Hipperhavn in the dockyard.

The "Prinz Eugen", who was undamaged, after arriving in the River Elbe on the 13th was joined by the pocket battleship "W. Scheer" on the 20 February. These two ships then proceeded to Norway. On entering the southern lead to Trondheim fjord the "Prinz Eugen" was torpedoed by H.M. S/M Trident early on the 23rd. She sustained severe damage in the after part of the ship and crawled at 12 knots into Lo Fjord where she arrived just before midnight on the 23 February.⁽¹⁾ Later she had to be withdrawn to Kiel for a major refit.

On the night of the 27/28 February, Bomber Command aircraft attacked Kiel dockyard. The "Gneisenau" lying in the floating dock received two direct hits on the forecastle by heavy bombs. "A" turret was completely burnt out and "B" turret was badly damaged, in addition some 90 of the crew were killed. The total structural damage was considerable and rendered the ship inoperative for many months. Thus all three of the Brest Group ultimately sustained damage which prevented their concentration in Northern waters with the rest of the German fleet.

(b) The British Narrative

Preparation

The disposition of the British forces - naval and air - and the measures taken following the executive for "Operation Fuller" on the 3 February have been given at the end of Section (iii). One or two points must be mentioned before the story of the action is taken up.

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In view of the nightly bombing, minelaying and other activities of Bomber Command it was not practicable to keep all available aircraft at two hours' notice day after day. From the 10 February a force of 100 aircraft was earmarked daily for "Operation Fuller" and kept at four hours' notice.

ibid

Early on the 11 February the submarine "Sealion" penetrated into the approaches to Brest.⁽²⁾ She could not stay long in this dangerous position and, when the tide turned at 1300 hours, she commenced to withdraw very slowly. She did not leave the Iroise area until 2035 hours. No sight or sound of the enemy major units was obtained up to the time of her departure.

Appendix XIV

After dark on the 11 February, Bomber Command despatched 18 Wellington aircraft to attack Brest dockyard. 16 of these aircraft actually dropped bombs between 1945 and 2030 hours. Mention has been made under sub-heading (a) of the delay this caused in the departure of the Brest Group.

- (1) See Appendix XX and Chapter VII.
- (2) On the 7 February this submarine, while on patrol outside Brest, had been given discretion to proceed inshore with a view to operating against any of the big ships which might be exercising in the Iroise. (See Map XII). Ref. Board of Enquiry Evidence pages 417-423 and 448-449.

The Sighting of the Enemy Force

Under the foregoing sub-heading (a) it has been explained how the German force reached the position north of Le Havre by 0830 hours on the 12 February unseen and unsuspected. At about this time the Southern chain of British R.D.F. Stations commenced to register plots of enemy aircraft just to the north of Le Havre. These were, of course, in fact the fighter aircraft engaged in escorting the Brest Group. The R.D.F. plots showed only those aircraft which were above a certain height and consequently the tracks alternately showed up and died away as the aircraft varied their height. Such plots were noted by the Controller of the Stanmore Filter Room of Fighter Command⁽¹⁾ between 0825 and 0900 hours and were reported by him to No. 11 Group and the duty Air Commodore at H.Q. Fighter Command. It was considered that they denoted some enemy air sea rescue operations.

F.C/S.24043
encls. 92A and
96F

The usual early morning "Jim Crows" took off from Hawkinge (Kent) airfield at 0830 and 0835 hours.⁽²⁾ The westerly sortie reported on landing back,⁽³⁾ the presence of two small ships off Boulogne, two E-boats southbound from Boulogne and one E-boat northbound off Berck.⁽⁴⁾ The easterly sortie sighted 11 small vessels to the east of Ostend and six more to the east of Zeebrugge, all westbound. These reports reached No. 11 Group at 0950 and 1000 hours respectively. "Roadstead" operations were prepared for attacking shipping south of Boulogne and off Ostend.

ibid
encl. 96C

Also at 1000 hours, the Filter Room informed the duty Air Commodore and No. 11 Group that the enemy aircraft were obviously orbiting a particular area and that the trend of this area was in a north-easterly direction at between 20 and 25 knots. As a result of these suspicious plots, H.Q. Fighter Command ordered No. 11 Group to send another reconnaissance. Accordingly two Spitfires took off from Hawkinge at 1020 hours and proceeded to the sea area between Boulogne and Fecamp. At 1035 hours this reconnaissance sighted what they described as 20 to 30 small vessels in convoy escorted by five sloops or small destroyers in a position 12 to 15 miles west of Le Touquet and steering N.E. A little to the north-westward of this convoy were two groups of E-boats steering east and one of the E-boats was laying a smoke screen. The two aircraft

ibid
encl. 92A

ibid
encl. 96F

ibid
encl. 96C

- (1) The Filter Room at H.Q.F.C. received all the R.D.F. Station plots of airborne aircraft. These reports were filtered and only enemy or unknown aircraft plots were passed into the main operation room for display on the table unless it was desired to show British interception or patrol sorties as well.
- (2) "Jim Crows" were standard reconnaissances carried out by single Spitfires in the sea area between Ostend and the mouth of the Somme. They were part of the anti-shipping organisation and upon their reports of enemy shipping was based the attack on such shipping. The attack operations were known as "Roadsteads".
- (3) Fighter aircraft on reconnaissance patrol had standing orders not to break W/T or R/T silence but, on sighting enemy shipping, to return to base and report on landing.
- (4) The Filter Room received the track of this "Jim Crow" off the mouth of the Somme at 0900 hours. At this time the Brest Group were approximately 40 miles to the W.S.W. On landing the aircraft reported the visibility in the area as 15 to 20 miles but deteriorating.

landed back at base at 1050 hours and the report was immediately made to No. 11 Group and the Vice-Admiral Dover by 1100 hours. (1)

ibid
encls. 92A, 96F
and 102A

Meanwhile the Filter Room had reported to the duty Air Commodore that strong enemy jamming of R.D.F. stations in Kent had been taking place from 0930 hours onwards. The duty Air Commodore spoke to No. 11 Group on this matter and on what it might portend requesting at 1050 hours that extra reconnaissance was desirable if weather permitted.

ibid
encls. 96B and
102A

At 1052 hours the R.A.F. Liaison Officer at the Headquarters of Vice-Admiral Dover reported to No. 11 Group that their C.H.L. stations had been plotting intermittent surface vessel indications since 1016 hours in positions some 25 miles west of the mouth of the Somme. These plots were now becoming continuous having advanced to an area off Le Touquet and indicated the presence of two fairly large ships. (2) There was no hint in these reports that they might be large warships and, as a special reconnaissance was actually over this area at the time, the Group took no additional action.

ibid
encl. 96C

Entirely unconnected with all these purely anti-shipping measures, a section of two Spitfires took off from Kenley airfield at 1010 hours on an offensive sweep in the Channel against enemy aircraft. Such sweeps were often carried out on the chance of intercepting stray enemy sorties. The two Spitfires were piloted by Group Captain F. V. Beamish and Wing Commander R. F. Boyd, respectively the Station Commander and the second in command. Special permission had been obtained by these two senior officers to carry out this sortie as the weather conditions were considered by them to be too bad for inexperienced and younger pilots. They proceeded out over Dungeness towards the French coast and, when about 10 miles from it, sighted 2 Me.109's flying south-westwards. Chase was given at full throttle and very soon afterwards, at 1040 hours, a large naval force was seen underneath the

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- (1) Resulting from this report, the previously planned "Roadstead" operations were cancelled and a larger "Roadstead" was prepared to attack this convoy. After the rush report had been made the normal detailed interrogation of the two Pilots followed. During this, the pilot of the second aircraft said that one of the ships in the convoy appeared to him to have tripod masts and a high superstructure. Discussion was still proceeding as to the possible identity of this ship when the definite sighting report from Group Captain Beamish was received.
 - (2) This liaison officer also informed the officer commanding No. 825 Squadron of Swordfish aircraft - Lt. Commander E. Esmonde, R.N. - at Manston of this plot warning him at 1100 hours that there might be a big ship target for him. Esmonde brought his aircraft to immediate readiness and set his torpedoes for 29 ft depth with Duplex pistols. These pistols fire magnetically when the torpedo passes under the hull of a large ship. No. 16 Group were informed of the action being taken at Manston. After the sighting of the major units the order was given for all Beaufort torpedoes to be set to 20 ft depth using contact pistols. This decision was in view of the shoal water off the Dutch coast where it was intended that the main Beaufort attacks should take place. References - Board of Enquiry Evidence pages 342-352 and 147-151 and C.C/S.15,155 encl. 6A.

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encls. 96B and E.

aircraft. This consisted of two large warships, recognised as battlecruisers, surrounded by about 12 destroyers with an outer ring of E-boats, all steering up the French coast between Berck and Le Touquet. The Spitfires were immediately attacked by 9-12 Me.109's. After a short melee the British aircraft broke away and made for their base. They landed at Kenley at 1109 hours and reported the details to No. 11 Group who logged the time of receipt as 1125 hours. The information was immediately passed to H.Q. Fighter Command and Vice-Admiral Dover. The "Roadstead" operation was cancelled and all fighter squadrons brought to readiness for a major operation. Within the next 15 minutes all Air and Naval authorities had been informed.

The disposition of strike forces available for action against the enemy squadron was as follows:-

Coastal Command

At St. Eval (Cornwall) - 8 Torpedo Beauforts of No. 86 Squadron.
4 Torpedo Beauforts of No. 217 Squadron.(1)

At Thorney Island
(near Portsmouth) - 7 Torpedo Beauforts of No. 217 Squadron.

At Leuchars (Fife) - 14 Torpedo Beauforts of No. 42 Squadron.(2)

At Northcoates
(Lincoln) - 6 Hudsons of No. 407 Squadron.

At Bircham Newton
(Norfolk) - 5 Hudsons of No. 500 Squadron.

N.B. The Hudsons, owing to their small bomb load, were regarded as a distraction only to be used in conjunction with torpedo aircraft.

Bomber Command

At various aerodromes in England - about 240 aircraft of all types including the 100 standing by at 4 hours notice and a number which had operated during the previous night.(3)

Fighter Command

At various aerodromes in Southern England - About

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- (1) In addition there were at the time two of No. 86 and one of No. 217 Squadron already out on an anti-shipping sweep in the Bay of Biscay. They landed back at 1330 hours but were too late to take part in the subsequent attacks.
 - (2) These aircraft were under orders to proceed to Coltishall (Norfolk) but had been delayed by snow conditions. They were actually en route between 0900 and 1130 hours on the 12 February.
 - (3) On this day there were 310 operationally fit aircraft with crews. Of these, 50 were Whitleys, a type unsuitable for day bombing, and some 20 Wellingtons were unable to take off owing to a snow-bound airfield. Immediately available for a take-off at 1330 hours there were 73 aircraft.

550 aircraft the majority being Spitfires with some squadrons of Cannon Hurricanes, Bomber Hurricanes and Whirlwinds.⁽¹⁾

Naval Forces

At Manston (Kent) - 6 Torpedo Swordfish aircraft of No. 825 Squadron.

At Dover - 5 Motor Torpedo boats and 5 Motor gunboats.

At Ramsgate - 3 Motor torpedo boats.

In the Thames Estuary - 6 destroyers.

Preparations for Attack

When the news of the sighting of the German Squadron came through to the various authorities,⁽²⁾ the A.O.C.-in-C. Coastal Command was at a conference in the Admiralty together with the Assistant Chief of the Naval Staff (Home Operations). The latter telephoned to the Vice-Admiral Dover giving him freedom of action to use all his forces to engage the enemy as quickly as possible. The former rang up H.Q. Coastal Command and instructed the Senior Air Staff Officer to use any of the torpedo Beauforts that were suitably placed to put in an early delaying attack on the enemy and to organise for the main attack off the Dutch coast.

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encl. 13A

Accordingly at 1153 hours, orders were given to No. 19 Group to move the St. Eval Beauforts up to Thorney Island and the seven Beauforts already there to be brought to immediate readiness. Meanwhile No. 42 Squadron of Beauforts had just arrived at Coltishall and at 1210 hours the A.O.C. No. 16 Group informed H.Q. Coastal Command of his intention to despatch this Squadron with the seven Thorney Island Beauforts together with a diversionary bombing force of Hudsons to attack the enemy, to take off at 1445 hours. When questioned by H.Q. as to why these forces could not be despatched earlier, the A.O.C. replied that adequate fighter escort could not be provided before then, neither could the Swordfish attack be delayed in order to take advantage of the fighter escort provided for their sortie.

ibid
encl. 16A

At 1217 hours the S.A.S.O. at H.Q. Coastal Command telephoned the A.O.C.-in-C., who was still detained in London, informing him of the proposed programme. The A.O.C.-in-C. urged the vital need to get attacking aircraft off earlier than 1445 hours even if only a portion of the forces were available and if necessary without fighter escort. On this being passed to the A.O.C. No. 16 Group, he agreed to despatch

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- (1) No. 11 Group had 25 Squadrons. In addition they were re-inforced by 3 Squadrons from No. 10 Group and 2 Squadrons from No. 12 Group. No. 12 Group used 3 further Squadrons late in the day to cover the returning bomber aircraft as they approached our East Coast.
 - (2) A signal was made from the Air Ministry to the three R.A.F. Commands ordering that the maximum available forces be employed as early as possible to destroy the enemy ships and aircraft and ending with the words "This unique opportunity is to be exploited to the utmost".
References:- F.C/S.24043 encl. 90A, C.C/S.15152
Attachment encl. 13A and Iik/24/15 encl. 43A.

the seven Beauforts at Thorney Island but again emphasised the risks involved in sending a small force into the Dover Straits area without fighter protection. However, after consultation with No. 11 Group it was arranged that Spitfire protection could be made available by soon after 1330 hours.⁽¹⁾

The immediate action

Meanwhile events were moving fast in the Dover area. As soon as the presence of major naval units was confirmed among the shipping reported by the Spitfires and registered on the C.H.L. plot, Vice-Admiral Dover set in motion attacks by his Swordfish aircraft, his motor torpedo boats and his destroyers.

At 1130 hours H.Q. Fighter Command and H.Q. No. 11 Group were asked for a strong fighter escort to accompany the Swordfish which, on their range limitations, had to take off within the hour. No. 11 Group agreed to provide two squadrons to attack the escort vessels just in advance of the Swordfish with a further three squadrons to go out low with the Swordfish as escort against enemy fighters.⁽²⁾ The rendez-vous was arranged to be at 1225 hours over Manston aerodrome though No. 11 Group stated that it would be a rush to get them there in time. Soon after 1200 hours, Hornchurch spoke personally to Lieut. Commander Esmonde saying that their two squadrons would be a little late. Esmonde replied that he must leave at 1225 hours. At 1210 hours, Biggin Hill told No. 11 Group that their squadrons would be 5 minutes late and at 1215 hours said they would be 10 minutes late. This information was passed to Manston.

At about this time No. 16 Group asked Dover if the Swordfish attack could possibly be delayed so that the Beauforts from Thorney Island could take advantage of the fighter escort. This was disallowed on account of the speed of advance of the enemy and range limitations of the Swordfish quite apart from the difficulty of working three such diverse types of aircraft together.

V.A. Dover also asked No. 11 Group for fighter cover for the withdrawal of the motor torpedo boat attack which was planned to take place at the same time as the Swordfish went in. This was agreed and was effected in due course.

A continuous plot of the enemy force was now being obtained from the C.H.L. stations and it was apparent that the enemy's speed was at least 27 knots - a higher figure than had been appreciated. This information was passed personally to Lieut. Commander Esmonde at 1215 hours as he was sitting in his aircraft waiting to take off.

Acting on these plots the Dover long range coastal batteries came into action at 1219 hours. 34 rounds, in all, were fired at the enemy force until at 1245 hours further shooting was impossible owing to the near approach of the Swordfish and motor torpedo boats.

The Swordfish Attack

At 1220 hours the six Swordfish led by Lieut. Commander Esmonde took off and circled above Manston. At 1228 hours one of the Biggin Hill Wing Squadrons - No. 72 Spitfires - arrived and without further delay the Swordfish set out to sea. From survivors' evidence it seems clear that Esmonde

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- (1) It afterwards transpired that No. 16 Group understood this to mean close escort while No. 11 Group only envisaged cover during the attack.
 - (2) 2 Squadrons of the Hornchurch Wing - Nos. 64 and 411.
3 Squadrons of the Biggin Hill Wing - Nos. 72, 124 and 401.

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Pages 342-352

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encl. 96D

C.C/S.15155
encl. 6B

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decided to start with some of his escort hoping that the other Squadrons would join up en route. He did not necessarily expect to see all three Squadrons as they might well be stepped up in height above the low cloud and therefore out of his sight.

C.C/S.15155
encl. 6D also
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evidence
pages 185-191
and 360-364

The 10 Spitfires of No. 72 Squadron maintained close touch with the Swordfish until sighting the enemy ships at about 1240 hours. Simultaneous with the sighting, the party was attacked by numerous F.W.190's and Me.109's. The ensuing "dog fights" occupied all the attention of the escort⁽¹⁾ and, though the leading three Swordfish were seen to cross the enemy destroyer screen, nothing further was seen of them. The few survivors reported that after sighting the enemy squadron they were attacked by enemy fighters all the way in until within 4000 yards of the big ships; thereafter intense flak was encountered. All the aircraft were hit repeatedly during this approach and many of the personnel killed or wounded. Lieut. Commander Esmonde was seen to be shot down by fighters but it could not be seen if he had dropped his torpedo.⁽²⁾ In the smoke and mist only two big ships were seen. After the loss of their leader the two other Swordfish in his section dropped their torpedoes at the rearmost big ship from 3000 and 2000 yards range respectively at about 1245 hours and then both crashed into the sea from damage previously received. Five of the six personnel were afterwards picked up by our motor torpedo boats. Nothing was seen of the rear section of three Swordfish after crossing the destroyer screen neither was it known whether they dropped their torpedoes. There were no survivors from them.

The other two escorting squadrons for the Swordfish were not airborne until 1218 and 1220 hours respectively and, on the way to the rendez-vous, realised they were going to be late so turned off to cross the coast at Deal hoping to see the Swordfish en route. Seeing no signs of them they turned again for Manston but as they were not there the two squadrons set off for the target which they were told by R/T would be found off Calais. The big ships were sighted about 10 miles north of Calais at 1240 hours. Both Squadrons immediately became involved in combats with enemy fighters and saw no signs of the Swordfish. After their action they returned to base.⁽³⁾

ibid

Nos. 64 and 411 Squadrons were delayed in take off from their station at Fairlop by difficult weather conditions and did not reach Manston until 1230 hours. Not finding the Swordfish they proceeded over to the French coast but failed to locate the German force and were not engaged.

ibid
pages 193-195

Soon after this No. 607 Squadron of Hurribombers⁽⁴⁾ escorted by Cannon Hurricanes of No. 32 Squadron left Manston at 1240 hours with orders to attack the E-boats and destroyer screen around the big ships. They also did not locate the

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- (1) 3 F.W. 190's were shot down and 3 claimed as damaged. No losses were incurred by No. 72 Squadron.
 - (2) Lieut. Commander Esmonde was posthumously awarded the V.C.
 - (3) 2 F.W. 190's were shot down by No. 401 Squadron and 2 claimed as damaged. 4 were claimed damaged by No. 124 Squadron. Neither Squadron incurred any losses.
 - (4) These were Hurricane fighters fitted with bomb racks and had been developed earlier as part of Fighter Command's operations against enemy shipping.

enemy main force but at 1300 hours attacked four small flak vessels close off Cap Gris Nez. One Hurribomber was shot down by shore batteries and three of the flak vessels were claimed as damaged.

Attack by the Motor Torpedo Boats

During this time the five motor torpedo boats, having left Dover harbour at 1155 hours, were speeding across to intercept the enemy. At 1210 hours E-boats were sighted laying a smoke screen and some enemy fighters attacked the British boats in rather a half-hearted way as if uncertain of their nationality. The big ships were sighted at 1223 hours coming through the smoke and were definitely identified as the "Prinz Eugen" followed by the two battlecruisers "Scharnhorst" and "Gneisenau".⁽¹⁾ An attacking approach was made towards the E-boat screen and when within 500 yards of this screen torpedoes were fired at the big ships at 1230 hours from a range of 4000 to 5000 yards by four of the motor boats. The fifth boat, which had had a temporary breakdown on the run in, recovered engine power and closed in astern of the E-boats firing torpedoes at the "Prinz Eugen" at 1240 hours from 3000 to 3500 yards range. No firm claims of hits on any of the ships were made but the motor boat evidence states that, at about the right time interval after firing, a tall column of white smoke shot up alongside the "Prinz Eugen". This was admittedly unlike a torpedo explosion but might well have been the splash of one of the last shots fired by the Dover long range coastal batteries.

ibid
pages 365-374

The three motor torpedo boats at Ramsgate left harbour at 1225 hours. They sighted much smoke on the water at 1318 hours with three enemy destroyers near it. On closing, eight Me.109's came over but did not attack. Soon afterwards six E-boats were seen ahead of the destroyers. The British boats decided that this was part of the screen ahead of the big ships and they commenced to work round astern of the enemy vessels. However, by 1400 hours it was realised that this was the screen astern of the major units and as one motor boat had broken down the chase was abandoned.

The motor gunboats at Dover did not get clear of the harbour until 1212 and 1300 hours in two parties. Consequently they missed the action but did useful work in supporting the motor torpedo boats' return to harbour. Fighter cover during this withdrawal was supplied, in execution of the previous arrangement, by the Northolt Wing of three squadrons of Spitfires.

ibid

The Progress of the Enemy Becomes Approximate

At 1325 hours V.A. Dover reported to the Admiralty that the enemy force was passing out of the effective plotting range of the C.H.L. Stations.⁽²⁾ The Admiralty rang H.Q. Coastal Command and requested the employment of shadowing

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- (1) This was the only occasion on which any report states definitely that all three ships were in view at once.
 - (2) As this meant that V.A. Dover would no longer be in a position to control operations the Admiralty instructed the C. in C. Nore to take over all the available relevant information and when satisfied to make a signal that he had assumed command of the operation. He made this signal at 1411 hours.

ibid
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aircraft. The Headquarters replied that this would be difficult in face of the enemy fighter escort and the deteriorating weather conditions but the Admiralty insisted that it must be done "even at the cost of a dozen aircraft." It is important to remember that after the enemy ships faded off the Dover C.H.L. plot their subsequent movements were only estimated. One further good fix was broadcast when the destroyers sighted them at 1542 hours but the bomber and torpedo aircraft sorties had to be briefed with ever increasingly approximate positions. Coastal Command's shadowing aircraft did not succeed in locating and reporting an enemy force until 1650 hours.

Fighter Command

F.C./S.24043
encls. 95A
and 96B

After telephone conversations between No. 11 Group and H.Q. Bomber Command and No. 16 Group Coastal Command, it appeared that Coastal Command intended to put in an early but light attack with Beauforts from Thorney Island leaving at about 1345 hours and their main attack leaving at about 1445 hours. Bomber Command were expecting their first wave to be in the target area from about 1500 hours followed by a main effort an hour later.

It was clearly stated in the orders for "operation Fuller" that no fighter escort would be given to Coastal or Bomber Command strikes when directed east of the Dover Straits or, in the case of a daylight passage, actually in the Dover Straits. In practice, on this day, one exception had already been made in the case of the Swordfish attack though this was really a naval force. Another exception had been promised⁽¹⁾ in the case of the light delaying attack by Thorney Island Beauforts so strongly urged by the A.O.C.-in-C. Coastal Command.

For the main attacks general fighter cover over the area, as envisaged in operation Fuller, was arranged and No. 11 Group detailed 15 squadrons to maintain this umbrella from 1430 hours until the enemy ships were out of fighter range. After this No. 12 Group arranged for fighter cover to be provided well off the East Anglian coast to protect returning bombing aircraft.⁽²⁾ In practice, low cloud conditions interfered seriously with fighter tactics and both British and German aircraft were so hampered by weather conditions that few combats had decisive results but the general effect was that enemy fighters were unable seriously to molest the attacking bombers and torpedo bombers.

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- (1) This was a misunderstanding between No. 16 Group Coastal Command and No. 11 Group. It arose over the different interpretations of the words "Fighter protection".
- (2) Fighter cover in the area was provided by:-
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|--|------------------|
| The Kenley Wing - Nos. 452, 485 and 602 Squadrons. | 1345-1540 hours. |
| The Debden and North Weald Wings - Nos. 65, 111, 121, 222 and 403 Squadrons. | 1415-1600 hours. |
| No. 10 Group Wing - Nos. 118, 234 and 501 Squadrons. | 1430-1615 hours. |
| The Hornchurch Wing - Nos. 64 and 411 Squadrons. | 1520-1630 hours. |
| <u>To cover the return of bombing aircraft:-</u> | |
| No. 12 Group Wing - Nos. 609 and 412 Squadrons. | 1530-1630 hours. |
| Nos. 19, 266 and 616 Squadrons. | 1630-1750 hours. |
- References: F.C./S.24043. encls. 96C and E.

ibid

In the interim period between 1300 hours and the main Bomber and Coastal waves, No. 11 Group directed squadrons of Hurribombers and Cannon Hurricanes escorted by Spitfire squadrons to the target area in order to keep up a running attack on the escort vessel screen around the big ships with a view to disorganising them and reducing their flak power before the arrival of the bomber aircraft. Three such strike forces were despatched between 1330 and 1420 hours.(1)

The Early Attack by Beauforts

C.C./S.15155
encl. 16C

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encls. 95A
and 96B

Acting on the wishes of the A.O.C.-in-C. for a delaying attack to be made at the earliest opportunity No. 16 Group instructed Thorney Island to despatch the seven Beauforts of No. 217 Squadron as soon as possible to Manston. Some delay followed as it was found that only four of the aircraft were immediately available. Of the remaining three, two had to change from bomb racks to torpedo racks and the third proved temporarily unserviceable. Finally it was decided to despatch the four as a first flight and they were ordered to take off at 1305 hours, rendez-vous over Manston Aerodrome at 1340 hours with a fighter escort and proceed out on a search for enemy ships. The tracks to be flown on this search were given to the navigator of the leading aircraft. Unfortunately the aircraft did not actually take off until 1325 hours and it was manifest that the rendez-vous time could not be kept. This delay was not passed in time to No. 11 Group. The two Spitfire squadrons - Nos. 452 and 602 - who were to provide the protection arrived over Manson at 1345 hours and saw no Beauforts. In the meantime No. 16 Group had got into touch with No. 11 Group regarding the Beauforts' delayed take-off and in view of the general cover being put up in the area the rendez-vous with the Beauforts was cancelled. No. 11 Group instructed the Spitfire Squadrons by R/T to proceed to the target area maintaining high cover. At the same time No. 16 Group made a W/T signal to the four Beauforts informing them of the cancellation of the fighter rendez-vous and directing them to attack

- (1) Despatched at 1330 hours - 8 Cannon Hurricanes of No. 3 Squadron escorted by Spitfires of No. 313 Squadron. They sighted 2 destroyers and 4 other small naval vessels between Calais and Gravelines. These were attacked at about 1400 hours. The main force was never located.

Despatched at 1345 hours - 6 Cannon Hurricanes of No. 1 Squadron escorted by Spitfires of No. 129 Squadron. They located the main force and attacked 6 destroyers just astern of the big ships at 1430 hours. 2 Spitfires were shot down by flak from the destroyers.

Despatched at 1420 hours - 8 Hurribombers of No. 607 Squadron and 6 Cannon Hurricanes of No. 32 Squadron escorted by Spitfires of No. 41 Squadron. On the way over they were attacked by 20 Me.109's. In the melee No. 32 Squadron lost touch and returned to Manston. No. 41 Squadron remained attacking enemy fighters and No. 607 Squadron carried on alone being attacked soon after by another 20-30 enemy fighters. They were shaken off and during the subsequent evasive tactics a large warship was sighted a mile away and then the main enemy force. Attacks were delivered on escort vessels claiming one of 600 tons sunk and one of 400 tons seriously damaged. 3 aircraft of No. 607 Squadron were shot down by flak.

References: Board of Enquiry Evidence - Pages 195-198, 207-210 and 238-240.

the enemy big ships giving a position, course and speed of the target.

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Still more unfortunately, No. 16 Group had forgotten that none of these Beauforts had their W/T equipment. This had been taken out about a fortnight earlier in order to instal R/T in connection with proposed anti-shipping duties under controlled interception from Dover. The four Beauforts were thus circling round above Manston from 1400 hours unable to understand why none of the numerous fighters, also circling before departing on other tasks, would have anything to do with them.

During this continued circling in the lowering cloud conditions, the rear two Beauforts - "V" and "Q" - under Pilot Officer Aldridge, lost touch and at about 1430 hours thought it advisable to land and find out the true situation. He did so and was given a new position to make for and incidentally learned for the first time that the target was the Brest Group of major naval units. The two Beauforts took off again at 1455 hours and set off for the enemy coast. In very poor visibility they saw at 1540 hours a large warship loom up only 1500 yards away in an estimated position of 5159N x 0333E. This was thought to be the "Prinz Eugen". Both aircraft turned in immediately and attacked from the port side of the ship releasing torpedoes at 1000 yards range at 1542 hours. No result was seen, no enemy aircraft were encountered but there was intense flak from the warship. However, neither aircraft was hit and they landed back at Manston at 1615 hours.

After losing sight of his rear section over Manston soon after 1400 hours the leader of the flight - Pilot Officer Carson - decided to go on the search for enemy shipping with his remaining Beaufort without any fighter escort. The two aircraft - "S" and "D" - reached the French coast near Dunkirk at about 1430 hours but sighting nothing and having no fighter escort Carson gave up what he had been led to understand was a quick sweep for enemy shipping. He realised that something in his briefing must be wrong so the two Beauforts returned to Manston and landed at 1515 hours. He telephoned to H.Q. No. 16 Group and, after mutual explanations of what had gone wrong, he was directed to go back to the target area being given the estimated 1600 hour position for the enemy major units. This was his first intimation of the true nature of the target. He hurried back to his aircraft - "S" - and, as its engines were still running, took off immediately without waiting for "D". He reached the position given him between 1630 and 1640 hours but not seeing anything in the deteriorating visibility he started an A.S.V. search up the Dutch coast. At intervals he contacted several small naval craft which all fired at him. Continuing his search for the big ships he turned back keeping closer to the coast and, after A.S.V. contact, he sighted four destroyers with a large warship just astern of them in an estimated position 5200N x 0335E at 1709 hours.⁽¹⁾ He attacked at once from her starboard side under intense flak and released his torpedo at 1710 hours from 1500 to 2000 yards range. No hit was observed but the torpedo was seen to be running correctly. S/217 Squadron was not damaged and returned uneventfully to Manston landing at 1755 hours.

ibid

(1) Both "S" and "D" attacked the "Scharnhorst" whose position lagging astern of the other two major units is confirmed from the German track charts.

The remaining Beaufort - "D" - refuelled at Manston and also set off alone, leaving at 1715 hours. In very murky weather and after an A.S.V. Contact, the Pilot sighted a large ship by herself at about 1800 hours in estimated position 5214N x 0410E. He attacked immediately from her port side releasing his torpedo at about 1000 yards range but observed no hit. After an uneventful return D/217 Squadron landed at Thorney Island at 2000 hours.

The other three Beauforts of No. 217 Squadron at Thorney Island were not ready to take off until 1430 hours. By this time the misunderstanding about fighter escort had been cleared up and the three aircraft - "L", "F" and "X" - proceeded to the estimated position of the enemy force. Having reached this, an A.S.V. search was carried out and at about 1530 hours a contact was obtained which resulted in the sighting in bad visibility of two large warships with several destroyers at 1535 hours in an estimated position 5150N x 0320E. The leading ship was thought to be the "Prinz Eugen". Four Me.109's were also seen closing rapidly but the attacking course was held until the Me.109's were considered to be on the point of opening fire when torpedoes were released from "L" and "X" at the leading ship. Almost simultaneously the enemy fighters attacked the Beauforts. Both "L" and "X" were repeatedly hit both by cannon fire and flak from the ships before getting clear of the destroyers. "F" failed to return and it was not known whether this aircraft was shot down by fighters or flak nor if the torpedo was released. The two surviving aircraft had no opportunity to observe the behaviour of their torpedoes. They landed back at Manston at 1626 and 1715 respectively.

The so-called immediate delaying attack by the seven Beauforts from Thorney Island thus developed on very different lines from what was intended, though entirely fortuitously, five of the attacks took place between 1535 and 1545 hours, only a few minutes before the destroyers fired their torpedoes.

The Destroyer Attack

Turning back to the destroyer story, on the morning of the 12 February six destroyers under Captain C. T. M. Pizey, R.N. in H.M.S. Campbell⁽¹⁾ were carrying out exercises in the Thames Estuary near Harwich when a signal was received at 1156 hours from V.A. Dover. This signal gave the report of enemy battle-cruisers off Boulogne proceeding at 20 knots through the Dover Straits and instructed Captain Pizey to attack in execution of previous orders. He immediately signalled the scattered destroyers to close on a rendez-vous position and the flotilla then proceeded on a course so as to carry out V.A. Dover's set plan which was to cross a mined area through a previously swept channel and intercept the enemy off the West Hinder Bank.

By 1300 hours the C.H.L. plot of the enemy's progress enabled V.A. Dover to signal the "Campbell" that their speed was 27 knots. This was much greater than that given in the executive signal and Captain Pizey realised that the only chance of attack lay in cutting across the main mine barrier and endeavouring to make an interception further up the coast

(1) The force consisted of H.M. destroyers "Campbell" and "Vivacious" of the 21st flotilla and "Mackay", "Whitshed", "Worcester" and "Walpole" of the 16th flotilla. All these destroyers were over 20 years old.

off the Maas. The risk was accepted and by accurate navigation the barrier was safely crossed by 1430 hours. At this time the "Walpole" developed serious engine trouble and took no further part in the operation. Enemy aircraft had been shadowing the flotilla since 1330 hours and thereafter bombing attacks by single JU88's occurred at half hourly intervals but no hits were secured.(1)

At 1516 hours the "Campbell's" radar location set(2) picked up two large echoes at a range of $9\frac{1}{2}$ miles bearing 145 degrees and at about this time the visibility, which had been up to 7 miles, deteriorated to a maximum of 4 miles. At 1542 hours the main enemy force was sighted 4 miles away in position 5157N x 0335E steering 070 degrees at 27 knots. Heavy fire was immediately opened on the flotilla. Every 20 or 30 seconds aircraft of all types dropped out of the low clouds sometimes releasing bombs. Visibility was now so bad and the aircraft appeared and disappeared so quickly that recognition was impossible and the destroyers opened fire on anything they saw. The "Mackay" did, however, identify two Beaufort aircraft seen approaching the enemy at this time.(3)

ibid

The destroyers pressed in towards the only two large ships in sight, miraculously without being hit although continually straddled. The "Campbell" and "Vivacious" fired their torpedoes at 1547 hours from 3000 yards range, followed soon after by the "Mackay" and "Whitshed". The "Worcester" who was further astern closed into 2400 yards before firing and in doing so was hit and set on fire. No positive torpedo hits were claimed.

ibid

After firing torpedoes, the four destroyers turned away and went to the "Worcester's" assistance. Visibility was now less than three miles at sea level and when stopped near the disabled ship at 1615 hours they observed some Beaufort aircraft close by. One of these was stated to have dropped a torpedo at them.(4) Finally at 1718 hours the "Worcester" managed to get under way and, although in a serious condition, reached Harwich under her own steam.

Attacks by Bomber Command

Up to 1330 hours the Bomber Command Groups were kept informed of the progress of the enemy squadron. After this

- (1) 10 Whirlwinds of No. 137 Squadron from No. 12 Group had been detailed to provide air protection for these destroyers. The first detachment took off at 1310 hours having been given the destroyers' intended line of advance. The aircraft never found the destroyers owing to the radical change in courses steered after the decision to cross the mine barrier had been taken. While searching for the flotilla the Whirlwinds ran into 20 Me.109's not far from the enemy naval force. In the ensuing combats 4 Whirlwinds were shot down.
- (2) This was a Type 271 set and had only just been fitted in the "Campbell". She was the only destroyer on the East coast to be so equipped.
- (3) These were V and Q/217 Squadron. L, F and X/217 Squadron had attacked about five minutes previously.
- (4) This cannot be confirmed from Coastal Command records. Two Beauforts of No. 42 Squadron actually made an attack at this time but both released their torpedoes at a definite large warship.

ibid
Pages 267-280

ibid
Pages 162-178

time the briefing of crews had to be based on estimated positions. The first wave of 73 aircraft⁽¹⁾ commenced to take off at 1420 hours and proceeded independently in sections of three aircraft but long before they got to the target area these had become singles and twos after taking cloud cover and breaking through again several times. The weather by now was 8/10ths to 10/10ths cloud with the base never higher than 2000 feet and often down to 700 feet in rain showers. Later in the afternoon the weather over the target area became even worse with visibility limited to a few hundred yards. Of all the aircraft despatched a high proportion reached the vicinity of the German Squadron but in the poor visibility few actually sighted the big ships. Some of these few having succeeded in locating the enemy ships from sea level were unable to gain sufficient height for bombing because of the very low cloud base. At no time did the A.O.C.-in-C. Bomber Command think that these waves of attacks would prove lethal; he regarded them as a distraction to the enemy in order to facilitate the pressing home of torpedo attacks by Coastal Command and the destroyers.⁽²⁾

Out of the first wave, which was over the target area between 1455 and 1558 hours, only 10 aircraft released bombs at the enemy ships. Two Blenheims and two Hampdens failed to return.

The second wave of 134 aircraft⁽³⁾ commenced to take off from 1437 hours and arrived in the target area between 1600 and 1706 hours. 20 aircraft actually released bombs at the big ships. Seven Hampdens and two Wellingtons were missing.

The third wave of 35 aircraft arrived in the target area between 1750 and 1815 hours. Nine aircraft actually released bombs. Two Wellingtons failed to return.

The conditions throughout were against deliberate and therefore accurate bombing. There was no interference by enemy fighters but very intense flak was encountered by all aircraft who sighted the enemy and it is fair to assume that the 15 missing aircraft also found the enemy and became casualties either in the attack or soon afterwards from the

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- (1) Composed of:- No. 1 Group - 25 Wellingtons.
No. 2 Group - 25 Blenheims.
No. 4 Group - 10 Wellingtons.
No. 5 Group - 2 Manchesters and
11 Hampdens.
 - (2) All bomber aircraft were initially armed with 500 lb. S.A.P. bombs but as the weather was deteriorating so rapidly an order was given, before the first wave, to re-arm with G.P. bombs but such change-over was not to delay the scheduled times of take-off. In fact, very few of the first wave made the change but in subsequent waves a large proportion of the loads carried were G.P. bombs. As a minimum height of 7000 feet was required for the penetration of the battle cruisers' deck armour by S.A.P. bombs and in view of the purely blast effect of G.P. bombs on the ships' upper works it was not expected that very serious damage would be inflicted.
 - (3) Composed of:- No. 1 Group - 30 Wellingtons.
No. 2 Group - 12 Blenheims and 8 Bostons.
No. 3 Group - 2 Stirlings and
29 Wellingtons.
No. 5 Group - 13 Manchesters, 5 Halifaxes
and 35 Hampdens.

effects of flak. The loss of 15 out of the 54 aircraft who probably found the enemy was a heavy price to pay for no firm claims of hits on any of the major units.

The Coastal Command Main Attack

This had originally been intended to consist of the whole of No. 42 Squadron and the Thorney Island half of No. 217 Squadron with diversionary attacks by two Hudson Squadrons, but as has been recounted the Thorney Island Beauforts were sent off as an immediate delaying attack. 14 Beauforts of No. 42 Squadron had arrived at Coltishall in Norfolk(1) from Leuchars by 1130 hours but only nine of these aircraft had torpedoes. The remaining five torpedoes were to come by road transport but did not appear in time for the operation. The nine aircraft were ordered to proceed to Manston, rendezvous over the airfield with 11 Hudsons of Nos. 407 and 500 Squadrons at 1450 hours and carry on over to the Dutch coast to attack the enemy battle cruisers.

ibid
Pages 147-151

Owing to Coltishall being a Fighter Command Station, the final briefing of the Beauforts was not very complete and the only firm enemy position that could be obtained by the leader of No. 42 Squadron was one timed at 1330 hours. The nine Beauforts took off at 1425 hours and contacted the Hudsons over Manston at 1450 hours. Unfortunately the previous misunderstanding about fighter escort cropped up again. Both the Hudson Squadrons had been informed that a fighter escort would join up with them over Manston. Consequently when No. 42 Squadron attempted to lead the striking force out to sea the Hudsons failed to follow and for over half an hour the aircraft were aimlessly circling the airfield. At last, at 1530 hours, the Beaufort leader decided to go alone and set course for an estimated interception point based on his 1330 hour position for the enemy. Seeing the Beauforts disappearing to seaward the six Hudsons of No. 407 Squadron followed and formed about 1000 feet above them but the five Hudsons of No. 500 Squadron could not forget their fighter escort instructions and continued circling Manston until nearly 1600 hours after which they returned to their base at Bircham Newton.

ibid

Meanwhile the attacking force experienced ever worsening visibility and at 1545 hours they ran into heavy rain. The Hudsons lost touch with the Beauforts and proceeded independently searching for the enemy with their A.S.V. equipment. At 1600 hours indications of the German Squadron were picked up but all idea of formation bombing was out of the question. The cloud base was at times down to 400 feet and each aircraft dived individually through cloud attacking whatever type of ship it found beneath it. The flak encountered was heavy, visibility was poor and no hits were seen on any of the targets bombed. Two Hudsons failed to return, believed hit by flak.(2)

ibid
Pages 223-226

Very soon afterwards at 1604 hours the Beauforts, flying in formation just above sea level, sighted two destroyers about 2000 yards distant and under intense flak from all

- (1) The Squadron had been directed to Coltishall (which was a Fighter Command Station) because the Coastal Command Stations at North Coates and Bircham Newton were, at this time, both snowbound.
- (2) "W" and "P" of No. 407 Squadron.

directions suddenly found themselves in the middle of the enemy force with a large warship to starboard of them. The centre and right hand sections of Beauforts immediately turned in to attack from her port side releasing five torpedoes from 1100 yards at 1605 hours.(1) The left hand section lost touch in the sudden turn in and made a large circuit round the enemy force coming in finally from the starboard side. In doing so they came under heavy fire from enemy destroyers which caused one of the three aircraft to lose touch. The other two also sighted a large warship and attacked with torpedoes at 1616 hours. The visibility conditions and continuous fire made it impossible to determine if more than one big ship was present and although all the torpedoes released were seen to be running correctly no hits were observed.

The Final Coastal Command Attack

It will be remembered that, soon after the report of the initial sighting of the German force off Le Touquet, the Beauforts at St. Eval were ordered to proceed to Thorney Island. These 12 aircraft(2) left St. Eval at 1232 hours and arrived at Thorney Island at 1430 hours. Here they had to be re-fuelled, the torpedoes topped up with high pressure air and finally adjusted for running. No. 16 Group ordered the squadron to proceed as soon as ready to Coltishall and rendez-vous over the airfield with a fighter escort. (Once more the "fighter escort" mistake was made.) A torpedo attack was then to be made on the enemy battle cruisers for which an estimated 1745 hour position was given.

The 12 aircraft took off from Thorney Island at 1600 hours and at 1701 hours were over Coltishall but no fighter escort was seen. However, after circling for three minutes, the formation leader decided to go without them as the light was already waning. At this time one of the Beauforts had to land owing to electrical trouble. On the way across a W/T message was received from base to the effect that the German force had apparently split and one or more of the major units might be 30 miles to the southward of the estimated position given. This latter position was reached at 1741 hours in very hazy weather, raining heavily with visibility less than 1000 yards and cloud base down to 600 feet. Having picked up nothing on his A.S.V. the leader(3) led the formation round to the southward to sweep down the enemy's estimated track. At 1805 hours they sighted four M. class mine-sweepers in position 5215N x 0402E at 300 yards range who opened fire. After turning to avoid these the whole formation got scattered and lost touch with each other. Almost immediately one aircraft - E/217 Squadron - ran into more flak and then sighted the dim shape of a ship close at hand at 1807 hours.(4) The aircraft was repeatedly hit by flak and unable to release the torpedo. The rest of the aircraft were searching independently of each other and, although literally within a few hundred yards, did not in the murky twilight conditions catch a glimpse of any other enemy ships. By 1830 hours it was dark and the search was abandoned. Two Beauforts failed to return but whether

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- (1) The 6th torpedo failed to release.
 - (2) 8 aircraft of No. 86 Squadron and 4 of No. 217 Squadron.
 - (3) Only the leader and two other aircraft were fitted with A.S.V.
 - (4) This may have been the "Scharnhorst" although the position does not agree with the German record; on the other hand it may have been a re-sighting of the mine-sweepers.

CC/S.15155
encl. 16C

Board of Enquiry
evidence
Pages 140-147

ibid
Pages 375-378

from flak or flying into the sea in the prevailing visibility conditions was never established. (1)

Shadowing by Coastal Command

AHB/Iik/31
encl. 16A

This was asked for on the highest priority by the Admiralty at 1257 hours before the enemy force commenced to get outside the effective range of the Dover C.H.L. plot. It was pointed out by Coastal Command that such shadowing could not be guaranteed in view of the presence of large numbers of enemy fighters around the German Squadron but instructions were given to send out Beaufighters and A.S.V. fitted Whitleys from Bircham Newton when the Dover plot faded. Accordingly at 1345 hours No. 16 Group ordered a Beaufighter to shadow from 1430 and a Whitley from 1500 hours with suitable reliefs to follow.

No. 16 Group
O.R.B.

The first Beaufighter was not airborne till 1510 hours and landed back soon after with electrical trouble in the inter-com. Whitley B/502 Squadron took off at 1525 hours and made a sighting report of an enemy force at 1650 hours in position 5227N x 0404E and after a long interval again at 1757 hours in position 5230N x 0400E followed at 2024 hours by an unidentified A.S.V. contact in 5310N x 0430E and another at 2138 hours in 5338N x 0457E. These confusing positions seemed to confirm that the enemy had split into two forces, one being about an hour's steaming astern of the other. (2)

The second Beaufighter was airborne at 1639 hours but also came back early owing to electrical trouble. The third Beaufighter - Y/248 Squadron - took off at 1650 hours and after a visual search in the poor visibility ran into a destroyer screen and suddenly found himself only a few hundred yards from a large warship at 1756 hours in an estimated position of 5250N x 0420E. (3) Unhappily when it came to making a sighting report the W/T installation broke down. The aircraft returned home and landed as best he could without W/T guidance in the dark away from base at 1915 hours.

The second Whitley - F/502 Squadron - took off at 2307 hours and searched off the coast as far as longitude 0700E. At 0155 hours on the 13 February an A.S.V. contact was obtained in position 5340N x 0628E and soon after a searchlight came on. Fire was opened on the aircraft but the identity of the vessel could not be established. (4) Finally Wellington Z/221 Squadron took off at 0123 hours and searched this line of coast but experienced intermittent A.S.V. breakdowns and contacted nothing.

What positive reports there were came too late to be of any value to our attacking forces and indeed, by reason of navigational uncertainty in the prevailing weather conditions proved somewhat confusing. However, taken in conjunction with D/F's of German W/T signals obtained by the Admiralty from 2230 hours onward, the indications were that the German

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- (1) G/86 and Z/217 Squadrons.
 - (2) From the logs of the German ships, the 1650 hour sighting was of the "Gneisenau" and the 1757 sighting and subsequent contacts were of the "Scharnhorst" who at 1650 hours was 18 miles and by 2100 hours some 35 miles astern of the "Gneisenau" and "Prinz Eugen".
 - (3) From the German records this was the "Gneisenau".
 - (4) From the German records this was the damaged "Scharnhorst".

force in two portions had reached the Heligoland Bight just before dawn on the 13 February.

A Final Effort

A last effort to damage the battle cruisers was made at the request of the Admiralty when at 2300 hours 11 Hampdens and nine Manchesters of No. 5 Group Bomber Command took off to lay magnetic mines on the enemy's route. 13 mines were successfully laid in the estuary of the River Elbe but neither the "Gneisenau" or the "Prinz Eugen" encountered them.

(c) The Postmortem

In England, public opinion was shocked by this successful and apparently unharmed challenge to our control of the narrow waters. A Board of Enquiry was set up by the Prime Minister under the chairmanship of Mr. Justice Bucknill assisted by Vice Admiral Sir T. H. Binney and Air Chief Marshal Sir E. R. Ludlow-Hewitt. Evidence was heard from all the participants at all levels of the operation. A narrative was drawn up giving the sequence of events as far as was known from the British side. This was followed in the report by the Board's comments on the adequacy of the patrols, the plans of attack and the use made of the forces available.

Board of Enquiry
Report
Pages 1-14
ibid
Pages 15-21

In the case of the former, criticism was levelled on the assumption that the enemy force had slipped out of Brest and round Ushant before the "Stopper" patrol was properly established. From the German records now available it appears that the enemy actually rounded Ushant while "Stopper" was being patrolled. The belief by the A.O.C.-in-C. Coastal Command that "Stopper" was functioning correctly was the main reason for not ordering a relief sortie for the patrol "Line S.E". The delayed departure of the enemy squadron (caused by the air raid on Brest) resulted in their not being located further along the coast by the patrol "Habo" before dawn. However, the Board's subsequent remarks are legitimate that, in view of the known gap in "Stopper" and the break down of the A.S.V. on "Line S.E", it would have been prudent to order a relief for "Line S.E." and to carry out some kind of dawn reconnaissance further down the channel.

ibid
Page 15

ibid
Page 16

Attention was also drawn to the lack of general intelligence liaison whereby the significance of the early R.D.F. plots and the jamming interference experienced was not immediately linked up with the possible escape of the enemy squadron.

The Board considered that the previous plans for the attack were adequate though the early co-ordination of such attacks inevitably suffered from the late hour of discovery of the enemy's advanced position. This latter fact mitigated against the employment of the torpedo bomber force in a concerted attack with consequent maximum effect.⁽¹⁾

ibid
Pages 17-20

(1) Regarding the actual Beaufort attacks, the Board drew attention to the desirability of a higher standard of training in torpedo attack. This had suffered from the shortage of aircraft and the alternative roles of bombing and minelaying demanded from the only three squadrons of torpedo aircraft.

ibid
Pages 21-23

Board of Enquiry
Evidence
Pages 318, 319,
470 and 471

In their conclusions, the Board expressed the view that it was doubtful whether the forces employed were sufficient to cripple the battlecruisers even if their movement out of Brest had been known as they came out. Evidence leading to this view had been given by the Assistant Chief of the Naval Staff in which he said that the Admiralty were not expecting much from the bombing attacks in view of the poor weather, the high speed of the target and the previous experience which had shown that a high percentage of hits was not obtained on even stationary ship targets. In fact it had never been believed by the Admiralty that these three ships could be sunk while going through the Channel route. Damage was the most that they hoped for even including attacks by destroyers, motor torpedo boats and torpedo aircraft.

So ended an operation which was aptly described by the German Naval Staff as a tactical victory but a strategic defeat. They had achieved their object but had abandoned their position on the flank of British Sea communications.

Chapter VI

THE ANTI-SHIPPIING WAR IN NORTHWEST EUROPEAN WATERS
(January 1942 to June 1942)(i) Introduction

During the first two months of 1942, unfavourable weather and increased anti-raider commitments interfered with Coastal Command's attacks on enemy merchant shipping. In particular, the potential break-out of the three enemy major naval units at Brest and the presence of the Tirpitz in the Trondheim area were continuous preoccupations; and finally, the successful break-out of the Brest group and the passage of the pocket battleship Admiral ~~von~~ Scheer and the cruiser Prinz Eugen to Norway, made heavy demands on the Command's anti-shipping force.

The failure on the part of the R.A.F. to stop the three enemy ~~warships~~ ^{from Brest} from reaching Germany, had not only exposed the weakness of the aircraft situation in Coastal Command, but had also clearly showed the difficulty of co-ordinating quickly the activities of several independent commands in an emergency.

In order to preclude any possibility of future misunderstanding in the event of similar circumstances, a combined Operational Instruction was prepared laying down the full procedure for co-ordination of attacks and the provision of Fighter co-operation.

This instruction gave to Coastal Command, once again, the support, if needed, of light bomber aircraft of No.2 Group, Bomber Command, in the attack of important enemy shipping within the area Wilhelmshaven to Cherbourg.

The Bomber Command force now consisted of three squadrons of Boston aircraft, but throughout the rest of the period under review only a very small number of attacks on shipping at sea were carried out with no significant results. They were mainly employed in bombing attacks on "fringe" targets.

With the improvement in the weather and consequent resumption by the enemy of the normal convoy routine early in the spring, Coastal Command launched an all out attack on shipping in the southern North Sea, with concentrated pressure on the area around the Frisians, which reached its climax in May 1942. At the same time there was no relaxation in the attack of shipping off the Norwegian coast.

The successes achieved by these attacks did not go unchallenged, and the development of counter-measures by the enemy began to have its effect in April and May 1942, when the losses among the aircraft employed in the anti-shipping role were too high to be borne.

The very low level attack, often at mast height, in which Coastal Command aircraft had persisted since Bomber Command's withdrawal in November 1941, exposed the aircraft to severe flak from the merchant ships and their escorts.

Even though Coastal Command reverted largely to attacks carried out at night during the period April to June 1942, the casualties still mounted, and over twenty per cent of the attacking aircraft were becoming casualties. It was this factor that forced Coastal Command eventually

to discontinue low level attacks, and although this decision was not taken until July 1942, it was outstandingly clear in June that there was no alternative course.

As a result of the increasing losses and damage suffered by the enemy's merchant shipping, the proportion of escorts to merchantmen in the areas where attacks were to be expected were steadily increased, until, in some cases the escorts outnumbered the escorted, especially off the Dutch coast. In addition to the larger escort force, the enemy began to use larger and more formidable escort vessels including Sperrbrechers which, though primarily minesweepers, were on occasions used as flak ships. All were heavily armed.

On this turn of events the chapter ends with the enemy on the ascendancy.

(ii) The Channel Stop

(a) A proposed Channel Striking Force

CC/S.7010/7
Encl. 2A

The interception of enemy shipping in the Dover Straits by aircraft under ground control was energetically pursued during the early months of 1942, and by March it was considered by V.A. Dover that sufficient experience had been gained to officially inform the Admiralty and Air Ministry that the experimental stage had been passed and it was now time for the scheme to be considered on the higher plane and receive full recognition as a definite war measure and a joint commitment of both services.

To make full use of this latest development and employment of R.D.F. the proposal put forward by V.A. Dover to the Admiralty was that an aircraft shipping interception unit should be formed at Manston to be operated by the Air Officer Commanding, No.11 Group, in co-operation with the Dover Command.

The unit should consist of a squadron of Swordfish aircraft of the Fleet Air Arm, a squadron of fighter-bomber aircraft and a squadron of cannon-fighters.

The aircraft unit and the surface forces of Dover Command would carry out a combined attack or operate independently depending on the particular circumstances, the object being the same, but generally speaking surface forces and the Swordfish would only operate at night.

For daylight attacks an air striking force would require to be available at Manston whenever weather conditions were suitable. According to the target the attack would be carried out by fighter bombers or cannon fighters, whichever was applicable, with escort of fighter aircraft. The Swordfish would only be used in daylight against important targets such as capital ships or raiders or when local air superiority had been gained.

By night, in conditions of good visibility during the moon period, attacks would be made by aircraft of any type, depending on the size of the target. In the dark period and weather permitting, the target would be located with the aid of parachute or float flares, and then attacked from the air or sea or a concerted air/sea attack. In this respect it would be necessary that certain coastal craft should be fitted with V.H.F.

It was quite clear that an essential to success would be

very close understanding and co-operation between the naval staff officers and those of No.11 Group.

As the existing scheme had grown up very largely by private enterprise, V.A. Dover felt confident that valuable results would be obtained and ventured to suggest that it should now be officially recognised as a dual responsibility of the Royal Navy and the Royal Air Force.

With the further development of R.D.F. it should in time become applicable to other Commands such as Plymouth, Portsmouth and the Nore.

ibid
Encl. 2A

This proposal was considered by the Board of Admiralty and their Lordships welcomed the suggestion that all possible steps should be taken to strengthen co-operation between the Naval and R.A.F. authorities and agreed that the proposal to build up a Channel striking force under joint control was well worth pursuing.

With reference to the request for a squadron of Fleet Air Arm, however, their Lordships took the view that the provision of the requisite aircraft was a commitment of Coastal Command rather than of the Fleet Air Arm, and in consequence transmitted this proposal on 20 April 1942 to the Air Council for consideration.

In turn the Air Council forwarded the memorandum by V.A. Dover to the A.O.C.-in-C. Coastal Command on 7 May, for his comments on the proposals made therein.

ibid
Encl. 3A

On 13 May 1942, the A.O.C.-in-C. sent a reply, in which it was pointed out that the subject was one in which the Command had been very interested for some time past. However, as the memorandum of V.A. Dover inferred a state of dual control, it was already well known that Coastal Command did not approve of this state of affairs. While it was true that reliance was placed upon R.D.F. in the Straits area for detection of targets, in the Channel generally there would be need for aircraft reconnaissance which should be operated solely by Coastal Command.

To summarize, the A.O.C.-in-C. Coastal Command considered that the establishment of a Channel striking force was most desirable and that it should be a commitment of his Command rather than the Fleet Air Arm. Its formation, however, depended upon the availability of aircraft of the appropriate type. Finally, the organisation and control of the striking force should be the sole responsibility of Coastal Command. There the matter remained for the time being, but meanwhile the existing policy had been implemented as far as the weather would permit.

FC/S.22179
Encl: 44A

(b) The "Channel Stop" - Operations - January to June 1942(1)

Pursuing the policy of moving the main seaborne traffic through the Straits of Dover under cover of darkness, there was practically no movement of enemy shipping during daylight in January 1942. Shore based R.D.F. however, detected two vessels, probably trawlers, underway between Boulogne and Calais on the morning of the 12th, and a large vessel, probably a minesweeper, with four flak ships which entered Boulogne from the southward about 0155 hours on the twenty-fifth.

(1) Tabulated details of these operations are given in Appendix XVIII.

SECRET

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Two destroyers of the "Beitzen Class" made the westward passage on the night of 25th/26th, and were attacked by Hurricane bombers of No.607 Squadron which were used for the first time by night under ground control from Swingate C.H.L., unfortunately without result. Bombs undershooting the target by about fifty yards.

On the night of 27th/28th, five sorties were carried out under the same conditions. One Hurricane-bomber sighted one small merchant vessel and four escort craft in position six miles N.E. of Dunkirk, but bombs undershot.

A further five sorties were made on the night 31 January/1 February and three aircraft sighted a target of three mine-sweepers, but again bombs undershot.

Aircraft of No.91 Squadron attacked a variety of small craft during the month, one of which resulted in the sinking of a French tug of 260 tons, off Nieuport on the twenty-second. (1)

On 29 January 1942, owing to the shortage of crews specially trained in ground control and to the operational necessity for employing all available Beaufort aircraft in their normal torpedo-bomber role, it was found necessary to withdraw the special detachment of No.217 Squadron, Coastal Command, for return to its parent unit.

To fill the gap a detachment of Swordfish aircraft of the Fleet Air Arm arrived at Manston during the first week of February and were operated by V.A. Dover.

ibid.
Encl. 46A

The main event of the month of February was the passage of the enemy battlecruisers Scharnhorst and Gneisenau accompanied by the Prinz Eugen with escorting destroyers, torpedo boats and E-boats, all of which made the eastward passage of the Dover Straits on 12 February 1942. The attacks made on these vessels have been the subject of a special chapter in this volume.

Apart from these movements two destroyers or torpedo boats made the westward passage on the night 1st/2nd without being attacked due to unfavourable weather conditions for aircraft or naval forces. Two or three destroyers accompanied by E-boats made the westward passage on the night of 8th/9th in low visibility and of the naval forces despatched to intercept only one sighted the enemy and her attack was unsuccessful.

In spite of the restricted flying due to bad weather, Fighter aircraft of No.91 Squadron carried out seven attacks during the month, one of which resulted in the sinking of an armed trawler near Dunkirk on 12 February. (2)

Swordfish aircraft of the Fleet Air Arm under ground control carried out successful reconnaissances on three nights, while Hurricanes of Fighter Command dropped flares on the night 11th/12th to assist naval forces in the location of E-boats.

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- (1) This was the French tug Luvois of 260 gross tons, the loss of which is verified by Lloyds shipping records.
 - (2) Lloyds shipping records confirm that the German trawler John Mahn of 292 gross tons was sunk by aircraft attack near Dunkirk on 12 February.

ibid
Encl. 48A

Five sizeable vessels attempted or made the passage of the Strait during March one of which was sunk by naval forces⁽¹⁾ despite a powerful escorting screen. On another occasion an eastbound armed merchant raider with five destroyers was involved and though the main target escaped, two escorting E/R-boats were claimed as sunk by the attacking naval forces.

Low visibility which prevailed generally at night severely limited air action and hindered offensive reconnaissance flights under ground control by Swingate C.H.L. By day, however, fighter aircraft of No. 91 Squadron carried out four attacks, one of which resulted in setting fire to a mine-sweeper which was subsequently beached.

ibid
Encl. 50A

Only one large vessel was detected making the passage of the Dover Straits during April. This vessel passed westward and entered Boulogne in the early hours of 23 April where it was established by P.R.U. to be an armed merchant vessel 430 feet long. Naval forces sent to attack off Gris Nez were unable to penetrate the powerful escort, and the following night when the vessel continued the westward passage, they had to withdraw from a waiting position owing to a rising north-easterly wind and sea. Owing to weather no air action was possible against this target.

Movements of enemy small craft were as usual restricted mainly to the dark hours, but reports show that fighter aircraft of No. 91 Squadron managed to detect targets on six occasions by day during the month, and though damage was claimed, there was no verification.

During May nine vessels over 1,000 gross tons made the passage of the Dover Straits which was the largest number that had passed through in any month since September 1941. One of these was a westbound raider on the night 12th/13th, which was provided with an even stronger escort than usual, consisting of four torpedo-boats, eight 'M' class minesweepers and ten E/R-boats. The prevailing bad weather, of which good use was made, lessened the risk of detection or attack from the air and did in fact enable the enemy to take with impunity the unusual course of making the distant approach to the Strait in daylight. Available naval coastal forces were sent to intercept and despite heavy rain and a moderate heavy sea the target was sighted but the escort prevented an attack developing. Claims for the destruction of one and probably two torpedo-boats were made during an attack which was delivered as the enemy force turned in to Boulogne. An aircraft of P.R.U. later confirmed the presence of the enemy force in harbour.

The other passages were made by a sizeable tanker from Boulogne to Dunkirk and otherwise mostly by Sperrbrechers.

From an air point of view this was not a successful month. Apart from the movements of the larger vessels, most of the activity took place during the hours of darkness and consequently "Jim Crows" did not have much success. Although there was a full moon at the beginning and at the end of the month no attacks were carried out by Fighter Command aircraft in the area.

(1) This is confirmed by Lloyds shipping records which shows the French ship Jeanet Jacques of 3,493 gross tons as being sunk by M.T.B's off Cap Blanc Nez on 3/3/42.

ibid
Encl. 52A

Movements of large vessels showed a reduction in June from those of the previous month, and only two vessels of importance, one a tanker and the other a 390 feet Sperrbrecher type, made the passage of the Strait both eastbound from Boulogne to Dunkirk and as usual during the hours of darkness.

It was more evident that the enemy had introduced Dunkirk as a regular port of call owing to the shorter nights and to avoid risk of daylight air attacks. This must have resulted in some inconvenience to shipping as it necessitated following narrower and shallower channels than those further seaward off Dunkirk which had been used previously by vessels proceeding between Flushing and Boulogne.

Both vessels were attacked by M.T.Bs and M.G.Bs acting on information from the R.D.F. plot. One hit was claimed on the tanker. The Sperrbrecher was given a very powerful escort of some sixteen R-boats and nine trawlers and despite a successful diversion overhead by aircraft of No.11 Group, the naval forces were unable to get in a torpedo attack. One M.T.B. was lost after her crew, having suffered severe casualties, had managed to bring their heavily damaged craft more than half way back across the Channel. Here it was located by an R.A.F. High Speed Launch which took off the crew just before the boat sank.

Aircraft had but few daylight opportunities during the month but fighters managed to make about fifteen attacks on enemy small craft with varying claims for damage.⁽¹⁾ By night during the moonlight period Hurricane bombers of No.174 Squadron made two attacks. One of these was on the night 28/29th against a 330 feet Sperrbrecher type with an escort of one minesweeper, six R-boats and seven trawlers and was awarded an assessment of seriously damaged.⁽²⁾

Owing to enemy jamming of the C.H.L. stations the aircraft could not be under ground control.

(c) Summary

Throughout the period under review, i.e. January to June 1942, enemy shipping movements during daylight in the Dover Straits area were to all intents and purposes non-existent, but under cover of darkness, especially towards the end of the period, the enemy had moved successfully some seventeen vessels, each of over 1,000 gross tons, through the area by the use of powerful escorting screens and good weather forecasting, with but little interference.

From an air operational point of view, the period cannot be regarded as a successful one, for the unfavourable weather - so helpful to enemy movements - had severely restricted flying activities to a minimum. The only successes in terms of ships sunk were confined to two small vessels totalling 552 gross tons.

The naval forces fared a little better in this respect by sinking one merchant vessel of 3,493 gross tons, but throughout the period they were obstructed in their efforts to reach the target ships by the powerful escorting screens provided by the enemy.

Some unusual operating conditions were experienced by the R.D.F. stations in the area, especially towards the end

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- (1) None of which can be verified from the post war evidence.
(2) There is no confirmation of this assessment.

of the period, and on one occasion a most unfortunate R.D.F. estimate of four trawler sized vessels turned out to be, on later information, an outward bound enemy raider. Naval forces waiting in Portsmouth Command thereby missed a chance to attack.

Jamming by the enemy was suspected on several occasions.

(iii) Torpedo attacks - policy

Of the weapons in use against ships at sea, the torpedo had always been considered as the most effective, but, owing to the shortage of torpedoes and the lack of a suitable aircraft, the development of this form of attack had been severely handicapped.

The policy regarding the use of torpedoes had been, up to the autumn of 1941, to conserve torpedoes for worthwhile targets on account both of the short supplies of the weapon and torpedo trained crews. Thus the use of the torpedo as far as merchant shipping was concerned had been restricted to attacks against ships of about 6,000 gross tons. In consequence the number of weapons released against merchant shipping during the three months ending 30 September 1941 for the whole of Coastal Command was 35.

CC/S. 7001/6/2
Encl. 118A

In October 1941, the A.O.C.-in-C., Coastal Command, expressed the wish for a steady amount of torpedo-dropping to be carried out so that the torpedo-bomber squadrons should be in good practice when an important target, such as an enemy raider, presented itself, as after all the main function of the torpedo-bomber squadrons was against major naval units.

To implement this policy, it was ruled that from now on, torpedoes could be used against vessels of 350 feet in length or 4,000 gross tons, but to ensure the minimum of wastage, the least depth of water in which they were to be released should be ten fathoms by day and thirteen fathoms by night. This confined torpedo operations almost entirely to the Norwegian coast since, although the Dutch coast offered numerically, more opportunity in ships, most of these were to be found within the ten fathom line, where the dropping of torpedoes was now forbidden.

Throughout the Coastal Command at this time there was a general desire for a conference to discuss the future employment of torpedoes, and in order to meet this request, a conference was arranged to take place at Gosport on 14 November 1941 under the chairmanship of the Deputy S.A.S.O. of H.Q.C.C.

After a brief introduction by the chairman, the meeting turned to the items on the Agenda, the first of which concerned the fitting of A.S.V. in Beauforts. It was stated that the fitting in all Beauforts was proceeding and that trials so far had suggested a very promising performance. The use of A.S.V. in connection with torpedo attacks would be very dependent on the radio altimeter.⁽¹⁾ The purpose

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- (1) Although it was hoped that all torpedo carrying aircraft would be fitted with radio altimeters within a few months, it was ascertained a month later that only a few service trial altimeters would be available in the next six to nine months. See also Chapter III (xiv).

of the radio altimeter was explained to the conference and after discussion it was agreed that the best use of this instrument for torpedo bomber squadrons was in connection with attacks at night or in bad visibility. In good visibility it was considered that the pilot naturally judged his height by eye up to the moment of dropping.

The tactical use of A.S.V. was then discussed and while the value of A.S.V. for locating shipping targets at night or in bad visibility was recognised the Squadron Commanders present were emphatically against giving up the very low approach with the safety it provided against flak, radar and enemy fighters.

It was generally felt that a blind torpedo attack with A.S.V. was not yet practicable though it was recommended that some research should be pursued by C.C.D.U. to see with what accuracy approach could be made on A.S.V. If by using A.S.V. the aircraft had to come in at 1500 feet, using cloud cover or poor visibility, height would have to be lost very quickly, and this was impracticable with the Beaufort without diving brakes. The chairman pointed out that a request for diving brakes had been put up to Air Ministry as an urgent operational requirement. While it was agreed that such provision would overcome the objections to a higher approach, it was finally decided to ask for the installation of an A.S.V. set with improved range at 100 feet. (1)

The meeting then proceeded to consider the existing equipment available for training and during the course of the discussion various improvements were suggested. It was announced that the production of cement dummy torpedoes was well under way and the provision of these dummies would commence in the near future, which would facilitate training.

The entry of Japan into the war on 7 December 1941, and the lamentable success of the Japanese Air Force attack against H.M.S. Prince of Wales and Repulse focussed attention on the whole question of torpedo tactics and training, and was the subject of a further meeting held at H.Q.C.C. on 28 December 1941. (2)

The past employment of the torpedo bomber squadrons in their secondary role, i.e., attacks against merchant shipping by torpedo, bombing and minelaying at the expense of their primary function - the attack of enemy major naval units - came in for a good deal of comment. However, after discussion it was appreciated why the torpedo-bombers had been misemployed.

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- (1) The question of accelerating the development of blind torpedo and bombing attacks was the subject of discussion at a meeting of the Air/Sea Interception Committee on 20 November 1941. It was finally agreed to set up a small executive sub-committee to recommend and follow up the development of equipment and operational trials for this purpose. This sub-committee was known as the Blind Torpedo and Bombing Attack Sub-Committee and by 15 January 1942 had submitted its first report.
 - (2) Under the chairmanship of the Senior Air Staff Officer of H.Q.C.C., this meeting was attended by the Senior Naval Staff Officer of the Command, the Senior Air Staff Officer of No. 16 Group, the Commanders of the torpedo bomber squadrons and other section commanders of Headquarters.

H.Q.C.C.
S.7001/6/2
Part II

The unsuitability of other aircraft in the Command for the carriage of mines, for instance, made the use of the Beaufort in this role unavoidable. Again the lack of torpedoes accentuated the use of bombs of which the Beaufort could carry the very useful load of 1800 to 2000 lbs - in 500 lb units - a greater load than any other aircraft employed by Coastal Command, in Anti-shipping operations, and as the lethality of the 250 lb type was still questionable, the use of the 500 lb type was encouraged.

The existing system of training and the lack of facilities also came in for criticism, likewise the disposition of the torpedo bomber squadrons which did not allow the squadrons to work or practice together as a team.

In regard to the latter this was determined largely by the enemy's tactics of scattering his naval forces so as to be able to threaten two widely separated Allied convoy routes and thereby force a most undesirable dispersion upon a very small torpedo-bomber force.

The Admiralty representative promised support for increased training facilities by way of a suitable target ship which was considered essential, as no amount of synthetic training could teach pilots to estimate the correct dropping position.

After further discussion it was finally agreed that the employment of torpedo bombers as a striking force against enemy major naval units was essentially their primary task and to achieve this the following recommendations were made:-

- (i) That at least three torpedo bomber squadrons should be specially earmarked for this form of attack, and that one squadron at a time should be withdrawn from the line in order that they might concentrate upon uninterrupted training and take full advantage of target ships when available. Sub-flights of the remaining squadrons should be kept in practice by the attack of merchant shipping.
- (ii) That two torpedo bomber squadrons should be based on the same station so that they had opportunities to work together as a striking force.
- (iii) That certain squadrons of Bomber Command should be earmarked for a diversionary role, and that opportunity should be given to Bomber and Torpedo squadrons to practice together. (1)

(a) The provision of torpedo bombers

Two essential requirements before the above recommendations could be brought into effect were the provision of more torpedoes and more squadrons of torpedo-bomber aircraft, both of which failed to materialise in sufficient numbers during the remainder of the period under review.

To appreciate the aircraft situation at this time, i.e. end of December 1941, it is necessary to go back to the early summer of that year.

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- (1) Tactical trials of Wing Torpedo attacks by Beaufort aircraft had been carried out at St. Eval during the period 14-21 December, 1941 and during the trials it was considered that enemy fighter opposition could be ignored provided a high level bombing diversion was laid on at the same time.

The squadrons which then formed the torpedo bomber force were Nos. 22, 42, 86 and 217 Squadrons, all of which were equipped or in the process of being equipped with Beauforts.⁽¹⁾

Beginning in August 1941, Coastal Command was called upon to provide reinforcements for the Middle East in the way of aircraft and trained crews. These calls produced a steady drain on both at an important stage in the formation and development of the anti-shipping strike force⁽²⁾. Under Target E (expansion scheme) the Command's striking force was to consist of six Beaufort squadrons, but with repeated calls to be answered from the Middle East the prospect for the fulfilment of the target figure or the training of the existing squadrons was rapidly decreasing. In fact by the end of 1941, the aircraft situation had worsened a good deal for only Nos. 42 and 86 Squadrons were up to strength, No. 217 was effectively a flight and the whole of No. 22 Squadron had been posted overseas.

Towards the end of 1941, the A.O.C.-in-C. Coastal Command foresaw this situation developing and in view of the Beaufort's unsatisfactory range and the increasing deployment of these aircraft to the Middle East it was suggested to the Air Ministry that two of the existing Beaufort squadrons and two of the Target E Beaufort squadrons should be replaced by the Hampden squadrons. Alternatively, Hudson squadrons should be replaced by Hampdens. This request for the substitution was made on the grounds that such a reliable long range aircraft as the Hampden, which could carry a good weight of bombs and probably two torpedoes, would be a great asset to Coastal Command.

On 18 December 1941, the Air Ministry replied to the effect that the Hampden aircraft was still extremely useful to Bomber Command and that all available aircraft of this type would be required by them.

However, after the despatch of No. 22 Squadron to the Middle East in January 1942, it was found possible, after all, to allocate twenty-four Hampdens to Coastal Command in compensation for the loss of many Beauforts. This enabled a new squadron - No. 415 - to be formed.

Further Hampdens were forthcoming during February, which allowed a second squadron - No. 489 - to be equipped in March.

The question of further departures among torpedo-bomber squadrons was again discussed by the Chiefs of Naval and Air Staffs during March and on 12 April 1942 it was ultimately agreed that No. 217 Squadron should be sent overseas immediately followed by No. 42 Squadron.

In compensation two Hampden squadrons were to be

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- (1) This aircraft was the subject of much criticism for torpedo-bomber duties owing to its lack of range and defensive armament.
 - (2) In spite of the difficulties imposed by the demands of overseas Commands, the Beaufort squadrons continued to carry out a considerable number of attacks on enemy convoys, as well as being responsible for all the mine-laying operations of the Command.

CC/S.7033/2
Encl. 37A

CC/S.7010/3/4
Encl. 39A and
40B.

C.O.S.(41)
428th Meeting

AM.S/6457
Encl: 69A

transferred from Bomber Command with orders to re-equip and train as Hampden Torpedo bomber squadrons⁽¹⁾.

ibid
Encl: 67A

The position regarding the expansion programme of Coastal Command was examined again in May 1942, by the Admiralty and H.Q.C.C., when it was revealed that in torpedo bomber squadrons there was a deficiency of three squadrons, and there was only one torpedo bomber squadron fully operational, i.e. No. 86 Squadron, which had recently received orders to proceed overseas.

(b) The Beaufighter suggested as a torpedo-bomber

ibid
Encl: 76A

The value of the Hampden as a torpedo-bomber fell rather short of earlier expectations. In one respect only did the Hampden have any advantage over the Beaufort; its long range did allow of small striking forces to go out on 'Rovers' and search for targets off the enemy coast, whereas the Beaufort could only go direct to targets already located and had no endurance with which to search.

The disadvantages of the Hampden were its slowness and lack of manoeuvrability, which precluded formation torpedo attacks, and its vulnerability to enemy fighters.

H.Q.C.C.
O.R.B.
May 1942
Appendices

The search for a successor to the Beaufort produced the suggestion by the A.O.C.-in-C., Coastal Command on 18 May 1942, that the Beaufighter might be tried out for torpedo-bomber work in view of its speed, manoeuvrability and fire power. Trials by T.D.U. during April/May very soon confirmed this proposal as feasible and accordingly on 1 June 1942, the provision of Beaufighter torpedo-bomber aircraft was made an Air Ministry requirement. However, as the first aircraft of this type equipped for the carriage of a torpedo did not become operational until November 1942, the Command's striking force at the end of this period under review i.e. June 1942, was limited to the four Hampden torpedo-bomber squadrons, only one of which (No. 415 Squadron) was fully operational.⁽²⁾

(c) The supply of torpedoes

A.H.B./IIK/67/23
Encl: 8A

Of almost equal merit as a story of frustration was the supply of torpedoes. Torpedo production was entirely an Admiralty responsibility. Everything possible had been done to improve the acute shortage since the commencement of hostilities, but without success. In order to discover how best the meagre supplies could be divided between the Royal Navy and the Royal Air Force, a meeting was held at the Admiralty on 10 December 1941, to discuss Admiralty and Air Ministry requirements. A.C.N.S.(W) was in the chair, and opened the meeting by stating that there was a very serious shortage of torpedoes.

The existing policy as regards the different types of torpedoes viz: surface, submarine and aircraft was approximately as follows:-

- (1) No. 144 Squadron was transferred to Coastal Command on 21 April 1942 and moved to Leuchars. During May and June extensive training was carried out in converting from bombing to torpedo dropping. No. 455 Squadron completed its move to Leuchars by 29 April 1942, and commenced flying training and conversion to torpedo dropping.
- (2) Nos. 144 and 455 became operational in July 1942, and No. 489 in the following month.

- (a) Half production was devoted to aircraft torpedoes.
- (b) Only a few surface torpedoes were being produced each month - stocks were being allowed to drop.
- (c) Just enough submarine torpedoes were being made to keep pace with expenditure.

At this time i.e. December, 1941 about two hundred torpedoes of all types were being produced a month against immediate requirements of 300. This meant that about one hundred were aircraft torpedoes. Of this total the F.A.A. of the Royal Navy was allotted 75% and the R.A.F. the remaining 25%. At the meeting the Admiralty asked for this allotment to continue for a further nine months, to which the Air Ministry had no objection, provided, consideration was given to the fact that such a small allotment of torpedoes to the R.A.F. at home might well jeopardise aircraft attacks on major targets of the German navy and would almost certainly rule out attacks against merchant vessels for some considerable time to come. Production was expected to rise to 205 in September 1942, and an order had been placed in America for 2,500, but delivery was not expected to commence until 1943⁽¹⁾. Any additional order placed at home would not result in production for eighteen months and would have to be at the expense of shipbuilding, aeroplanes or tanks.⁽²⁾

In the R.A.F. at this time there were three Torpedo Bomber squadrons at home⁽³⁾, and during the past six months

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- (1) The contract for 2500 British 18" Mark XII torpedoes with the Pontiac and International Harvester Company was eventually cancelled as the U.S. Government decided that the full capacity of this firm was necessary to meet the increased and urgent requirements for America's own 22.4" Mark XIII aircraft torpedoes since the United States entered the war.

The number of available companies capable of torpedo manufacture was strictly limited and the machine tool situation was extremely critical. Under these circumstances any attempt at quantity production of both types would seriously delay the manufacture of either.

The only course appeared to be mass production of the U.S. torpedo for U.S. planes and such British planes as could use the Mark XIII and to confine the production of the British aircraft torpedo in the United States to the Excell Company. The contract with this manufacturer called for delivery of the first British type torpedoes in August, 1942 reaching 45 per month in December. Every effort was being made by the U.S. Bureau of Ordnance to speed them up but the prospect of making good on these dates was not promising.

United States type planes being supplied to the Royal Air Force and Fleet Air Arm which would carry the United States torpedo:-

A-20-B and A-20-C	(Boston)
B.25 and B.26	(Marauder)
PBM-4 and PBM-5	(Mariner)
PB2Y-3	(Coronado)
SB2C	(Hell Diver)
TBF	(Avenger)

- (2) A.C.N.S.(W) stated that to increase total production of all types of torpedoes to 700 or 800 a month would entail an increase of 25,000 men. Lack of production was due to tools and labour.
- (3) Nos. 42, 86 and 217; the fourth squadron No. 22 was under orders for overseas.

ibid
Encl: 50A

an average of only twenty torpedoes for all purposes had been received each month. In consequence torpedo attacks on enemy merchant shipping by Coastal Command aircraft had been severely restricted to nine attacks.

The deliveries of torpedoes to the R.A.F. during the first six months of 1942 were expected to average thirty per month, but as the calculated total requirement for the next twelve months was in excess of 2,000 the Air Ministry representative had no hesitation in stating that it was intended to keep the existing restrictions in force for attacks against merchant ships.

ibid
Encl: 17A

At the next meeting held at the Admiralty on 23 February 1942, the allocation of the March production of aircraft torpedoes was made and out of a total 110 available, the R.A.F. received thirty-three, ten of which were assigned to training and the remainder for operational use at stations.

The search for ways and means to make the most economical use of the very limited supplies of torpedoes available continued unabated, and the question of pooling the Royal Navy and R.A.F. resources was contemplated at this meeting. It was recommended that the A.O.C.-in-C., Coastal Command and the Rear Admiral, Naval Air Stations should be directed to investigate what economy was practicable under this heading.

ibid
Encl: 39A

At the March allocation meeting it was stated that one hundred and two torpedoes would be available from production for April. This figure was far below the expected total and was due to production falling below planned output. The Committee decided, however, that it was essential to keep the "pipe line" to the Middle and Far East plentifully supplied, with the result that only twenty weapons remained for allocation to home units. Of this total, ten were made available to the R.A.F. training centre at Abbotsinch and the remainder to the Royal Naval training establishment at Machrinhanish⁽¹⁾.

ibid
Encl: 60A

Once again overseas requirements received priority in the allocation from the May production and for the second month in succession no allotment was made to the R.A.F. for operational use.

ibid
Encl: 71A

However, from the June distribution of 160 torpedoes, ten were assigned to the R.A.F. for operational use at home, but as in the previous two months the majority went to overseas requirements and quite a large number to training.

During the four months March to June 1942 in which allocations of torpedoes had been made, the R.A.F. received only 88 torpedoes for all purposes at home out of an expected total of 120, and as only 33 were allocated for operational use it is not surprising to find, therefore, that only

(1) With a view to making the best use of available torpedoes, torpedo facilities and improving the standard of training of R.A.F. torpedo-bomber squadrons generally, several meetings had recently taken place between representatives of the Admiralty and Coastal Command, and as a result R.N.A.S. had offered to accommodate permanently one R.A.F. torpedo-bomber squadron at Machrinhanish and place at its disposal the torpedo workshops, maintenance facilities, target ships, already in existence for Naval squadron training. It was also agreed for fifty torpedoes from production to be diverted to training establishments. Reference - CC/S.7033/2 encl. 64A.

thirteen were released against enemy merchant shipping throughout the same period.

(iv) Coastal Command Operations - January/February 1942

Chapter VI

Coastal Command's offensive on enemy merchant shipping during the first two months of 1942 was considerably curtailed, and in consequence a substantial set-back in the measure of success was experienced. As already mentioned in the introduction, there were several reasons for this curtailment of activities. Firstly the increased anti-raider commitments, the covering of the potential break-out of the three enemy major naval units at Brest, and their successful escape up Channel; secondly, the presence of the enemy battleship Tirpitz at Trondheim and the passage of the pocket-battleship Admiral ~~XXXX~~ Scheer and the cruiser Prinz Eugen from German ports to Norway. Both these reasons combined to make a continuous pre-occupation for the Command's very limited anti-shipping force during January and February. Finally, the weather conditions were such that during this period the amount of merchant shipping that was available for us to attack had grown progressively smaller.

CC/S.7743
Encl: 100A

As regards the final of the above reasons, it will be remembered that the bulk of enemy shipping most easily accessible to Coastal Command's operational area in normal conditions was that which passed up and down the German-Dutch coast, and of that traffic, a very large proportion used Rotterdam.

The largest and most important cargo carried to this port was iron ore, of which the major part originated from Swedish Baltic ports. It was easy to see, therefore, that if the Swedish ore traffic was stopped, there would be a considerable reduction in the amount of shipping along the Dutch coast. During the severe winter of 1941/42 such a stoppage did in fact occur. Starting with Lulea, in the north of the Gulf of Bothnia, which became frozen-up towards the end of December 1941, the Swedish ports from which the iron ore was shipped, quickly became icebound, so that by the end of January 1942, the Great Belt, Sound and the Kiel Canal became impassable for shipping.

The result of such a hold-up on the traffic to and from Rotterdam may be appreciated from the following statistics supplied by the Ministry of Economic Warfare. The peak month in the iron ore trade was usually September, when from Baltic ports some 380,000 tons of ore was despatched to Rotterdam in about seventy-five vessels. By December 1941, this had declined to 120,000 tons in some twenty-four vessels, but during January, February and even March 1942, this total had fallen to 40,000 tons per month, carried in five to ten vessels. Compared with the September peak, this was a reduction of seventy shiploads, and expressed in ships passing a given point on the Dutch coast southbound and northbound, was 140 per month, or nearly five per day.

It must also be borne in mind that ore was not the only cargo that arrived at Rotterdam from the Baltic, there being timber from Swedish and Finnish ports in the Gulf of Bothnia and other seasonal cargoes which were also held up by ice conditions, so that the total decline in traffic passing up and down the Dutch coast was much greater than that indicated above.

As regards the Norwegian coast, ice did not interfere with shipping to anything like the same extent, but the traffic in this area, nevertheless, showed a substantial contraction during the winter months.

With substantial amounts of shipping laid up in inaccessible ports, it is not surprising to find that the number of attacks submitted for assessment in January and February 1942 showed a marked decline from the preceding two months.

E.S.L.A.C.

Throughout the whole of Coastal Command's operational area only sixty-two attacks on enemy merchant shipping were made which resulted in awards of four ships of 7,200 gross tons assessed as sunk and twenty ships of 42,200 damaged to various degrees.⁽¹⁾

CC/S.15205
Encl.41A

Coincidental with the utilisation of smaller sized ships by the enemy for current traffic in North West Europe, information had recently come to hand regarding the enemy's requirements for shipping in the Mediterranean area which laid emphasis on the value of small ships between five and eight hundred tons. In view of the fact that this type of ship was being moved down to that area in numbers from the Atlantic seaboard, the A.O.C.-in-C., Coastal Command considered that the attack and destruction of such types to be of great importance and informed the Group Commanders concerned accordingly. He wished pilots to be briefed that they were not to refrain from attacking a ship merely because it was small or to leave it in the hope that a larger target would be found in the course of the patrol.

In such circumstances it is not, therefore, surprising to find that apart from the decrease in the enemy traffic the next most significant change was the reduction in the size of the ships assessed as sunk. In December and November 1941 the average size of tonnage assessed as sunk was 3,500 tons whereas in January and February 1942, it had fallen to 1,800 tons.

The decrease in the number of targets available for attack was common to all three Groups in the Command, but, whereas No.16 and No.18 Groups had no assessment for ships sunk, No.19 Group had the distinction of obtaining the whole of the Command's share in the sunk category.

Of considerable concern to No.16 Group during this particular period was the enemy's activity in mine-laying and torpedo attacks by E-boats against our coastal convoys off East Anglia.⁽²⁾ This matter was raised by A.C.N.S.(W) at the 29th meeting of the Admiralty Trade Protection Committee, but little progress towards solving the problem was reported.

(v) Location of E-boats by Aircraft fitted with long range A.S.V.

CC/S.15206
Encl. 12A

Various methods had been tried to deal with this menace, such as flare dropping by patrolling aircraft, sea to sea interception, but they had not proved successful.

The convoy route along the coast was necessarily so far distant from the shore that adequate warning of the approach

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- (1) Records from Lloyd's and German sources show five ships of 2,845 gross tons as sunk by air attack in January and February 1942, and two ships of 11,131 tons as damaged by the same cause. See Appendix XVI.
 - (2) Between June and December 1941, fifty-nine torpedo attacks were made by E-boats in British coastal waters resulting in the loss of fourteen ships totalling 31,215 tons. Of these totals, forty-two attacks took place off the East coast and accounted for twelve ships totalling 27,696 tons. Aircraft of Coastal Command employed on Anti-E-boat operations made sixty sorties with only one attack but in addition, thirty-one aircraft of Fighter Command during the course of other duties had fortuitously sighted E-boats and attacked, but all without fatal results.

(Ref:- Admiralty NID/FDS.X.237/48 and BR.1337. Also Command ORBs.)

of the enemy's small craft could not normally be given by radar to enable naval forces to intercept.

A factor to be considered in the employment of aircraft in this connection was that a favourable foggy night for E-boat activities was often one on which a normal aircraft could not fly and any form of low level attack was almost certainly out of the question.

It was therefore desirable to consider what other methods of interception might be effective.

In the Dover area, the information of early approach of enemy light forces obtained by the Type 271 10 cm. radar station had enabled naval forces to intercept before any damage was done, and had eventually resulted in a complete cessation of enemy E-boat mine laying or torpedo attacks along our convoy route within this area.

It was, therefore, suggested by the Air Staff Officer to F.O.C. Dover, that a similar scheme might be tried out in this area but with a Whitley aircraft, fitted with long range A.S.V.,⁽¹⁾ fulfilling the role of the radar station. If these aircraft could be controlled by V.H.F. from a C.H.L. Station the information which they provided could readily be converted by the controller into plots, which could be passed to the Naval authorities who would then be in a position to carry out a controlled interception using their own light-Naval forces for this purpose.

The first part of the scheme appeared to be practicable and experiments to determine the use of Whitley aircraft fitted with long range A.S.V. in this role were carried out in co-operation with Motor Gun Boats based on Yarmouth between 8 and 14 February 1942, and showed great promise.

But the system of control, however, was a very different matter as conditions on the East Coast were not comparable to those obtaining in the Dover Straits area.

On the East Coast far greater ranges were involved and the area to be covered by patrols was very extended. Apart from distances, the heights at which the aircraft would have to fly in order effectively to use A.S.V. precluded any system of reliable control by C.H.L. In addition to which it was not possible to vector M.G.B's on to E-boats as they could not be controlled from the C.H.L. Stations.

ibid
Encl. 27A

For the purpose of examining this scheme and any other measures which might be practicable against the E-boat threat to our East coast convoys at this time, the A.O.C.-in-C., Coastal Command held a conference at his headquarters on 19 February 1942, which was attended by representatives of the Admiralty, Air Ministry, H.Q.C.C., the Nore Command, H.Q. No.10 Group, T.R.E. and No.502 Squadron.

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- (1) The long range A.S.V. was expected to give the following results:-
- (i) On low coast lines, land returns up to 40 miles maximum.
 - (ii) On E-boats, especially in force (i.e. three or more) contacts at 20 miles.
 - (iii) On buoys, little or no recognisable contacts.
 - (iv) On A.S.V. beacons, for fixes up to 100 miles.

After much discussion and on the A.L.O. Dover's suggestion it was decided that the scheme was not practicable for technical reasons in its entirety, but the use of the Whitley fitted with long range A.S.V. in a reconnaissance role was feasible.

From a practical point of view it was agreed that what was wanted was an accurate report as to enemy E-boats approaching the convoy lanes, with a maximum possible warning. It was felt that the best method of control under existing circumstances, was directly between aircraft, No.16 Group, H.Q., and the Nore Command. There was no means of fixing the position of the attacking craft engaged, but if the reconnaissance aircraft knew its own position it was obviously quicker to pass that information direct rather than have an outside body trying to position the aircraft. To assist the aircraft in determining its position a system of A.S.V. beacons was suggested, and was immediately adopted. H.Q.C.C. was requested to put this up to Air Ministry as an operational requirement forthwith.

After the aircraft had fixed the E-boat, a sighting report was to be sent to No.16 Group from whence it would be passed on to the Nore Command, who would then direct the M.G.B's positioned in groups about 25-30 miles off shore, to the area. It was estimated that they would receive orders to move off within five minutes of the aircraft reporting the presence of E-boats in the vicinity.

The means of illuminating the target and guiding the M.G.B's to the position was discussed next, and it was agreed that as the 'Instantaneous flares' were the only ones then available for operations, these should be put into use pending a further decision as soon as the technical faults in the other types of flares had been overcome. As the range of the motor gunboat's radar on aircraft was limited to ten miles and this did not give sufficient warning, a line of flares as an indication of the enemy's presence seemed to be the best solution. It was suggested that when the cloud base was very low and flares were not visible, the M.G.B's would have to use their radar to locate the aircraft.

It was finally agreed that for the present the scheme to counter the E-boat menace should be as simple as possible and that refinements could be introduced as and when they appeared necessary. A workable scheme, if beacons could be provided, was to be devised by F.O.C. Dover and the A.O.C. No.16 Group. The details of the scheme, known as Operation "Hoden" were issued on 1 March 1942, and followed very closely on the lines suggested by the conference. Provision was made for offensive action by surface craft and aircraft; the latter, whenever possible, were to be Beaufighters. The reconnaissance aircraft were to patrol in an area between 52 degrees North and 53.10 North, details of which would be given in the executive order. The vulnerability of Whitley aircraft to attack by enemy night fighters had been of some concern to the A.O.C.-in-C., Coastal Command from the start, but he felt this was a risk which would have to be taken.

However, when the time arrived to set the scheme in motion Hudson aircraft fitted with long range A.S.V. were made available and on 10 March 1942, the first sortie was flown by a Hudson of No.59 Squadron, but nothing was sighted. Thereafter, fourteen sorties were made on Operation "Hoden", but no E-boats were contacted.⁽¹⁾

ibid
Encl.32A

H.Q. No. 16
Group O.R.B.
March, April,
May and June

(1) Between 10 March and 2 June 1942, nineteen attacks were made by E-boats off the East coast, but only two ships totalling 2,041 tons were sunk. (Ref: Admiralty NID/FDS. X.237/48, and BR.1337.)

SECRET

262

CC/S.15213
Encl.117A

The lack of Hudson aircraft at this time would not permit of a greater effort being made and consequently the scheme was not given a fair trial. However, the lack of results was not entirely due to the smallness of the force employed but, according to the Admiralty, to the fact that the enemy had recently transferred his E-boat activities from the East coast to the Channel area.⁽¹⁾

(vi) A re-disposition of the torpedo bomber force

H.Q.C.C.
O.R.B.
Feb. 1942

The removal of the threat of a break-out into the Atlantic from Brest in February necessitated a redistribution of Coastal Command's strike force of torpedo-bombers to meet future requirements.

The concentration of three enemy major naval units in the Trondheim area with the prospect of others joining them later, made the deployment of the torpedo-bomber squadrons to the north a certainty.

In addition to the detection of attempted break-outs into the Atlantic or interceptions of the Iceland-Russian convoys there was the commitment of attacking enemy merchant shipping on passage up and down the whole coastline from Norway to France. To meet all eventualities the following dispositions of the available torpedo-bomber squadrons were arranged:-

- No.217 Squadron to move from Thorney Island to Leuchars.
- No. 86 Squadron to move from St. Eval to Wick.
- No. 42 Squadron to remain at Leuchars.

(vii) An acute shortage of Hudson aircraft

CC/S.15205
Encl.53A

Although the number of targets available for attack was not expected to increase to any extent during March 1942, owing to the ice conditions in the Baltic, an acute shortage of Hudson aircraft throughout Coastal Command threatened to curtail activity taking place at this time.

By the end of February 1942, the strength of Hudson aircraft in the Command stood at 188 against the establishment of 250 operational aircraft, which showed a deficiency of sixty-two. The position was not improved by the fact that during the months of January and February only ten aircraft from production were received in the Command compared with twenty-two in December 1941.

So serious was the deficiency that the A.O.C.-in-C., found it necessary to inform the Air Ministry on 24 February 1942 that, until an assurance could be given that the position would improve, it would be necessary to discontinue the Command's anti-shipping strike activities in order to meet other reconnaissance commitments. Orders to this effect were conveyed to the Group Commanders by signal on 1 March 1942.

ibid
Encl.24A
ibid
Encl.53A

On 24 March 1942, the Air Ministry replied to the A.O.C.-in-C's letter to the effect that twenty-six Hudson Mark Vs would be provided by the end of April. In anticipation of this reinforcement and in view of the urgent necessity for interrupting the enemy's sea-borne trade, the A.O.C.-in-C., rescinded the restriction placed on the Commands' anti-shipping strike activities on 7 April 1942. When conveying this decision to the Air Ministry the A.O.C.-in-C., stressed the fact that if serious interruption of the enemy's coastal trade was to be achieved, the Command must

ibid
Encl.54A

- (1) On 2 June 1942, the Senior Officer E-boats stated "That owing to short nights operations against the East coast convoy routes were no longer possible. Intention to shift area of operations to Straits of Dover".
(Ref: Admiralty NID/FDS.X.237/48.)

be brought up to its full establishment of medium strike aircraft.

The effect of the removal of the ban was to permit reconnaissance in force once more and to allow these aircraft to strike at any suitable target presenting itself. To implement this plan, No. 320 (Dutch) Squadron was ordered to move to Bircham Newton to reinforce No. 16 Group, and 415 (R.C.A.F.) Squadron was allotted to No. 19 Group to assist in anti-shipping and anti-U-boat operations in the Bay of Biscay.

(viii) Co-ordination of Anti-Shipping operations in Bomber, Coastal and Fighter Commands

CC/S.15213
Encl. 80A

The successful break-out of the three enemy cruisers from Brest in February 1942 had not only exposed the weakness of the aircraft situation in Coastal Command but had also clearly showed the difficulty of co-ordinating quickly the activities of several independent commands in an emergency. (1)

At the time i.e., February 1942, Fighter Command had an interest in the anti-shipping war by use of Hurricane bombers in the Straits of Dover area; Bomber Command still had a general responsibility between the Heligoland Bight and Cherbourg although only a very limited effort was made available and Coastal Command had the duty of attacking shipping along the entire enemy and enemy occupied coast-line in North West Europe. The recent arrival of Fleet Air Arm aircraft at Dover, which although nominally under Coastal Command direction were actually under the operational control of V.A. Dover, had still further complicated matters.

It was hoped, however, that some useful lessons would emerge from the proceedings of the Bucknill Board of Inquiry into Operation "Fuller" regarding the principles which should govern the organisation of an operation involving co-ordination between a number of independent commands, which might have to be executed at short notice. Bomber, Fighter and Coastal Commands had agreed during the inquiry that fighter protection for strike forces in an operation of the "Fuller" type should in general be provided by "cover" and not by "escort". This was considered by the Air Ministry to be a sound principle which should govern the planning of similar operations in the future.

During the "Fuller" operation on 12 February 1942, certain misunderstandings between Fighter and Coastal Commands led to expected fighter escorts not materialising, and it was, therefore, with a view to deciding on the measures necessary to avoid a recurrence of such misunderstandings that the Air Ministry requested the Air Officers Commanding-in-Chief Fighter and Coastal Commands on 20 March 1942 to investigate together the incidents in question. Although details of the investigation were not required, the conclusions as to future action to obviate such errors recurring were to be communicated to the Air Ministry. Prior to the arrival of this request, the subject was already under discussion by all three home operational Commands.

ibid
Encl. 87A

Ever watchful for a chance of pressing the claim of Coastal Command for complete control of anti-shipping operations, the A.O.C.-in-C. took this opportunity of once

(1) See Chapter V Section (V b and c).

again advocating that all anti-shipping activities should be placed in the hands of one Headquarters, namely Coastal Command. In a letter to the Air Ministry dated 31 March 1942, he recommended a course of action to remedy the present difficulties. This may be summarised as follows:-

- (i) Until such times as suitable aircraft in sufficient numbers could be provided for Coastal Command, co-operation between the three Commands for anti-shipping duties was to be achieved by giving Coastal Command an overriding responsibility.
- (ii) When suitable aircraft could be provided, all anti-shipping reconnaissance and the attack of shipping other than in well defined areas should be primarily the responsibility of Coastal Command. Only in the event of an attack being delivered in a closely defended area or of the appearance of a very important target would Coastal Command call upon the other two Commands for assistance.

An indication of the scale of reinforcement of Coastal Command that would be required to fulfil the primary task was as follows:-

- (i) Add to P.R.U. one squadron of armed Spitfires (16 + 4 aircraft) and one flight of Mosquitoes (6 + 2).
- (ii) Bring Coastal Command's strength in Beaufighters up to eight squadrons as originally envisaged in Expansion Scheme E.

If it was found technically possible to equip the Coastal type Beaufighter to carry torpedoes and/or 500 lb. bombs, this would double the strength of the torpedo bomber force. Copies of this letter were also sent to the Commanders-in-Chief of Bomber and Fighter Commands.

In the meantime the representatives of the three home operational commands had finished their investigation of the incidents during Operation "Fuller", to which the Air Ministry had drawn particular attention as being worthy of examination. The outcome of the investigation was a proposed instruction which laid down the procedure for future combined operations by Bomber, Fighter and Coastal aircraft, and also contained a glossary of terms used by Fighter Command to ensure that all concerned realised the precise meaning of fighter "cover" and fighter "escort" and the importance of using these terms correctly when issuing orders and briefing crews. This operational instruction was compiled and finally agreed by all three commands by 8 April 1942, a copy of which was forwarded to the Air Ministry for approval. (1)

Under this instruction Coastal Command was given once again the support, if needed, of light bomber aircraft of No.2 Group, Bomber Command in the attack of important enemy shipping in the area between Wilhelmshaven and Cherbourg for daylight operations only. Bomber Command had played very little part in the offensive against enemy shipping at sea since November 1941 when, it will be remembered, they were relieved of this role owing to the heavy losses incurred by their Blenheim bombers. The new force of Bostons, however, only carried out a very small number of attacks on

(1) A copy of the combined order is attached at Appendix XVII.

shipping as their main employment in bombing attacks was on "fringe targets".

ibid
Encl. 101A

After consideration of the combined operational instruction the Air Ministry informed the A.O.C.-in-C. Coastal Command on 22 April 1942 that this order provided, in their opinion, a workable solution for the direction and co-ordination of anti-shipping operations in the English Channel and North Sea and suggested that the principles set out therein should now be fully tried out in a co-operative spirit by the three Operational Commands.

As regards the recommendations made by the A.O.C.-in-C. in his letter of 31 March 1942, that in sub-paragraph (i) was adequately covered by the new Combined Operational Instruction; and concerning sub-paragraph (ii) any change in the co-ordinated responsibility for anti-shipping operations as now agreed would be contingent on the strategic situation as this developed. The matter was under constant review.

ibid
Encl. 106A
and 107A

After one month's trial, the A.O.C.-in-C. Coastal Command was not content with the manner in which the other two Commands were responding to the combined instruction, and again approached the Cs.-in-C. of Bomber and Fighter Commands regarding their views on the subject of Coastal Command having the sole responsibility for anti-shipping operations.

ibid
108A

The A.O.C.-in-C., Bomber Command agreed that the Bostons of No. 2 Group had their hands full with "Circus" operations and Army co-operation work, and, therefore, he welcomed the suggestion that Coastal Command should be given a clear responsibility for the attack of enemy shipping in the Channel and North Sea areas.

ibid
Encl. 110A

On the other hand the A.O.C.-in-C., Fighter Command was unable to support the proposal as he considered that the Operational Instruction recently issued had so far worked most effectively and he anticipated it would continue to do so in the future.

ibid
Encl. II5A

Further discussion ensued and finally a meeting between the two A.O.'s C.-in-C. was held on 24 June 1942. However, after further thought on the matter the A.O.C.-in-C., Coastal Command decided that, in view of the impending departure of another Beaufighter squadron to the Middle East and the shortage of well trained Beaufighter pilots, he could not undertake the permanent commitment of responsibility for the "Channel Stop". When the discussion was opened he was unaware that he would be losing this squadron, but as soon as the aircraft and the pilot situation improved the question of Coastal Command assuming responsibility for all anti-shipping operations would be reopened. This claim for sole direction by Coastal Command was again put forward at a meeting with Admiralty representatives on the 24 August 1942.

CC/S. 7033/2
Encl. 66A

(ix) Operations - March and April 1942

H.Q.C.C.
Narrative for
March and
April

In spite of the restrictions in the use of Hudson aircraft for anti-shipping strike activities, the Command managed to attack sixty-six enemy merchant ships during March and April with the majority of the actions taking place in the latter month.

CC/S. 15063

Assessments, however, were below those for the first two months of the year. Of the sixty-six ships attacked during

the two months, only two of 1,050 gross tons were assessed as sunk, and seventeen of 23,300 gross tons assessed as damaged. (1) See Appendix XVI.

H.Q.C.C.
Narrative for
April

With an improvement in the weather generally and the Baltic ports becoming ice free, there was a general resumption by the enemy of the normal convoy routine towards the end of April.

Apart from the normal anti-shipping operations during the March/April period, the Command was called upon to provide air cover for two entirely different types of operations, the first of which was a combined operations raid on St. Nazaire and the second, a break-out of Norwegian merchant ships from Sweden to the United Kingdom. These provide good examples of the diversionary nature of Coastal Command's commitments outside the main roles of anti-U-boat and anti-shipping activities.

(a) The Combined Operations raid on St. Nazaire -
28 March 1942

(1) - The Plan

Situated on the north bank of the River Loire, the port of St. Nazaire was well placed for operations against commerce in the North Atlantic. Since the occupation of France, the enemy had developed the port as a U-boat base, and among its many advantages was a large lock capable of being used as a dry dock for German capital ships.

BC/S.26488
Encl.1A

To deprive the enemy of such facilities by means of a combined raid on the port was the subject of a meeting held at Combined Operations Headquarters on 19 February 1942, which was attended by representatives of the Admiralty, the War Office and Combined Operations.

The destruction of the lock - the only one outside Germany big enough to accommodate the battleship Tirpitz - was to be the principal objective of the raid, subsidiary objects being to open the St. Nazaire basin to the tide, and to do as much damage as possible to the dock entrances, pumping and lock machinery, and any U-boats accessible.

To achieve the primary objective it was proposed to use a specially fitted expendable destroyer (2) to serve as a blockship at the lock entrance. After disembarking the assault and demolition party, the ship would be scuttled and a large explosive charge which was stowed forward would be fired with a delay action fuse. If this ship failed to reach her objective, a motor-torpedo-boat would be standing by in readiness to fire her torpedoes at the lock gate. Further demolition, protection and assault parties would be landed at selected points in the dockyard area to deal with other objectives.

It was agreed at the meeting that the whole project would be made easier if an air diversion could be arranged in the form of bombing attacks before, during and after the operation. This question of the R.A.F. diversion was then

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- (1) Lloyds and German sources confirm the sinking of two ships of 1,694 gross tons by air attack during March and April, but none are recorded as damaged under this cause.
 - (2) H.M.S. Campbeltown, formerly the United States destroyer Buchanan.

referred to the Military and Air Advisers on Combined Operations Headquarters Staff for further discussion, after the meeting.

ibid
Encl. 3A

The outcome of their deliberations was later embodied in the combined plan for operation 'Chariot' which had been prepared by the planning staff at Combined Operations Headquarters, and issued on 16 March 1942.

In the outline plan it was considered that air support could best be achieved by bombing the town of St. Nazaire before the time of landing i.e. between 2330 and 0045 hours, thereby causing the population to take shelter and the defences to turn their attention skywards; by continuing the attack during the actual assault period, i.e. between 0100 and 0300 hours, when the maximum number of sorties should be flown using light bombs and incendiaries on the town and not the docks area; and finally, for some time after the completion of the raid, i.e. from 0300 hours for the remaining hours of darkness, in order to keep as many people as possible in the shelters and to disorganise any efforts the enemy might make to minimise the damage.

ibid
Encl. 11A

On the afternoon of 25 March, the Chief of Combined Operations paid a visit to Bomber Command Headquarters and discussed a number of points concerned in the operation with the Air Officer Commanding-in-Chief.

At the request of C.C.O. it was agreed that sixty aircraft should be provided for the bombing attack in three phases spread over the period 2330 to 0400 hours. A discussion also took place on the meteorological problems involved and it was agreed that in order to minimise the risk of the whole bomber force being grounded owing to weather conditions at home bases, all aircraft of No. 1 Group would operate from advanced bases in south west England, and all aircraft of No. 4 Group would operate from their parent stations.

It was also arranged that if the aircraft of one Group was ruled out owing to weather, the complete programme would be carried out by the other Group's aircraft, but the actual number employed in each phase, would be on a reduced scale.

All crews were to be most carefully briefed that they were to bomb no other targets than that detailed. In particular the greatest care was to be exercised, especially when the assault was in progress, not to bomb the dock area or any ships outside that area. The aircraft were to attack from heights best calculated to achieve accuracy under the weather conditions prevailing at the time, but were not to come below 6,000 feet. In order to increase the effect of the attack all aircraft were to drop their bombs singly on separate bombing runs. Bomber Command's Operational Order was issued at 1900 hours on the evening of 25 March 1942 and delivered to the formations concerned by despatch rider.

ibid
Encl. 8A

ibid
Encl. 1A

Since no air cover was required by the naval force for the outward passage, in order that the element of surprise should be maintained, it was decided in the circumstances that it would be advantageous to man the small craft with picked gun crews and plenty of ammunition, so that in the event of enemy air attack the force could not only give a good account of itself but also survive such an ordeal. On its withdrawal after the operation, however, when the element of surprise had gone and the force would be in a very vulnerable position, no provision had been made in the planning stage for adequate air support.

CC/M.S.15272
Encl.16A

This omission greatly alarmed the Air Officer Commanding No. 19 Group in whose operational area the raid was to take place, and who was fully aware of the operation by reason of the fact that part of the Bomber force engaged was to use his bases in South-West England. Moreover, his naval counterpart - the Commander-in-Chief Plymouth, had been appointed supreme commander of the operation, and it was only due to the close liaison existing between the Naval and Air Staffs at the Area Combined Headquarters that adequate air co-operation was foreseen and eventually provided. Even so there was a last minute scramble to collect the necessary long range fighter support.

HQ. No.19 Grp.
FL/G1/26/3

During the forenoon of 26 March 1942, orders were despatched by No.19 Group for two Beaufighters of No. 236 Squadron to be brought to immediate readiness, with the remainder of the available aircraft at one hour's notice from one hour before dawn 27 March until dusk. A further instruction was sent to No.254 Squadron at Carew Cheriton for six Blenheim fighters to proceed to St. Eval a.m. 27 March and await orders. Thus, at short notice some long range fighter support was organised and ready for immediate action prior to the departure of the assault force.

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para.596

The naval forces detailed to take part consisted of M.G.B. 314 as Headquarters Boat, carrying the Senior Naval Officer and the Military Commander; sixteen motor launches, four carrying torpedoes and the remainder Commando troops, organised in two flotillas; H.M. destroyer Campbeltown with a cargo of explosives to serve as the blockship which also carried Commandos; and M.T.B. 74 to act independently. The destroyers Atherstone and Tynedale were to escort force on its 400 mile journey to the French coast, but were not to enter the River Loire.⁽¹⁾ To assist in covering the return passage the destroyers Cleveland and Brocklesbury would be available; to act as a light beacon for navigational purposes H.M. submarine Sturgeon would be stationed in the approaches to the River Loire as from 1800 hours on 26 March.

The Military forces taking part numbered forty-one officers and two hundred other ranks, drawn from the Special Service Brigade and No.2 Commando Unit.

The plan drawn up for the assault on St. Nazaire was more ambitious than any previously undertaken by Combined Operations, and outstanding results were expected from its successful and speedy execution.

HQ. No.19 Grp.
O.R.B.

In accordance with the outline air support plan a P.R. aircraft was to be flown at the latest moment prior to the departure of the force, in order to ascertain the position of shipping in port at St. Nazaire. This task was carried out during the afternoon of 25 March and revealed the arrival of five torpedo boats since 24 March which were berthed at the Basson de St. Nazaire. Four 500 ton U-boats were also visible.

(2) - The Approach and diversionary raid

B.C./S.26488
Encl.9A
Battle Summaries
No.12

At 1230 hours on 26 March came the executive order "Carry out Chariot" and at 1400 hours in favourable weather the 10th A/S Striking Force sailed from Falmouth. The same evening, the Air Adviser to Combined Operations informed Bomber Command that operation 'Chariot' would take place on the first night possible, i.e. 27/28 March.

(1) St. Nazaire lies five miles up the River Loire.

Throughout the night 26/27th the weather had remained favourable, the wind ENE. force 4 with considerable haze. At about 0230/27, the haze cleared and when dawn broke visibility was extreme. At 0700 hours the force was about 160 miles to the westward of St. Nazaire and course was altered to 112 degrees. As there was time in hand, speed was reduced to eight knots in order to minimise the chances of being spotted from the air.

Twenty minutes later in position 46.34N-05.41W, one of the escorts, H.M.S. Tynedale, reported an object bearing 002 degrees $7\frac{1}{2}$ miles distant, which proved to be a submarine. At 0745 hours the destroyer broke the white ensign and opened fire at about 5,000 yards range. The U-boat crash dived, but after a depth charge attack carried out at 0758 hours, it broke surface, whereupon every gun which could be brought to bear came into action and the U-boat was believed to have been hit. She disappeared with a list to port after a few seconds. The Atherstone then joined in and the U-boat was hunted until 0920 hours when the two destroyers shaped course to the south-westward and rejoined the remainder of the force by an indirect route. (1)

After this episode, the sky became covered with low cloud which greatly reduced the chances of detection from the air. Shortly before noon two French trawlers were sunk after the removal of their crews. As it appeared that none of the fishing craft carried wireless, the large number of trawlers sighted in the course of the afternoon were allowed to proceed unmolested.

B.C./S.26488
Encl.11A

Meanwhile in England, Bomber Command's weather forecast for the area was very unfavourable, and at 0915 hours on 27 March the Air Adviser to Combined Operations was asked by telephone to confirm whether the operation was definitely ordered for the night of 27/28th and whether in fact the force had sailed as so far Bomber Command had not received the executive order. Both these points were confirmed and immediately Nos. 1 and 4 Groups were given the executive order for the operation.

Again at 0940 hours Bomber Command enquired whether owing to the extremely unfavourable forecast it was intended to recall the naval force, and the reply was that the C.-in-C. Plymouth had definitely decided to carry out the operation that night. The Air Adviser to Combined Operations and a Naval Captain were present at the briefing of No.4 Group's crews and afterwards accompanied the aircraft on the operation.

Battle Summaries
No.12

Nothing further had been seen by the Naval force until Sturgeon's light was sighted dead ahead at 2200 hours and the Flotilla passed within hailing distance fifteen minutes later.

After Sturgeon had been passed, mist came down and visibility decreased to about two miles. From about midnight, gun flashes were seen to the north-eastward and half an hour

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- (1) The U-boat (U-593) was not damaged but was forced to remain submerged until 1347 hours when it surfaced and reported having sighted three destroyers and ten M.T.B's at 0620 hours in position 46.52N-05.48W course West. This course misled the Germans into thinking that the force was either a mining sortie returning to England or a party of M.T.B's being escorted to Gibraltar. Consequently no special reconnaissance, surface or air, was undertaken off the Biscay coast.

later the wide arc over which they extended together with considerable flak indicated some sort of air activity.

B.C./S. 26488
Encl. 11A

Unfortunately the weather over the target area from an air operational point of view was found to be very bad with cloud in layers up to 12,000 feet. Considerable icing in the cloud was reported by a number of aircraft all of whom encountered difficult flying conditions.

Thirty-five Whitleys and twenty-six Wellingtons had taken off at the correct times but only three felt sufficiently sure, through temporary breaks in the cloud, that they were in the target area and could drop their bombs although none of these were able positively to identify the aiming point. The remaining aircraft were unable to find the target and brought their bombs back. (1) One aircraft came down in the sea and the crew were picked up, while three aircraft crashed in this country on return.

(3) - The Attack

Battle Summaries
No. 12

Up to 0125/28, the naval force had remained undetected with only one and three quarters miles to go to the lock gates. But from then on progress became more hazardous as the enemy's suspicions grew. Four more momentous minutes - one mile - had been gained by the S.N.O's stratagem, (2) but a few seconds later heavy fire was opened up on the force and then the action became general.

With only five hundred yards to go the destroyer Campbeltown was driven straight at her objective and at 0134 hours struck deep into the lock gates, her forecastle ablaze and her guns firing fiercely. Commandos scrambled ashore and were soon engaged on demolition work. The Campbeltown's crew were taken off by a motor launch - believed to be No. 6 - (which failed to appear at the withdrawal rendezvous) and the Headquarters Boat. The latter safely transferred the wounded to H.M.S. Atherstone at sea.

M.T.B. 74 was ordered in to torpedo the lock gate in the old entrance, which she did, returning at high speed, but nothing more was seen of her or her company.

The Naval Commander, having seen four of the scuttling charges go off in the Campbeltown and the old entrance lock gate torpedoed, decided that all was well and took M.G.B. 314 round to the Mole. It was at once apparent that matters there had fared badly. The approaches were floodlit by searchlights and a withering fire was being directed on to the motor launches, still bravely attempting to get alongside.

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- (1) The Germans were suspicious because, of the eighty odd aircraft that they had plotted in the area, only thirty bombs were reported and therefore they feared airborne troops. For this reason they kept all their light and medium A.A. guns fully manned long after the raid had finished. These were used later with great effect against the attacking flotilla. However, the raid did divert the attention of the coast watchers from the surface craft approaching and the noise of aircraft overhead drowned the noise of the M.L's engines as they proceeded up the Loire estuary. (Ref. Supplement 7 to B.S. No. 12).
 - (2) In answer to the enemy's challenge signals, the S.N.O. replied, in German, with a reassuring message that his force was proceeding up harbour in accordance with previous instructions.

On looking round the harbour a little later the S.N.O. realized that M.G.B. 314 was the only craft left in sight. In consequence of this a more concentrated fire was directed upon the gunboat. With some thirty to forty men on board and the decks piled with seriously wounded, the S.N.O. decided at 0250 hours that he was in no position to take off the soldiers previously landed, and so retired at high speed and headed southward. During her withdrawal, under intense fire, further casualties were caused on board by shell splinters.

(4) - The Withdrawal

Only a very small proportion of the motor launches were able to make the rendezvous for the return at dawn. In fact, of the eighteen craft employed, only four returned to England. Four more, including the gallant M.G.B. 314 which had survived so much, had to be destroyed by our own ships on the way back owing to their damaged condition. Nine more were presumed sunk at St. Nazaire and the fate of M.T.B. 74 was unknown.

H.Q.C.C. Naval
Staff log
28 March 1942

As dawn was breaking at 0630 hours, the destroyers Tynedale and Atherstone, collecting motor launches at the rendezvous in position 4650-0399W came into contact with five enemy torpedo boats, which opened fire at 0635 hours. The Tynedale scored a hit on the third ship in the enemy's line, and herself received two hits, which did little damage. At 0640 hours the enemy turned away behind smoke and four minutes later ceased firing. A message to this effect was sent to base and assistance was requested. The Admiralty asked H.Q.C.C. to do all they possibly could in the way of air cover.

H.Q. No.19 Grp.
O.R.B.28/3

In accordance with instructions issued at midday on 27 March, the first two sorties by Beaufighters of No.236 Squadron were already airborne. The first Beaufighter (K/236) sighted four destroyers on a course of 225 degrees west of Belle Ile at 0718 hours, and at first presumed they were of the Hunt class. This aircraft had developed engine trouble and was consequently only maintaining a height of three hundred feet. It circled the destroyers at this height and endeavoured to make contact by visual signals but in reply received a burst of gunfire. Avoiding action was taken immediately as the aircraft was now suspicious of the destroyers' identity. The surface craft were sighted again at extreme visibility but no identification was possible.

At 0752 hours the two Beaufighters had joined forces and proceeded to carry out a square search for 'Chariot', but nothing was seen by the time P.L.E. had been reached at 0830 hours. An hour later when passing Ushant a single engined enemy aircraft approached down sun and attacked Z/236 at 600 yards range with cannon and tracer. Two attacks were made but no hits registered. Ground defences of Ushant also opened fire.

On receipt of the S.O.S. from the naval force a third Beaufighter (Y/236), already at immediate readiness, was airborne at 0702 hours but unfortunately nothing more was heard of this aircraft, until the naval force returned to base and reported its fate.

Battle Summaries
No.12

Meanwhile at the rendezvous, the Atherstone had picked up two of the motor launches and having taken off the wounded was just about to open fire to sink a badly damaged craft when an He.115 appeared and obligingly completed the task with bombs some three quarters of an hour later.

As time passed by and the enemy torpedo boats did not

reappear, it became possible to follow the original plan of despatching the motor launches back to base with their crews. As soon as arrangements had been made, the destroyers Atherstone and Tynedale with M.G.B. 314 and M.L's 7 and 15 proceeded to the westward to meet the destroyers Cleveland and Brocklesby which had left Plymouth the previous evening to reinforce the escort for the return passage. At 0900 hours on 28 March the two forces joined up in position 46.35N 03.49W. Just before this meeting three motor launches Nos. 8 12 and 13 were sighted by the Cleveland and instructed to proceed to the westward as an enemy aircraft was about to be engaged. At 0942 hours a Beaufighter shot down a Ju.88 on the port beam, and shortly afterwards itself crashed into the sea from a very low altitude. (1) No survivors could be found. Enemy aircraft activity was increasing and all ships were frequently in action. Another Ju.88 was shot down astern by the destroyer Brocklesby at 1006 hours, and several others were claimed as hit.

H.Q. No.19 Grp.
O.R.B.

Battle Summaries
No.12

Throughout the forenoon the force continued to the westward at a speed dictated by the condition of the motor launches. From sixteen knots this gradually dropped to ten, and later even this could not be maintained. The question of abandoning some of the craft had to be considered, and after examination three more ~~were~~ ^{were} ~~condemned~~ ^{accordingly sunk}.

H.Q. No.19 Grp.
O.R.B.28/3

It was during the process of transferring the crews from two motor launches and M.G.B. 314 to Brocklesby in position 46.44N-04.47W that another Beaufighter (G/236) arrived on the scene and escorted the force for nearly an hour. Prior to making contact with the naval force an He.115 had been engaged without result and again at 1318 hours, when escorting the force, another He.115 was encountered just as the Beaufighter was reloading cannon. An attack was made and two or three cannonshells were believed to have exploded on the enemy's starboard wing near the fuselage. Heavy and accurate fire was returned by the enemy which hit the Beaufighter in the nose and portside of the cockpit causing damage to some hydraulic pipes. The search was continued for the enemy but apart from a brief glimpse of an aircraft through a break in the clouds near the French coast, no further contact was made. Another Beaufighter (J/236) which had lost contact with its escort also sighted an He.115 at 1310 hours in position 46.22N 04.17W, but no combat took place as the enemy made for cloud and was not seen again.

Two Hudson aircraft (G and N/233) fetched up with the naval force at 1310 hours and observed Beaufighter G/236 giving fighter protection. After twenty-five minutes, one of the Hudsons was compelled to set course for base owing to electrical failure which affected the serviceability of the turret guns and instruments. The second Hudson commenced a patrol round the force and sighted the three surface craft being destroyed by our own forces, but at 1411 hours lost sight of the four destroyers and although a search was made, they were not seen again. At 1350 hours the four destroyers had continued their passage to the westward at twenty-five knots, hoping to overtake the three craft that had been seen earlier by the destroyer Cleveland, but nothing was sighted.

Meanwhile the air escort had been taken over by five Blenheims of No.254 Squadron which made brief contacts with

(1) This aircraft, believed to be Beaufighter Y/236, had previously made contact with the destroyer Atherstone at 0822 hours.

an F.W.200 and He.111 within the search area, but the naval force was not observed. (1) Three Hudsons of No.407 Squadron relieved the Blenheims but were also unsuccessful in locating 'Chariot'. One enemy aircraft believed to have been a Do.217 was sighted on an easterly course but no engagement occurred.

Battle Summaries
No.12

At 1850 hours a mutilated signal was intercepted from M.L. No.13 giving her 1545 hours position as 4655N-0707W, and asking for immediate help as she had been sighted by an enemy aircraft. (2) This position was 85 miles 210 degrees from the four destroyers so the S.N.O. decided to detach the Atherstone and Tynedale with wounded to Plymouth, while the Cleveland and Brocklesby swept towards M.L.13's estimated position.

They parted company at 1900 hours and the S.N.O. then sent a brief report to the Commander-in-Chief Plymouth, who was still entirely ignorant of the course of events. It had been intended to send this report early in the forenoon but the C.-in-C. himself imposed a strict W/T silence, and a Hudson aircraft sent for the purpose of receiving the report by visual means failed to make contact.

The two destroyers en route for Plymouth were sighted at 1937 hours in position 48.44N 0617W by a Hudson of No.53 Squadron engaged on the last but one sortie of the day after which no further sightings of our own forces were made.

H.Q.C.C. Naval
Staff Log
28.3.42

Two attempts by P.R. aircraft to photograph results of the raid during the day were foiled by the weather.

Battle Summaries
No.12

Throughout the forenoon of 29 March four destroyers and four Hudsons continued the search for the missing motor launches but nothing was sighted. At 1315 hours all the destroyers were recalled to harbour as the missing craft had arrived at Falmouth during that morning, thus completing the return of the remnants of the 10th A/S Striking Force.

H.Q. No.19 Grp.
O.R.B.28/3/42

The last effort to find the missing craft, by three Whitleys of No.502 Squadron, was already underway when the recall signal was sent out.

(5) - Summary

For the success of this type of operation, surprise was the first essential. The unseen passage to the Loire was due partly to the favourable weather conditions and partly to the careful routeing to keep the force clear of enemy reconnaissance flights. An important contribution to the success of this part of the outward passage was the report of the U-boat which sighted the force but gave its course as westerly. It was also fortunate that no enemy surface patrols were met in the shoal waters of the approach.

Battle Summaries
No.12

That surprise was not complete was principally due to

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- (1) One Blenheim failed to return.
 - (2) At 1525 hours, a Heinkel circled the three motor launches and after flashing the correct British challenge came in from astern, and was shot down by rapid fire. Two hours later a Blohm and Voss seaplane was observed shadowing. At 1800 hours he came in to attack and was driven off after dropping one bomb. Half an hour later he re-appeared, then flew off to the eastward. It was then that a message was despatched requesting assistance.

the weather conditions - so favourable to the surface forces - which made the accurate location of targets so difficult for the bombing force. In the circumstances the bomber crews, in accordance with their briefing instructions, did not drop their bombs. Unfortunately the presence of aircraft overhead was sufficient to put all the enemy's defences on the alert and consequently, when the alarm was sounded, they were able to concentrate their fire on the motor launches within a few seconds.

In the light of this experience the C.-in-C. Plymouth commenting on the operation remarked that "bombing unless heavy and continuous should not take place If any chances exist of achieving complete surprise it would be better to have no bombing at all on the night of the operation".

C.C./MS.15272

Encl.16A

Battle Summaries

No.12

Of the air support provided on the initiative of the A.O.C., No.19 Group for the withdrawal of the forces from St. Nazaire, i.e., twenty-nine sorties by Beaufighters, Blenheims, Hudsons and Witleys, the C.-in-C. Plymouth remarked that "aircraft of No.19 Group, R.A.F. did much useful work in covering this withdrawal".⁽¹⁾

In regard to our own casualties, the losses of naval craft i.e., a total of fourteen (75%) was not altogether surprising, as the disabilities of the craft employed and their unsuitability for the task, were known beforehand.

Of the personnel engaged, their task so brilliantly accomplished in the face of heavy odds, one hundred and ninety-one (54%) officers and ratings of the Royal Navy, and 212 (79%) officers and other ranks of the Commando units, were missing or killed. In the report of the Commander-in-Chief the comment on this aspect was that "taking into consideration the extreme vulnerability of the coastal craft neither the losses in men or material can be considered as excessive for the results achieved".

The success of the combined raid in achieving its main purpose was eventually confirmed by photographs taken by P.R. aircraft at 1650 hours on 29 March, which showed the seaward entrance of the lock dock open, the gate apparently missing and the lock flooded. In addition the pumping station and operating mechanism were destroyed.

From a later report by an eye witness, the enemy also suffered many casualties by their own fire as the German soldiers, having lost so many of their officers when the Campbeltown exploded at midday on 29 March, completely lost their heads and saw British Commandos round every corner. Consequently anyone dressed in khaki received special attention as a target, and as the organisation had a great number of men employed on various buildings in the port all of whom wore khaki uniforms, a great many Germans as well as French workers in the dockyard were mown down by machine guns.

The moral effect on the enemy was also manifestly considerable, and it is now known that a minor result of this

(1) The omission of air support for the withdrawal in the original combined plan, was taken up by the A.O.C. No.19 Group with H.Q.C.C. and in turn the A.O.C.-in-C., referred the matter to the new Air Adviser to Combined Operations - an Air Officer with wide experience. (Ref. C.C./MS.15272 - Encls. 16A, 17A.)

War Diary
of B. d U.

raid was the transference of the U-boat Command Control Room from Lorient, where Admiral Donetz had created it in October 1940, to Paris on 30 March 1942.⁽¹⁾

(b) The break-out of Norwegian Merchant ships from Sweden
(Operation Performance)

(1) - Introduction

CC/S.15259
Encl. 71A

During the invasion of Norway a number of Norwegian ships under charter to the British Government were caught in Swedish ports; these ships were loaded with special steels, ball bearings and cutting machinery which were considered to be essential to our war production. Consequently every endeavour was made to bring the ships and their cargoes to the United Kingdom.

In January 1941, five ships were successfully brought across under 'Operation Rubble', but there remained in Swedish ports a further eleven to break the German blockade before the extrication was complete.

Later in the year it was proposed to execute a second break-out under a similar plan, but German action in the Swedish courts met with unexpected success and frustrated this attempt.

Owing to the necessity of obtaining clearance papers, and the adequate intelligence organisation maintained by the enemy in Sweden, it was impossible to gain complete surprise and to move such a convoy of vessels without the enemy becoming aware of the plan.

However, in spite of these difficulties a revised plan was brought out in January 1942, but ice conditions in the Kattegat and Skaggeak precluded any movement until the beginning of April.

In the meantime another plan had been devised and was issued to all concerned by the Admiralty on 11 March 1942.

(2) - The Plan

ibid
Encl. 49A

The operation was to be known as 'Performance' and was the break out of up to ten British chartered Norwegian ships from Gothenberg. The ships⁽²⁾ taking part were to follow a

- (1) Hitler had proposed this transfer earlier in March but Donetz had been loth to forego direct contact with his U-boat Commanders. The liability to sudden raids, revealed by the successes at St. Nazaire, forced the hurried departure to Paris. After the enquiry which was held by the German High Command on this attack the Fuehrer demanded that at least the most important naval bases be so well protected that successful raids, such as this, would be impossible in future. (Ref. Fuehrer Conferences 1942).
- (2) Ships taking part, (A) Tankers (B) Cargo ships, were:-
- | | | | | |
|-----|--------------------|----------|--------|------------|
| (A) | <u>B.P. Newton</u> | 14 Knots | 10,324 | gross tons |
| | <u>Buccaneer</u> | 12 " | 6,222 | " " |
| | <u>Rigmor</u> | 11 " | 6,305 | " " |
| | <u>Storsten</u> | 10.5 " | 5,343 | " " |
| | <u>Skyteren</u> | 10 " | 12,358 | " " |
| | <u>Lind</u> | 8 " | 461 | " " |
| (B) | <u>Dicto</u> | 14 " | 5,263 | " " |
| | <u>Lionel</u> | 10.5 " | 5,653 | " " |
| | <u>Charente</u> | 11 " | 1,282 | " " |
| | <u>Gudwang</u> | 9.5 " | 1,470 | " " |

prearranged route⁽¹⁾ and on arrival at a certain position cover would be provided by a surface escort of H.M. ships for the remainder of their journey to the Firth of Forth.

Instructions had been given to the merchantmen to fly the Norwegian flag on the ensign staff and white coloured flags with 'G.B.' on the foremast after passing longitude seven degrees East. The letters 'L.N.' in white were also to be displayed on the bridge top as aircraft identity letters.

It was considered that the enemy would spare no effort to attack these ships even in British coastal water. Headquarters Coastal Command was therefore requested to arrange fighter protection over the route during daylight on D.1 and D.2 days and it was stressed that this cover should be afforded from first light.

The merchant vessels were briefed on the types of aircraft that would act as air escorts, but H.Q.C.C. was warned that the merchant ships were liable to fire at any aircraft which approached them close if it had not been recognised as friendly.

When the plan was issued it was considered that a movement might be possible immediately after 15 March, but it transpired that navigation through to the North Sea by the Skaggerak was only possible in an emergency and then with ice-breaker assistance. The ice extending north westwards of the Skaw was apparently dangerous to all ships except those reinforced for ice navigation. Milder weather was expected to arrive in the near future, but even a general and persistent thaw would not enable a resumption of traffic to take place for a fortnight and even then fog might well impede navigation.

ibid. Encl. 52A

H.Q. No. 18 Group
O.R.B.

In order to keep the closest watch on the ice conditions, the Admiralty requested H.Q.C.C., to carry out an ice reconnaissance eastward of the Skaw as early as could be arranged. This commitment was carried out by Mosquito aircraft of P.R.U. on four occasions between 14 and 27 March, after which long range Hudsons of No. 53 Squadron (No. 16 Group), making full use of the moonlight period, rendered ice reports daily up to the date of sailing.

H.Q.C.C. Naval
Staff Log

CC/S.15259
Encl. 59A

On 18 March, intelligence reports signified that enemy forces in the area were very wide-awake. Aircraft in Denmark and South Norway were doing a regular patrol between Kristiansand South and Hanstholm and there were E-boats based at Danish ports and Kristiansand South. A week later, the Admiralty advised all concerned that the ice conditions were not yet suitable and sailing day was not likely before 28 March.

(3) - The Breakout

H.Q.C.C. Naval
Staff Log

Two days after this provisional date, the weather conditions improved fairly rapidly and by 31 March it was possible for the first ship to sail at 2000 hours that night. All

(1) The ships were given the following route:-

- | | |
|---------------------|----------------------|
| (A) 57.30N - 07.00E | (B) 57.29N - 06.00E. |
| (K) 57.26N - 03.24E | (L) 56.48N - 02.20E. |
| (M) 56.40N - 01.20E | (N) 56.40N - 00.00E. |

ships⁽¹⁾ were reported clear of Vinga by 0230 hours 1 April.

From the sailing times it was estimated that the first vessel should arrive in position 57.33N - 07.54E at first light on 1 April, and it was therefore, arranged that the first sortie of two Blenheims should be at that position by 0530 hours and search with the object of contacting one or more vessels.

H.Q. No.18 Group
RO/G4/31/3
RO/G1/1/4
and O.R.B.

At 0305 hours the Naval authorities reported that the first ship would not reach the previously estimated position until noon and consequently the first sortie was ordered to postpone take-off for four hours. The first two aircraft eventually took off at 0740 hours and 0809 hours but on their return at 1302 hours and 1355 hours respectively they had nothing to report. Weather reports from Met and P.R. aircraft in the area gave ten tenths cloud at 3000 feet with visibility varying between nil and five miles.

RO/910/1/4

The forenoon passed without any information on the 'Performance' convoy, but at 1308 hours the tanker B.P. Newton (10,324 gross tons) reported that she was being attacked by surface craft, seventy miles east of position 'A' (57.30N - 07.00E). On receipt of this report a strike force of six Beauforts, armed with torpedoes, was ordered off as soon as possible with instructions to attack all enemy surface craft found in the area.

H.Q.C.C. Naval
Staff Log
H.Q. No.18 Group
O.R.B.

Meanwhile a further S.O.S. was received at 1507 hours from the same ship which now reported she was being attacked by aircraft in position 57.43N - 08.32E. At 1600 hours the strike force of six Beauforts was airborne. Two returned to base without sighting any enemy shipping but the remainder, although they did not encounter any E-boats, sighted and attacked an enemy convoy of ten merchant ships south east of Kristiansand South. Poor visibility prevented any results from being observed. Throughout the engagement heavy flak was encountered from all ships and one aircraft (U/217) was hit and dived into the sea while other aircraft were damaged. One Ju.88 was sighted but no combat resulted.

H.Q.C.C. Naval
Staff Log

H.Q. No.18 Grp.
O.R.B.

Further news of 'Performance' was received at 1615 hours when the tanker Storsten (5,343 gross tons) reported that she had been torpedoed, but no further details came to hand. Up to this time, i.e. 1615 hours, no sightings had been made of any shipping by the aircraft engaged on the seven patrols so far completed. However, during the course of the eighth and last sorties of the day by two Beaufighters S and X of No.248 Squadron, the tanker Storsten was found abandoned in position 57.42N - 08.30E at 1827 hours. Although smoke was still issuing from her funnel there was no sign of life on board. A damaged empty raft was alongside. Seven minutes later course was set for base, but owing to cloud and precipitation, contact between the two Beaufighters was soon broken. At 1850 hours in position 57.34N - 07.00E, Beaufighter X/248 sighted another tanker on a westerly course, but it was impossible to read the name or see any identification marks. While circling, a Ju.88 was sighted about six hundred yards on the starboard beam flying at two hundred feet. As aircraft X/248 turned to give chase the enemy made cloud cover but four minutes later reappeared and fired a short burst from three hundred yards then again entered cloud. Neither enemy aircraft or tanker was seen again although search was made for about ten minutes. Soon

for

(1) Ten ships had sailed. The eight knot ship did not attempt the passage.

after losing contact, Beaufighter S/248 found three large lifeboats in the vicinity of the sinking tanker. These boats contained about one hundred men, the majority of whom waved and several Norwegian flags were displayed. At 1835 hours as fuel gauges had become unserviceable S/248 was obliged to set course for base.

This completed the operational flying for the day in connection with 'Performance'. Weather conditions had been generally poor and visibility very restricted. During the night various reports came to hand via the Admiralty concerning 'Performance' one of which stated that the cargo steamer Lionel (5,653 gross tons) had re-entered Swedish territorial waters at 1635 hours.

H.Q.C.C. Naval
Staff Log

For the second day's operations, the merchantmen were to have protection from a surface escort as well as air cover. Six destroyers, including three from the Home Fleet, were due to make contact at 0800 hours. The air cover was to be provided by three aircraft each on two new patrols which were to be maintained from 0530 hours throughout the period of daylight. In order not to reveal the whereabouts of the merchantmen and their naval escorts, W/T silence was imposed but to obviate delays in reporting positions of the surface forces one aircraft out of the three employed on each patrol was detailed to return to base immediately with such information.

H.Q. No.18 Grp.
RO/91/2/4
RO/G9/2/4

The first sortie of three Beaufighters of No.235 Squadron was off by 0400 hours but on completion nothing had been sighted. One hour and a quarter later, the second section of three was airborne, two of which made contacts with 'Performance'. At 0655 hours in position 56.40N - 01.56E, the tanker B.P. Newton with two destroyers was sighted on a westerly course, and at 0702 hours a further three destroyers on a westerly course were contacted in position 56.40N - 02.08E. Air escort was given to the tanker until 0900 hours when the aircraft, V/248, having reached P.L.E. set course for base.

H.Q. No.18 Grp.
O.R.B.

During the course of the third sortie, a second tanker was sighted in position 57.30N - 04.56E at 0845 hours on a westerly course. This ship was later identified as the Rignor. The fourth sortie by two Blenheims of No.404 Squadron also established contact with this vessel and directed four destroyers to its position. Ahead of the tanker an enemy aircraft was sighted at 1120 hours but made off to the north east as one of the Blenheims approached.

H.Q.C.C. Naval
Staff Log

During the forenoon 'Y' information reported many plots of enemy aircraft in the North Sea which were believed to be searching for 'Performance', and this was confirmed by six sightings of enemy aircraft by our own air escorts. No engagements with the enemy were made before midday, but throughout the afternoon a determined effort was made to prevent the merchant ships from reaching the United Kingdom with the result that ten air combats took place between the attackers and the escorting forces.

The first indication of the battle to come was an S.O.S. from the tanker Rignor at 1326 hours stating that she was being attacked. An hour later a further call for help came from one of the destroyers escorting the tanker. On receipt of this call, aircraft scheduled to take part in the twelfth patrol, which was due off at 1430 hours, were briefed to go to the tanker's aid and on arrival at 1543 hours were immediately engaged in combat with a force

H.Q. No.18 Grp.
O.R.B.

of He.115s and He.111s which had attacked the surface craft and seriously damaged the tanker with torpedoes.

As salvage was considered to be too hazardous a task to undertake the Admiralty instructed the four destroyers in attendance to sink the crippled tanker. Aircraft of the thirteenth patrol were detailed to cover the destroyers during this operation.

During the course of the afternoon nineteen enemy aircraft had been sighted, the majority of which were engaged in combat. Claims were made by our own aircraft for the destruction of two He.111s and one He.115, and damage to three He.111s and two He.115s without loss to ourselves. Although several of our aircraft were damaged to various degrees, all got back to base.

At the conclusion of the day's operations, the tanker B.P. Newton and one destroyer escort were left at 2000 hours in position 56.27N - 03.43W under the care of two Fighter Command Spitfires. Forty-five minutes later the tanker and her escort arrived in port.

H.Q. No.18 Grp.
RO/G11/2/4
RO/G12/2/4
RO/G2/3/4
RO/G3/3/4
RO/G4/3/4

As it was not known whether there were any more merchant ships on the way our⁽¹⁾ patrols were laid on for the third of April to cover this contingency. Three Hudsons were detailed to carry out a sweep at first light to 05.30E, thence to return on a track of 262 degrees to the coast, with the object of searching for and escorting any westbound merchant vessels. In addition, a force of three destroyers known as Force RB was to proceed eastward to 02.30E and thence sweep westward. This force was to have air support from two Beaufighters. W/T silence was again imposed.

H.Q. No.18 Grp.
O.R.B.

The three Hudsons were all airborne by 0518 hours and had landed back by 1110 hours having sighted nothing except the three destroyers with a Beaufighter escort. Apart from this air escort, the only other aircraft in the area under search was a Hudson of No.320 (Dutch) Squadron engaged on a Navigational Exercise.

At 1250 hours in position 57.30N - 01.13E, this aircraft sighted a westbound merchant vessel bearing 205 degrees. Five minutes later the aircraft was over the vessel in position 57.22N - 01.07E.⁽²⁾ She was a small tanker type of about 1,200 tons named Lind. Excellent photographs were obtained. When first approached there was no flag flying but as the aircraft circled and was recognised, the Norwegian flag was run up on the stern post and a large white flag bearing the letters G.B. was hoisted on the foremast.

At 1325 hours this aircraft sent a sighting report to base, on receipt of which two Hudsons of the same squadron were ordered off to take over from aircraft 'C', only one of which, X/320, found the ship at 1625 hours. On arrival 'X' gave the ship a course to steer with which she complied.

In the meantime four Beaufighters in sections of two had

- (1) One merchant vessel of about 1,000 tons had been sighted by a Beaufighter at midday in position 57.29N - 06.26E on a course of 310 degrees at six knots, but no means of identification had been displayed.
- (2) These positions were by dead reckoning. Subsequent fixes and landfall point to the belief that the vessel was actually in position 56.55N - 0050E.

taken off to provide further A/A escort but had sighted nothing. On their return a third section of four Beaufighters had been mustered and were airborne by 1740 hours.

At 1833 hours in position 56.23N - 00.55E the Lind with a Hudson in attendance was sighted on a westerly course. One of the Beaufighters signalled the merchant ship to stop and await the arrival of a destroyer which was being directed to the position by another Beaufighter. At 2015 hours in position 56.23N - 00.59E the destroyer and merchant ship joined up as the aircraft set course for base.

H.Q. No.18 Grp.

RO/G3/4/4

RO/G6/4/4

RO/G2/4/4

H.Q. No.18 Grp.

O.R.B.

During the night arrangements were completed for four Hudsons and two destroyers with Beaufighter cover to proceed at first light to escort the merchant vessel into port. The four Hudsons were airborne by 0630 hours but did not sight the Lind. One aircraft found a motor lifeboat containing nine or ten persons, and after the pilot had reassured himself that all was well he proceeded to search for the merchant vessel, having acquainted No.18 Group of the lifeboat's position, course and speed. On instructions from Group this aircraft returned to the lifeboat's position but was unable to find it again.

Meanwhile the Beaufighter had linked up with the destroyers, but they did not sight the Lind. One Beaufighter of the second section sighted a Ju.88 in position 56.40N - 00.37E at 1024 hours, but after a few minutes it was lost in cloud and rain.

Owing to a deterioration in the weather no further sorties were possible after 1300 hours, but the rain and low cloud which hampered air operations was of much assistance to the Lind as she was able to proceed to port without fear of detection by the enemy.

(4) - The Results

Although a period of low visibility was chosen for this operation, the movement of the convoy was anticipated and at once detected by the enemy.

As a result of the attacks by surface craft, U-boats and aircraft which were brought to bear on the convoy, six ships were lost. The Sudvang, Charente and Storsten in the Skaggerak by surface craft; the Buccaneer and Skytteren after surface attack, the former was reported to have scuttled herself to avoid capture and the latter to have grounded about six to seven miles off Kaeringoen near Gothenburg; and the Rignor which was so seriously damaged by aerial torpedoes that she had to be sunk by our own destroyers. Two ships, the Lionel and Dicto returned to Gothenburg while the remainder, the B.P. Newton and the Lind successfully completed the journey.

It is significant to record that the major losses among the ten ships of 'Performance' occurred when the convoy was in closed waters, but once in the open sea the losses fell to 33 $\frac{1}{3}$ %. The one loss, which occurred in open waters, i.e. the Rignor, happened when air cover was lacking. The Rignor was first sighted at 1010 hours by two Blenheims in position 57.43N - 04.03E, one of which remained with her until 1207 hours by which time she had advanced to 03.40E. She was not picked up again by aircraft until 1543 hours, and it was during this gap in air cover that she was found by enemy aircraft and very seriously damaged by torpedo attack.

Seventy four sorties were flown by Coastal Command aircraft during the course of this operation covering three and a half days, and although there were eleven encounters with enemy aircraft no losses were suffered by our own air forces. The claims in respect of the enemy's losses have already been mentioned.

(x) Operations - May/June, 1942

The traffic between the Elbe and Rotterdam had increased considerably by May and in consequence Coastal Command launched an all out attack on shipping in the North Sea with concentrated pressure around the Frisians.

CC/S.15063

During this month low level bombing reached its peak as far as the Command was concerned and record figures in the number of ships attacked, assessed sunk and damaged, were achieved. Of the 85 ships attacked, nine of 19,600 tons were assessed as sunk and thirty-nine of 144,103 tons were assessed as damaged to various degrees. (1)

The most important shipping strikes took place in the Hook of Holland to Elbe area, all of which occurred by night, half in moonlight and half in nautical twilight, and were carried out by Hudson aircraft of Nos. 53, 59, 320 (Dutch) and No. 407 (R.C.A.F.) squadrons.

The successes achieved in this month, however, were only obtained at considerable cost in the way of aircraft and aircrew losses. Had it not been for the high morale of the squadron personnel the enemy traffic might well have remained uninterrupted. Early in June the A.O.C., No. 16 Group, in view of the mounting losses, applied to H.Q.C.C. for permission to withdraw the Hudson aircraft from strike activities for training in high level attack from 4,000 feet in preparation for the next moon period. As an interim measure the A.O.C.-in-C., Coastal Command agreed to these proposals pending further consideration of this problem.

The results of this decision soon became evident, for in June 1942, only twenty-four ships were attacked of which three of 3,300 gross tons were assessed as sunk and four ships of 11,500 gross tons as damaged. (2)

(a) May

H.Q. No. 16
Group
Appendices
ORB - May 1942

During the first three days of the month nothing of importance occurred, but early on the morning of the fourth, a force of five Hudsons of No. 407 (R.C.A.F.) Squadron were patrolling the Danish and Dutch coasts, when one of their number sighted a convoy of four merchant vessels and six escorts off Ameland. Selecting a ship of 2,000 tons, the one Hudson proceeded to carry out an attack from mast height with 10 x 100 lb A.S. bombs and claimed several hits. After the

- (1) Lloyds and German sources give the undermentioned figures for tonnage sunk and damaged by air attack during May 1942:-

11 ships of 30,170 gross tons sunk.

9 ships of 30,973 gross tons damaged.

- (2) Records for June 1942 show that casualties through air attack amount to one ship of 1,497 gross tons sunk and two ships of 8,132 gross tons damaged. Tabulated results are given in Appendix XVI.

attack the vessel was seen to be on fire, the flames being visible thirty miles away. This attack earned an assessment of sunk. (1)

As a result of this sighting a further force of six Hudsons of Nos. 59 and 53 Squadrons was despatched to make another onslaught on this convoy. Four of the aircraft located the enemy near IJmuiden and delivered attacks with 250 lb and 100 lb A.S. bombs, but results generally were not observed owing to the evasive action that had to be taken. However, one aircraft claimed a near miss and another reported that clouds of smoke and steam enveloped one ship. Two Hudsons failed to return from this operation. Assessments for this strike amounted to three ships of 14,000 tons damaged. (2)

Although several attacks were made on enemy shipping during the next two days, no serious damage was inflicted. Convoys consisting of as many as fifteen merchant vessels were becoming quite common.

During the night 7/8th twelve Hudsons of No. 407 (R.C.A.F.) Squadron were detailed to carry out an offensive reconnaissance in force off the Dutch coast. Eight of the aircraft sighted a convoy of about twelve cargo ships escorted by several flak ships off Vlieland and attacks were made on five merchant vessels ranging in tonnage between 1,000 and 6,000 tons, and three other vessels of unknown type. Three claims for damage were made and received damage assessments. (3)

Further patrols off Dutch coast before dawn on the eighth were carried out by ten Hudsons and two Beaufighters. One of the Hudsons of the Dutch squadron attacked a freighter of unknown tonnage off Ameland; another sighted two merchant ships and attacked one off Terschelling, while a third aircraft of the same squadron made a promising attack on a cargo ship of 2,000 tons north of Borkum. Only one of these attacks was granted an assessment of 'damage'. (4)

Much low cloud with rain and drizzle during the next seven days interfered with the majority of the planned patrols in the North Sea area, but on the fifteenth, after early fog and stratus, the day improved and allowed a full programme of operations to be completed.

-
- (1) There is confirmation of this assessment. The records show that the German ship Sizilien of 4,647 gross tons was sunk by air attack.
- (2) According to Lloyds and German sources the following ships were damaged by air attack during this encounter:-
- | | | |
|-----------------------|-------------|------------------|
| <u>Tromo</u> | (Norwegian) | 5,029 gross tons |
| <u>Jantje Fritzen</u> | (German) | 6,582 gross tons |
| <u>Taarnholm</u> | (Danish) | 1,420 gross tons |
- (3) Postwar records show that the Ruth of 3,726 tons was sunk and the Namdo of 2,860 tons damaged.
- (4) Postwar records confirm the Burgundia of 1,668 tons damaged.

During the evening, two Beaufighters were sent out on an anti-shipping reconnaissance off the Dutch coast and Frisian Islands. A convoy consisting of four merchant ships (2,000/5,000 tons) with five escort vessels were sighted off the western end of Terschelling and another convoy consisting of eleven cargo ships (1,200/5,000 tons) with escorts was sighted south-west of Den Helder. These were considered to be suitable targets for two strike forces of ten Hudsons each from No. 320 (Dutch) and 407 (R.C.A.F.) Squadrons. One strike force located a convoy of nine merchant ships off Terschelling and the other strike force contacted a second convoy of ten merchant vessels with a destroyer escort north of Schiermonnikoog. Eight Hudsons were known to have made attacks on these two convoys and many hits were claimed. The Assessment Committee made awards totalling three ships sunk and three ships damaged.⁽¹⁾ Five Hudsons failed to return from these two operations and another crashed at Woodhall, all the crew being killed. Of the five Hudsons missing, two aircraft were seen to score hits on merchant vessels and then crash into the sea, a third was seen to crash on the deck of still another cargo ship, while a fourth was seen to explode in mid-air.

Throughout the next fourteen days sightings became very rare and not a single attack took place, then quite suddenly on the night of the twenty-eighth a convoy was sighted off the Frisians, and a force of twenty-one Hudsons was dispatched to attack. Of the number dispatched, eleven aircraft made attacks, each one concentrating on a different vessel. Numerous hits were claimed and at least four ships were left on fire. One Hudson failed to return from this operation. The total awards for this strike were two ships sunk and five ships damaged.⁽²⁾

The following night another striking force of twenty-one Hudsons, six Hampdens and two Beaufighters were sent out to attack a convoy reported off the Dutch coast. Ten Hudsons and two Hampdens located and attacked the target and claims for eight hits were made. Unfortunately four Hudsons, a Beaufighter and one Hampden failed to return from this operation. With this strike the month's operations were concluded. The awards amounted to two ships assessed as sunk and six ships damaged.⁽³⁾

Chapter VII
Section (ix)

With Fleet Reconnaissance taking precedence in the anti-shipping operations of No. 18 Group during the latter half of May, activities against enemy merchant shipping off the Norwegian coast was not on the same scale as that achieved by No. 16 Group in the southern part of the North Sea.

The transference of the cruiser Prinz Eugen from Trondheim to Germany and the pocket battleship Lutzow from Germany to Trondheim was sufficient to keep the aircraft of

- (1) There is confirmation of two ships sunk from Lloyds and German sources:-

<u>Selje</u>	(Norwegian)	6,698 gross tons
<u>Madelein Louise</u>	(German)	464 gross tons

- (2) According to Lloyds and German sources three ships were sunk as a result of this strike:-

<u>Niels R. Finsen</u>	(Danish)	1,850 gross tons
<u>Veriato</u>	(German)	750 gross tons
<u>Nordcap</u> (Tlr)	(German)	285 gross tons

- (3) There is confirmation of only one ship being sunk during this operation:- Varmdo (Swedish) - 2,956 gross tons.

the Group well occupied in endeavouring to prevent this exchange.

CC/S.15063

However, in spite of pre-occupation, twenty-three enemy merchant ships were attacked off the Norwegian coast during the month and although no assessments were earned by way of ships sunk, thirteen ships of 57,721 gross tons were assessed as damaged.⁽¹⁾

H.Q. No.19 Group
ORB. Appendices
May 1942

In No.19 Group's operational area, the outstanding event of the month centred around a homeward bound blockade runner from the Far East, which was located and attacked as she approached Cape Finisterre, by a Sunderland aircraft en route for Gibraltar. Although no hits were claimed several near misses earned an award of damage.⁽²⁾ A full account of this attack will be dealt with in the section of the next chapter containing a complete narrative of the activities of Far Eastern blockade runners.

C.C./S.15278
Encl: 1A.

(b) The Beaufighter flight to Paris - Operation Squabble - June 1942

The mediocrity of anti-shipping operations in June 1942, was relieved by a special operation in the Paris area which was intended to create a heartening effect among the Parisians and to expose the occupying Germans to ridicule.

From information obtained from a reliable source it appeared that the enemy performed a routine parade along the Avenue des Champs Elysee every day between the hours of 1215 and 1245 B.D.S.T., and it was considered by the Air Ministry that a low flying machine gun and cannon attack launched against this parade would have most valuable results in upholding the morale of the French people. This view was endorsed by the Secretary of State for Foreign Affairs.

As the target was outside the range of Spitfires and all Fighter Command's Beaufighters were fitted with special equipment, it was decided by the Air Ministry on 30 April 1942 that the operation should be undertaken by a Coastal Command Beaufighter.

Accordingly the A.O.C-in-C., was requested to make arrangements for this attack to be delivered at his discretion. This special flight was allotted the name "Operation Squabble" and No.236 Squadron was chosen to fulfil the task.

ibid
Encl: 2A.

No.236 Sqn's.
O.R.B. d/d
12.6.42.

C.C./S.15278
Encl: 8A.

The hazardous nature of this operation called for specific conditions of cloud cover over certain parts of the route which did not materialise until 12 June 1942, after four previous attempts had been made abortive by the lack of cloud cover on crossing the French coast. On this day, however, conditions appeared to be more satisfactory, so, Beaufighter C/236 Squadron with F/Lt. A.K. Gatward as pilot and Sergt. G.F. Fern as navigator, was airborne at 1129 hours from Thorney Island on Operation "Squabble".

-
- (1) Lloyds records and German documents show that two ships of 8,779 gross tons were sunk and three ships of 7,006 gross tons were damaged by air attack off Norway during May. In this instance the Assessment Committee had under assessed two attacks.
 - (2) According to Lloyds and German sources this was the Munsterland of 6,408 gross tons which sustained some damage by this attack.

In conditions of ten tenths cloud at 2,000 feet with heavy precipitation, the aircraft flying at ten feet set course for the target at 1131 hours. Crossing the French coast a few miles eastward of Fécamp at 1158 hours, the cloud began to thin out and by the time Rouen was reached there was bright sunshine. Photographs were being taken every two or three minutes. With visibility at ten to twenty miles and no cloud, the aircraft passed over the suburbs of Paris at a very low altitude and some light flak was encountered for the first time. The Eiffel Tower was easily pinpointed and was circled at 1227 hours.

A.H.B./IEK/24/
122
Encl: 6.

There was, unfortunately, no sign of the parade,⁽¹⁾ but to compensate for this disappointment a tricolour was successfully dropped over the Arc de Triomphe, after which the aircraft flew down between the buildings of the Champs Elysee but there was still no sign of any troops. In accordance with briefing instructions the pilot then proceeded to attack with cannon fire the Ministry of Marine building and released a second tricolour.

The pilot reported that there were plenty of people about of both sexes, with most of the men in shirt sleeves, many of whom waved. Before opening fire on the Ministry of Marine building, however, the pilot ensured that there were no pedestrians in the line of fire. His point of aim was half-way up the building.

C.C./S.15278
Encl: 8A

At 1230 hours the aircraft set course for base and maintained the same track back to the coast as followed on the outward flight. The French coast was crossed for the second time at 1255 hours and the aircraft finally landed at Northolt at 1353 hours.

No.236 Sqdn's.
O.R.13 d/d
12.6.42.

The whole sortie had been flown at a height of twenty to thirty feet and although the aircraft flew over Rouen aerodrome at this altitude no enemy opposition was encountered. The light flak encountered over the target was very poor.

This mission received its full share of publicity and some of the photographs taken en route were released to the general public. In addition, the pilot of the aircraft, F/Lt. A.K. Gatward, was awarded the Distinguished Flying Cross, and the navigator Sergeant G.F. Fern was granted a commission.

(xi) Increasing aircraft losses

H.Q. C.C.
Narrative

Little mention has been made, so far, of the casualties sustained by Coastal Command's aircraft during this all out effort to interfere with the enemy's coastal traffic in North West Europe.

From the following table, which gives the monthly losses for the period January to June 1942 of all aircraft engaged on anti-merchant shipping activities, it will be appreciated that the successes obtained were not allowed to continue unchallenged.

(1) In view of this fact, the security aspect of the operation was investigated but nothing came to light regarding a possible leakage of information.

SECRET

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<u>Month</u>	<u>On Strikes</u>	<u>On Recce</u>	<u>Total</u>
January	6	2	8
February	9	13	22
March	4	5	9
April	4	11	15
May	25	7	32
June	5	2	7
	<u>53</u>	<u>40</u>	<u>93</u>

The loss rate per attack by May 1942 - the peak month in this type of operation - had risen to 23% which came very near to that reached by the Blenheims of Bomber Command seven months earlier.

The very low level attack, often at mast height, which was continued by Coastal Command's aircraft after No.2 Group's Blenheims had been withdrawn in the autumn of 1941, was found to have increased the bombing accuracy quite considerably. But, by adopting this technique the aircraft were exposed to severe flak from the merchant ships and their escorts.

Even though the majority of the attacks in the quarter April to June 1942 were made at night to obtain the cover of darkness (usually there was moonlight) the casualty rate was nearing 20%.

CC/S.7012/8/16

With Bomber Command's experience fresh in mind the A.O.C.-in-C., Coastal Command had urged the Air Ministry in February to equip the Command's aircraft with the Mark XIV bombsight to enable them to attack up to heights of 10,000 feet and to give up the existing method of attacking enemy shipping at very low altitudes.

The A.O.C.-in-C. was of the opinion that with this bombsight fitted the same number of hits could be obtained from 3,000 feet as now achieved with low level attacks, and reasonable accuracy should be possible from 10,000 feet. In reply to this request, the Director of Operational Requirements, Air Ministry, informed the A.O.C.-in-C., on 7 February that the policy was to equip all Bomber and G.R. aircraft with the MK.XIV bombsight with the exception of special high flying aircraft with pressure cabins. Trials were being carried out in all appropriate types of aircraft.

Production of the MK.XIV bombsight had been arranged on a large scale both in this country and in the United States, but would not be available in quantity until the autumn. In the meantime the low level attack was continued, but it was plain that sooner or later the enemy's counter measures would make this technique a very expensive pursuit.

C.C/S.7743/II
Encl: 25A.

(xii) The development of enemy counter measures

A brief summary of the enemy's developments in this direction will help to appreciate the worsening situation with regard to the losses sustained by Coastal Command's aircraft during the spring and early summer of 1942.

flak escort

The Germans had adopted ~~to~~ ^{flak escort} convoys ~~system~~ in the areas vulnerable to air attack in January 1941, and as a general rule the average size of these convoys was in the region of twelve ships. At times, as many as half of this number would be escort vessels, but they were

generally of the smaller type, i.e. trawler type auxiliaries, E or R-boats. Even at this time, the Germans were prepared to give heavy escort to important ships such as tankers, supply ships, blockade runners.

As a result of the increasing losses and damage suffered by his shipping during the summer of 1941, the proportion of escorts to merchantmen was steadily increased in the areas where air attacks were to be expected, until, by the winter of 1941/42, the escorts often outnumbered the escorted, especially off the Dutch coast. In addition to the larger escort force, the enemy also brought into service a larger and more formidable type of escort vessel in the shape of the 'M' class minesweeper and sperrbrechers.

Sperrbrechers were converted merchant vessels of between 2,000 and 10,000 tons, and were primarily mine detecting vessels; however the fact that they were often seen in the middle of a convoy, and not in their rightful place in the lead, suggested that they were on occasions flak ships and not minesweepers. They were always heavily armed, and though changes in their armament were made from time to time, they were not so much increases in the number of positions, as the substitution of multiple mountings for singles, and the replacement of the older semi-automatic 37 m.m. guns by automatic guns of the same calibre or quadruple 20 m.m.

In the 1942 type of 'M' class minesweeper, the armament comprised one 4.1 inch gun, one 20 m.m. quadruple gun, two 15 m.m. machine guns and two 37 m.m. A.A. guns, fully automatic.

The German navy like all others used trawlers very extensively as auxiliaries, and throughout this period the light A.A. armament was gradually increased. Armed trawlers appeared to mount an average armament of one 4.1 or 3.5 inch gun forward, one 20 m.m. quadruple aft and one or two of the same type in the waist, with sometimes an additional gun position aft.

Merchant ships were fitted with armament which included the same type of gun as Sperrbrechers, but the guns were not nearly so numerous. During the winter of 1941/42, the gun position aft had a 4.1 or 3.5 inch low angle gun with a 37 m.m. or 20 m.m. gun mounted forward. On each wing of the bridge 20 m.m. or machine guns were to be found. The square improvised gun positions were beginning to give way to the circular steel platforms.

This gradual increase in flak armament had won for the enemy a temporary victory, as both Bomber and Coastal Commands were forced to abandon low level attacks through unacceptable aircraft casualties. At the time the Assessment Committee's figures gave an exchange rate of one enemy ship sunk per three aircraft lost but the postwar examination of enemy losses worsens this ratio to one per six aircraft.

Although the decision to abandon the low level attack was not made officially within the period under review, it was already an accepted fact. The final decision rested upon the reply awaited from the Air Ministry in answer to the appeal by the A.O.C.-in-C., Coastal Command, for a supply of Beaufighters equipped with torpedoes and/or bombs, as the most suitable replacement for the Hudson aircraft, which, at this time, was so inadequately equipped to deal with such a well armed adversary.

C.C/S.15207
Encl: 8A.

CHAPTER VII

FLEET RECONNAISSANCE AND THE MOVES OF GERMAN
MAJOR NAVAL UNITS TO AND FROM NORWAY - JULY 1941 TO JUNE 1942

Introduction

In Volume II, Chapter VII, Section (iii), the details are given of the first standardisation of the northern breakout patrols which came into being on the 11 June, 1941. During the operations against the "Lutzow" a few days later, these patrols were not tested. On the 2 August, two new Patrols were added to the scheme⁽¹⁾ and on the 6 August a policy governing this type of reconnaissance was brought into force. It was decided by the Admiralty that, in view of the shortage of long-range aircraft in Coastal Command, it was impossible to carry out the ocean breakout schemes in northern waters and the Bay of Biscay when needed and at the same time to give the requisite air escort and support to the Atlantic convoys against the U-boats. Therefore, when the necessity arose in the future for taking precautions against a breakout of enemy surface units or for extended reconnaissance in aid of Home Fleet operations, the Admiralty would make a signal to Coastal Command and the naval authority concerned that "Fleet reconnaissance" was to take precedence over "Trade protection". This was to remain in force until the situation permitted a return to the normal⁽²⁾.

To gain a full picture of the reconnaissance performed more or less continuously off the Norwegian coast, it must be realised that enemy merchant shipping and minor naval units were always using the sheltered Inner Leads. Anti-shipping sweeps in addition to the standard coastwise patrols were a daily task and as complete a photographic cover as weather permitted was maintained over all ports, German as well as Norwegian, in order to keep the geographical position of the enemy major naval units under observation. Preliminary reconnaissance and both fighter and A/U cover were also given to minor Home Fleet operations such as raids on the Norwegian coast and naval minelaying. Details of such flying, which was indirectly in aid of the Home Fleet, are given in chapters IV and VI. In this chapter, therefore, mention will only be made of major incidents which required either ocean reconnaissance or direct operations against main enemy naval units on the move to and from Norwegian ports.

-
- (1) "Longstop" - A patrol to the north of the Faeroes, and "Trap", which was a sweep by four A.S.V. fitted aircraft to the South of Iceland alternative to the "Rovik" Patrols as the "Fox" sweep was to the "Bear" patrol in the Denmark Straits. See map XIV.
 - (2) There were three degrees of this control over air operations:-
 - (A) The normal state in which the A.O.C.-in-C., Coastal Command, used his forces for Trade Protection.
 - (B) Fleet Reconnaissance as required by the C.-in-C., Home Fleet, to take precedence of Trade Protection.
 - (C) Admiralty Control when the C.-in-C., Home Fleet himself put to sea and maintained W/T silence. He could not ask for specific reconnaissance and the Admiralty undertook to do it for him.

This policy was put into effect in an Admiralty order M.O.D. 1147/41 dated the 6 August, 1941.

(i) The Pocket Battleship "Admiral ~~Reinhold~~ Scheer" in Oslo

No. 18 Group
September O.R.B.

A temporary scare lasted between the 4 and 18 September, 1941 lest the "Admiral ~~Reinhold~~ Scheer" might be moving up the Norwegian Coast and attempt a breakout into the Atlantic. P.R.U. photographs on the 4th disclosed that this ship had left Kiel and, on his journey back, the pilot of the aircraft reported sighting a large warship with three destroyers and a merchant ship northbound in the Great Belt at 1400 hours. The photographs he took of this force confirmed their identity as the "Scheer", three destroyers and a depot ship. A Hudson of No. 220 Squadron was ordered to patrol in the Skagerrack as far as longitude 10°E from midnight. At 0205 hours on the 5 September the pilot reported a pocket battleship accompanied by three destroyers in position 58°53'N x 10°20'E. This position was in the entrance to Oslo fjord towards which they appeared to be steaming. A P.R.U. aircraft was despatched at first photographic light and succeeded in locating the "Scheer" in Oslo harbour. On the following day at 0830 hours, four Fortress aircraft of Bomber Command No. 2 Group left Kinloss to make a high level precision attack on her. Three of the aircraft reached the area but could not find the target in the position given. However, a photographic sortie which was carried out at the same time obtained photographs which showed the "Scheer" still in the same place in Oslo harbour alongside the south side of the most northerly jetty.

On the 7 September, cloud conditions prevented a view of Oslo but the naval harbour at Horten, halfway down Oslo fiord, was photographed disclosing the light cruiser "Emden" and three destroyers.

At 0915 hours on the 8th, four Bomber Command Fortresses again took off to attack the "Scheer". They were intercepted over Southern Norway at 28,000 feet by Me.109 fighters and two were shot down; the other two abandoned the task and returned to base.

Coastal Command
Naval Staff Log

Cloud conditions over Oslo prevented any photographic reconnaissance on the 8 and 9 September. On the latter day an intelligence report, graded as B4, was received to the effect that the "Scheer" had left Oslo on the 8th bound for the North Sea. The Norwegian Coast Patrols were stiffened and P.R.U. put on first priority for Trondheim, Oslo and Kiel. The C.-in-C. Home Fleet asked for breakout patrols from the 10 September but the Admiralty did not make the "Fleet reconnaissance take precedence" signal as it was found possible to satisfy the C.-in-C.'s request for "Polar" and "Fox" on the 10 and 11 September without interrupting Trade Protection measures. A spell of bad weather then intervened which held up the further flying of these two patrols. Oslo was not covered until the 15 September when it was seen that the "Emden" had arrived there from Horten and the "Scheer" had departed. No trace of the "Scheer" was found in the major enemy ports, despite continuous search, until on the 18 September photographs of the Baltic port of Swinemunde disclosed the ship in the entrance to the harbour. The tension accordingly relaxed.

H.Q.C.C.
Intelligence
Summary for
September.

By the 5 October, routine photographic cover had established that the "Scheer" had moved to Hamburg but from the 25th she no longer appeared on the photographs of that port on the few occasions when weather permitted a clear view. Similar weather difficulties over Kiel and other Baltic ports frustrated all efforts to re-locate her. Concern as to her

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whereabouts grew acute by the 5 November and on that day the Admiralty made the signal for Fleet reconnaissance to take precedence over Trade protection. Coastwise and ocean breakout patrols commenced but bad weather hampered their continuity. Furious gales from the 10th onwards caused severe casualties among the Flying boats and by the 15 November, Coastal Command's availability in long-range aircraft had been reduced to 12 flying boats and one Liberator - sufficient only for 48 hours of the ocean patrols. The "Sentries" Patrols could not be kept up even using relays of Hudsons with special long-range tanks, and from the 16th only "Frice" and "Polar" could be maintained. Coastwise cover⁽¹⁾, even off the south-west corner of Norway, was frequently interrupted for days. Towards the end of the month photographic cover was re-established over most of the main German ports and on the 28 November the "Scheer" was discovered back once more in Swinemunde. The "Fleet reconnaissance" signal was cancelled and normal Trade Protection duties were resumed.

No further Fleet Reconnaissance was undertaken until January 1942 though long-range fighter cover and bombing support was given to the combined operation at Vaagso at the end of December. Details of this have been given in Chapter IV, Section (vi)(f).

(ii) The battleship "Tirpitz" transferred to Trondheim

Fuhrer Confer-
ences on Naval
Affairs 1941
and 1942

As far back as September 1941 it had been agreed by the German Naval Staff that the "Tirpitz" should go to Trondheim to operate in Arctic waters pending the readiness of the Brest Group for operations in the Atlantic. The "Tirpitz" had only been in full commission for a short time and was still engaged in her initial working up to full battle readiness in Baltic waters. Delays in the completion of this and the unreadiness of the Brest Group had dragged on till December.

At the end of 1941, Germany was deeply involved in the campaign against Russia. The U-boat offensive was not preventing the arrival in Great Britain of increasing food and war supplies from overseas; moreover she was able to re-direct a stream of military equipment to Russia in convoys using the Arctic route. Hitler was convinced that there was a great danger of British landings in northern Norway and to meet this threat he insisted on a concentration of heavy naval units in these waters. The German Naval Staff proposed to effect this by bringing the Brest Group back to Germany and to deploy them and the available pocket battleships to Norwegian ports in February 1942⁽²⁾.

ibid.

Numerous small raids were being made by British detachments at various places on the north-west European coastline culminating in successful larger scaled raids at Vaagso and the Lofoten Islands between the 26 and 29 December. These and other intelligence reports strengthened Hitler's conviction of an imminent British invasion of Norway in co-operation with Sweden backed by Russia. The only major unit at immediate

(1) The standard coast patrols had been increased. In addition to "Trost", "Stab", "Bert", "Stand", "Hornli" and "Sleeve" there was now "Cup" between Marsten Light and Stavanger; "Saucer" covering the mouth of the Skagerrack; and "Sweep" between Heligoland and Horn Reefs. Refs. CC/G1/9/11/41 and CH/G13/3/8/41. See Map XIV for positions.

(2) See Chapter V, Section (iv).

readiness was the "Tirpitz" and she was ordered forthwith to transfer from the Baltic to Trondheim. The operation was known as "Polarnacht" and the objects were to strengthen the naval forces guarding Germany's northern flank, to operate against the British convoys to Russia and to tie down British naval forces well away from possible interference with the movements of the Brest Group.

H.Q.C.C. Intelligence Summaries.

The "Tirpitz" had last been viewed on the 19 December 1941 in Kiel by photographic reconnaissance. On the 6 January 1942, similar reconnaissance reported the absence of the pocket battleship "Admiral ~~Scheer~~ Scheer" from Swinemunde. Since these two dates nothing had been seen of either vessel owing to impossible weather conditions over most of the German main naval ports. On the 15 January, photographs were secured of Wilhelmshaven which revealed a drastic reduction, since the previous day, in the floating camouflage usually maintained in the Bauhafen basin of the dockyard. It was considered by the Admiralty Intelligence Section that this might presage the arrival of a major naval unit, possibly the "Tirpitz" or the "Scheer" from Kiel. On the 16th therefore, Kiel and Wilhelmshaven were made first priority for photographic reconnaissance. No particular stress was laid on Norwegian reconnaissance other than ordinary routine patrols.

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In point of fact, the "Tirpitz" had already left Germany and had arrived unseen and unsuspected in the Trondheim area. She left Gotehaven, in the Baltic, on the 11th and passed through the Kiel Canal on the 13 January, arriving late in the day at Brunsbuttel. At 2250 hours B.S.T. on the 14th she weighed and proceeded northwards through the Heligoland Bight and, after some diversionary movements in the mouth of the Skagerrack between 1530 and 1930 hours on the 15th to mislead any possible British reconnaissance, proceeded up the coast of Norway during the dark hours keeping between 15 and 30 miles off the land. She rounded Stadtlandet Peninsula at 0430 hours on the 16 January and entered the Inner Leads at Gripholen at 1025 hours subsequently passing Trondheim at about 1500 hours. She did not anchor here but carried on up the Strind fiord into Aas fiord finally entering a small inlet called Foetten fiord where she was moored close under the cliffs at 1645 hours.(1)

Log of the
"Tirpitz"

There being no reason to suspect this movement on the 15 January, only the routine reconnaissances were carried out on the Norwegian coast. Between 1030 and 1230 hours, a total of six aircraft were patrolling between the southern point of Norway and the peninsula of Stadtlandet in latitude 62°N looking for enemy merchant shipping. At this time the "Tirpitz" was still only off the west coast of Denmark. No air patrols were carried out in the afternoon so the battleship was unseen as she made the southwest corner of Norway at dusk. On the next day no flying took place on the Norwegian coast north of the latitude of Bergen and the "Tirpitz" remained unseen as she approached Gripholen during the forenoon of the 16 January.

No. 18 Group
January O.R.B.

17 January

The Admiralty informed H.Q.C.C. by telephone at 0735 hours that Intelligence indications pointed to the possibility of either the "Tirpitz" or the "Scheer" moving up to Norwegian waters and attempting a breakout into the Atlantic. The

(1) For details of the itinerary see Appendix XIX and Map XVII.

Coastal Command
Naval Staff Log

patrols "Sentry I" and "II"⁽¹⁾ would be required and photographic reconnaissance of Trondheim, Stavanger and Kiel was made a first priority. In addition, coastal reconnaissance was ordered between Stavanger and Trondheim. At 1000 hours the "Sentry Patrols" were postponed as the Admiralty Intelligence Section considered that Trondheim would be the terminus for the time being. However, three Catalinas were moved from Oban to reinforce those at Sullom Voe in case extended reconnaissance was needed. By 1600 hours the P.R.U. sorties had failed, that to Trondheim through oxygen mask trouble and that to Kiel owing to 10/10 cloud in the area. The ordinary patrols had nothing to report. It was planned to send a Liberator of No. 120 Squadron on a night sortie to Trondheim with flares but the weather over the Squadron's airfield at Nutts Corner shut down completely and grounded all aircraft. In view of the failure to view Trondheim or locate any major unit on the coast, the Admiralty requested "Sentry II" and "III" to be patrolled from noon on the 18th and made the signal for Fleet Reconnaissance to take precedence of Trade protection.

18 January

Weather and cloud conditions frustrated photographic reconnaissance of Trondheim. The breakout patrols and coastal reconnaissances were flown as scheduled. At 1630 hours a Hudson sortie managed to view the town of Trondheim under the 10/10 cloud but saw no signs of naval units in the roadstead or immediate vicinity. At 2000 hours, the Admiralty informed H.Q.C.C. that they considered the enemy unit concerned to be the "Tirpitz" and that she had gone or would go to the Trondheim area as a deterrent to further commando raids. Likely anchorages were given as being Strindfiord, Stjordals fiord, Aas fiord or even further north in Beitstad and Stenkjaer fiords.⁽²⁾

ibid. and
No. 18 Group
O.R.B.

19 January

"Sentry II" and "III" continued to be flown but with a break in the latter due to a relief Catalina crashing in the sea off the Shetland Isles. Later in the day they had to be cancelled owing to a gale at Sullom Voe. The day's P.R.U. sorties established that no major unit was in Trondheim harbour or roads or in any of the ports to the south down to and including the Bergen area. At the end of the day the Admiralty passed to H.Q.C.C. an appreciation of the situation to the effect that, if the "Tirpitz" was not in the Trondheim area or if located there and she subsequently left, they were convinced she would be on an operation to the northward. Coastal Command could not, at this range, maintain a continuous inshore patrol north of Trondheim to intercept this move. Therefore the Command must continue to fly photographic sorties at top priority over the Trondheim area and carry out long range reconnaissance by occasional single aircraft as far north as possible. Meanwhile the "Sentry Patrols" could be discontinued but sufficient aircraft must be at readiness to institute "Polar" and "Frice" at any moment.⁽³⁾ The

ibid.

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- (1) Sentries I, II and III were crossover patrols extending northwards from the tip of the Shetland Isles to latitude 66°40'N. See Map XIV.
 - (2) See Map XVII.
 - (3) "Polar" was a patrol extending from the north of Iceland to latitude 69°N.
"Frice" was a patrol between the Faeroe Islands and Iceland.

A.O.C.-in-C. gave orders for one Catalina to be prepared for a night flight with camera and flares to Narvik and late that night, on request from the Admiralty, instructed both "Polar" and "Frice" to be flown from first light on the 20th.

20 January

"Polar" and "Frice" were flown all day as scheduled, with "Sentry III" as well from noon to 1630 hours. Ever since the 15 January, a movement of enemy long range aircraft to Norwegian airfields had been noted and increasing sorties to the westward of Norway had been reported by our patrols all of which tended to confirm a new situation in this area. Agents' reports, graded B2, were received that the "Tirpitz" had been seen in the Trondheim area on the 19 January. However, the day's P.R.U. sorties still drew a blank though they did establish that the ship was not anywhere in Strindfiord. Petrol shortage prevented a search of Aas and Stjordals fiords.

ibid.

21 January

"Polar" and "Frice" continued to be flown. The latter had to return at 1145 hours owing to another gale with snow and similar conditions forced a discontinuance of "Polar" at 1700 hours. Only one P.R.U. sortie was possible and that failed to find the "Tirpitz".

22 January

P.R.U. sorties succeeded in photographing the remaining fiords. No major unit was disclosed in Stjordals, Beitstad or Stenkjaer fiords. Local cloud spoilt the negative of Aas fiord but the pilot stated that, visually, he could see no signs of any warship.

ibid.

23 January

At 1250 hours, good photographs were obtained of Aas fiord, and, when developed, at last revealed the "Tirpitz". The ship was moored close up to the cliffs on the northern side of a small inlet off Aas fiord, called Foetten fiord. The shadows cast by the cliffs, the mottled rock and snow landscape and the camouflage netting in place over part of the ship combined to form a perfect hiding place which fully explained the failure of visual reconnaissance.

On the 25 January, the Prime Minister drew the attention of the Chiefs of Staff to the presence of the "Tirpitz" at Trondheim, the destruction or even the crippling of which, he wrote, would constitute the greatest event at sea at that time. He pointed out that no other target was comparable to this ship which was holding four times the number of British capital ships paralysed as well as the two new American battleships now in the Atlantic.

P.M./D9/2

The Prime Minister ordered a plan to be made for attacks on the "Tirpitz" by Bomber Command and carrier borne torpedo aircraft. He stressed the importance of the target in the strongest terms - "The entire naval situation throughout the world would be altered and naval command in the Pacific regained - I regard the matter as of the highest urgency and importance".

C.O.S.(42)28(o)
Annexe II

The C.A.S. conferred with A.O.C.-in-C., Bomber Command who explained that the ship was out of range for all except Halifaxes and Stirlings operating from Lossiemouth. For

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various reasons daylight attack was considered unfeasible and it was agreed that Halifaxes should be assembled at Lossiemouth for an attack on the first night on which there was sufficient moon. It was suggested that this should be followed by a dawn attack by carrier borne torpedo bombers.

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The Prime Minister approved the plan on the 28 January and asked for immediate action to implement it. The position of the "Tirpitz" forbade the use of torpedo aircraft but the bombing attack took place on the night of the 29/30 January. It was carried out by nine Halifaxes and seven Stirlings. No direct results were observed and in actual fact the battleship was not damaged.

Chapter V
Section (ii)

During this week 24 to 31 January, photographic sorties had great difficulty in continuing to confirm the ship's presence as it was only on the best photographs that she could be distinguished. Visual evidence from the air was unreliable and several scares were experienced that she had left. Breakout patrols were flown on these occasions and it was not till the end of the month that P.R.U. re-inforcements at Wick enabled a daily routine watch to be planned. Subsequently this was often interrupted by unsuitable weather and the shortage of the only type of aircraft - the Mosquito - which could undertake this long range task with hope of success. The precedence for Fleet Reconnaissance was cancelled but the necessity for constant watch, with the institution of some of the Northern breakout patrols whenever photographic confirmation of the "Tirpitz's" presence was lacking, imposed a heavy strain on Coastal Command's resources particularly as a similar task was being performed against the German major units in Brest.

(iii) The pocket battleship "Admiral ~~Wern~~ Scheer" and the heavy cruiser "Prinz Eugen" transferred to Trondheim

Coastal Command
Naval Staff Log
and Nos. 16 and
18 Groups O.R.B.
Appendices.

From the 14 February, just after the escape of the Brest Group to Germany, much increased enemy air activity was observed in and to the west of the Trondheim area. As such action usually presaged the move of enemy naval units, the Admiralty warned Coastal Command that the breakout patrols might be required in the near future. During the next few days, extensive moves of German bomber and long range fighter aircraft were reported to be taking place from the south up to Danish and Norwegian airfields. This increased the suspicion of imminent enemy naval movements. The Norwegian coast air patrols were intensified, particularly "Stand" which was flown at four hour intervals from the 17th. Two British Submarines were stationed in the exits from the Trondheim area anchorages.(1) On the 19 February the routine P.R.U. sortie observed the "Tirpitz" exercising under way in Strindfiord. The Admiralty immediately ordered precedence for Fleet reconnaissance and required additional air reconnaissance between Heligoland and south Norway. The Home Fleet put to sea and cruised between Iceland and Norway.

(1) One submarine was stationed in Fro Havet and one off Gripholen. See Map XVI. The P.R.U. Pilots were instructed to include these two localities in their photographic sorties in order that any enemy anti-submarine patrol craft activity might be passed by W/T to the two submarines.

During the afternoon of the 20 February, Admiralty Intelligence received indications pointing to a move up to Norway by a naval force from Germany. "Stand" patrol and a sweep off the west coast of Denmark were maintained throughout the night. From dawn on the 21st, further extensive patrols were flown off the Danish and southwestern Norway coasts. The torpedo Beauforts of Nos. 42, 217 and 86 Squadrons were brought to 1½ hours readiness at Leuchars and North Coates.(1)

At 1110 hours, when in position 5551N x 0641E, Hudson H/53 Squadron on "Sweep" patrol sighted a naval force composed of two large warships and three destroyers steering north at about 20 knots. Visibility was good in this area but poor further to the northward off southwest Norway. Relays of Hudsons, a Whitley and a Sunderland were organised to maintain touch with this force. H.Q. Bomber Command were informed so that combined strike action could be planned.(2) With this end in view, it was decided not to despatch a Coastal Command strike immediately but to send all available torpedo Beauforts to reach a position 10 miles south of Utsire Light by 1730 hours.(3) From thence they were to sweep to the southeast to meet the enemy force and the Bomber Command strike would be timed to make a nearly simultaneous high level attack.

However, during the afternoon the bad weather spread to the south, deteriorating into low cloud with snow and hail showers. None of the shadowing sorties or re-location sweeps succeeded in finding the enemy force. Under these conditions, Bomber Command stood down their three squadrons which had been brought to readiness for the attack. Coastal Command continued with the plan and, at 1505 hours, 12 Beauforts escorted by eight Beaufighters left Leuchars followed at 1600 hours by five Beauforts from North Coates. The Leuchars strike carried out the sweep but saw no signs of the enemy; the North Coates detachment ran into continuous snow and sleet, lost touch with each other and had to abandon the task.

Actually, the German heavy ships were the Pocket battle-ship "Admiral ~~Vern~~ Scheer" and the cruiser "Prinz Eugen". It was originally planned by the German Naval Staff that these two ships and the battle cruisers "Scharnhorst" and "Gneisenau" should make the move to Norway together, but the damage sustained by the two battlecruisers through hitting mines during their escape from Brest prevented their participation. The transfer operation therefore only included the "Scheer" and "Prinz Eugen". These two ships, escorted by destroyers, left Brunsbüttel at 2100 hours British time on the 20 February, and proceeded northwards through the Heligoland Bight and up the west coast of Denmark. Shortly after being sighted by the Coastal Command Hudson at 1110 hours on the 21st, they turned back on their tracks and at 1650 hours received orders to remain at sea during the night and to put into Skudesnes fiord at dawn on the 22nd. Thence they were to proceed up the Inner Leads until off Bergen. They were to leave the Leads after dark and proceed under cover of night to Trondheim. It was not surprising, therefore, that the Beaufort strike sighted nothing off southwest Norway at dusk on the 21st.

- (1) At Leuchars were available ten aircraft of No. 42 Squadron and three of No. 217 Squadron. At North Coates were five of No. 86 Squadron.
- (2) At 1200 hours, C.-in-C. Bomber Command ordered the following Squadrons to be brought to readiness; one squadron each of Halifaxes, Stirlings and Manchesters. All were armed with A.P. and S.A.P. bombs.
- (3) See Map XVI.

Coastal Command
Naval Staff Log
and
No. 18 Group
O.R.B. Append-
ices

The photographs taken during the day over the Aas fiord area showed that a berth for a large ship had been prepared in Lo fiord thus indicating the terminus point for at least one of the enemy warships.⁽¹⁾ Having no idea of the precise location of the German force it was planned by Coastal Command to send a small strike of torpedo Beauforts into the Skudesnes area at dawn on the 22nd and reserve the main Beaufort effort for the Stadtlandet area later in the day. Bomber Command decided not to attempt a strike at the naval units but to bomb the enemy airfields at Sola, Lista and Mandal in south Norway during the night of the 21st/22nd.

In accordance with this plan, three Beauforts of No. 86 Squadron left North Coates at 0500 hours and six of No. 42 Squadron took off from Leuchars at 0547 hours on the 22 February. The former ran into foul weather on the way over and only one aircraft reached the area. Of the latter, four aircraft were in the Skudesnes/Lister area between 0752 and 0857 hours. No enemy ships were sighted.⁽²⁾ In addition to this strike at the ships, four Beaufighters of No. 248 Squadron were despatched at 0535 hours to shoot up the enemy aerodrome at Sola, near Stavanger. One of these aircraft, when flying into Skudesnes fiord at sea level, sighted the German force at 0715 hours, well inside the fiord, steering 060° at slow speed and obviously making for the Inner Leads. Ten minutes later, a Bomber Command Manchester, returning from a sortie over South Norway, also sighted the force from 16,000 feet. An attack was made under heavy flak from the ships and neighbouring shore batteries so the pilot could not observe the fall of his bombs.

Appendix XX

The German account states that the squadron were in position 5900N x 0508E at 0700 hours entering Skudesnes fiord and at 0720 hours opened fire on an aircraft which attacked and missed the "~~the~~ Scheer" at 0730 hours. They erroneously claimed the aircraft as shot down. After this the squadron entered the Inner Leads, passing Haugesund at 0850 hours, entering Kors fiord at 1100 hours and anchoring in Grimstad fiord at 1328 hours.⁽³⁾

Coastal Command
Naval Staff Log
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No. 18 Group
O.R.B. Append-
ices

Following the reports of these two sightings, the offshore patrols were increased in case the enemy ships took to the open sea and P.R.U. sorties were flown to try and locate them in the Inner Leads and to photograph likely anchorages in case they stopped. At 1500 hours, photographs of the Bergen area were taken which disclosed the "~~the~~ Scheer" and "Prinz Eugen" at anchor in Grimstad fiord. The interpretation report did not reach Coastal Command headquarters until 1700 hours. It was considered that the ships would continue their journey northwards after dark and, in consultation with the Admiralty, the following plan was adopted.

1. The C.-in-C. Home Fleet detached H.M.S. Victorious (carrier), H.M.S. Berwick and four destroyers to be in a position about 100 miles west of Stadtlandet by midnight.
2. Coastal Command to fly coastal reconnaissance between Bergen and Stadtlandet from 1900 hours onward and to despatch the Beaufort torpedo strike so as to sweep up

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- (1) Lo fiord was another of the small inlets opening off Aas fiord. See Map XVII.
 - (2) They were of course too late to see the enemy force in this area.
 - (3) See Map XVI.

from Utvaer Light to Stadtlandet between 2100 and 2200 hours.

3. A strike of F.A.A. Albacore torpedo aircraft to leave H.M.S. Victorious in time to sweep down in the reverse direction from 0100 hours on the 23rd.

ibid.

Two Catalinas of No. 413 Squadron patrolled from Stadtlandet to Utvaer Light and Bergen to Utvaer Light from 1900 hours to 2048 and 0310 hours respectively in order to locate the force. The former aircraft obtained several suspicious A.S.V. contacts between 2000 and 2040 hours but the flares failed to ignite which prevented any identification. In point of fact, these contacts could not have been the enemy ships as they did not leave Grimstad fiord until 2000 hours and were still south of Feje at 2200 hours. It is not easy, however, to explain why the other aircraft's A.S.V. did not give indications as from about 2200 hours the German Squadron was in the open sea proceeding northwards outside Utvaer Light. Latterly, visual sighting would have been unlikely as the visibility varied between a few miles and a few yards in increasing snow showers. (1)

ibid.

The strike of eight Beauforts took off around 1850 hours from Leuchars and five of them succeeded in carrying out the planned sweep between 2120 and 2210 hours. The weather conditions were poor with frequent snow showers. No signs of the enemy were seen as in actual fact they were still to the south of Utvaer Light.

The F.A.A. Albacores carried out their sweep as scheduled and should have sighted the enemy soon after 0100 hours but by then the weather conditions were even worse and nothing was seen. Three aircraft failed to return. Postwar research by the Admiralty Historical Section reveals that two of these aircraft appear to have collided in cloud near the Norwegian Coast. The third came down in the sea near the Shetlands presumably through lack of petrol. There were no survivors.

Appendix XX

The enemy squadron had an uneventful passage, reaching position 6311N x 0643E by 0540 hours on the 23 February where course was shaped to enter the Inner Leads at Gripholén. While approaching this opening, at 0606 hours, the "Prinz Eugen" was hit in the stern by a torpedo fired by H.M.S./M. Trident. The "Scheer", who was about 700 metres astern at the time, continued on with one destroyer. She passed Trondheim at 1200 hours and moored in Lo fiord at 1348 hours. Meanwhile the "Prinz Eugen" was stopped with the steering gear out of action and making water aft. Using auxiliary steering she got under way at 0730 hours and slowly made her way up the Trondheim Leden, passing the town at 1840 hours and anchoring in Lo fiord at 2255 hours. Examination of the ship revealed extensive damage to the rudder blade, the steering gear and the stern structure.

No. 18 Group
O.R.B. Append-
ices

After receiving the W/T sighting report from H.M.S./M. Trident, Coastal Command cancelled the extensive patrols which had taken off before first light and concentrated on

- (1) Catalina A/413 Squadron carried out the northern patrol until 2048 hours when course was set for base after the failure of all flares to ignite. The southern aircraft, K/413 Squadron, was instructed by W/T at 2250 hours to proceed to Uvaer Light and take over the northern patrol. This was carried out from 2330 to 0350 hours when the A.S.V. became unserviceable. Weather conditions worsened rapidly after 2300 hours.

photographic sorties over the Trondheim area. These revealed the "~~Uta~~ Scheer" moored in the prepared berth in Lo fiord and the "Tirpitz" back in her previous position in Foetten fiord. The "Prinz Eugen" was not seen.

To guard against a sally from this area that now contained two capital ships, two new watching patrols were inaugurated from dusk on the 23 February. A Catalina crossover patrol on the coast covering the exits from Fro Havet and Gripholen known as "Prowl" and a patrol between Stadtlandet and Utvaer Light known as "Stutter".⁽¹⁾ These two patrols were flown nightly from dusk to first light. On the 24 February, photographic reconnaissance disclosed the "Prinz Eugen" at anchor near the "~~Uta~~ Scheer" in Lo fiord.

(iv) The attempt by the "Tirpitz" to intercept convoy P.Q.12 early in March 1942

No. 18 Group
signal
A.981/26/2/42

From the 26 February it was considered desirable to maintain an air patrol guarding the exits from Trondheim during daylight hours as well as by night. For this purpose the aircraft on "Prowl" automatically opened the patrol co-ordinates 20 miles to seaward at first light and closed in again at dusk. This was done in order to be outside easy fighter interception range during daylight hours and the day position of the crossover was called "Prowler".

Coastal Cmd
Naval Staff
Log

In view of the presence in Trondheim of two enemy capital ships, it was decided by the Admiralty that the next convoy to Russia - PQ12 - should be supported by units of the Home Fleet and that Coastal Command should intensify breakout patrols and photographic reconnaissance in the Trondheim area from the time when the convoy was clear of Iceland until it was to the east of Bear Island. Should P.R. sorties fail to establish the continued presence in harbour of the enemy major units, "Frice" and "Polar" would be required and in addition, long range search as far north as possible between Iceland and Norway. There were, however, only six Catalinas and four Sunderlands available at this time in Nos. 15 and 18 Groups and it was realised that the flying of even "Prowl" and "Prowler" could not be maintained for long and their initiation must be put off until the last moment compatible with prudent precaution against an attempt to intercept the convoy.

No. 18 Group
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Appendices

All three enemy ships were successfully viewed in harbour on the 28 February. On the 1 March, convoy PQ12 sailed from Hvalfiord and took a westabout route round Iceland. Two Liberators of No. 120 Squadron were ordered to transfer from Northern Ireland to Reykjavik by the 3 March to provide ice and long range reconnaissance if necessary.⁽²⁾ The enemy units were again viewed in harbour on the 2, 3 and 4 March. On the latter day, units of the Home Fleet put to sea from Scapa Flow and received A/U air escort until dusk.⁽³⁾ It was decided to

- (1) See Map XIV. Reference: CC/G1/23/2/42.
- (2) There were only two Liberators available in No. 120 Squadron. B/120 arrived at Reykjavik on the 3 March but the second aircraft was not sent.
- (3) The units were the battleship H.M.S. King George V, the fleet carrier H.M.S. Victorious, the cruiser H.M.S. Berwick and six destroyers. On this and all subsequent sailings and returns to harbour of Home Fleet units, A/U and long range fighter escort were given by Coastal Command out to the economic range of the aircraft employed.

commence flying "Prowl" and "Prowler" from dusk on the 4th, backed up by a daily forenoon photographic sortie over Aas fiord with an afternoon sortie should the former fail to obtain results. On the 5th, the P.R. aircraft failed to return and the major units were not viewed. "Prowl" and "Prowler" were flown continuously.

Soon after dawn on the 6 March, the pilot of the Catalina on "Prowler" shifted his patrol further still to seaward in view of the extreme visibility in the area and continued thus until his patrol endurance finished at 1515 hours. Because of the difficulty in completing the routine engine inspections on the overworked long range aircraft, the relief Catalina did not arrive on "Prowl" patrol until 2240 hours, moreover weather conditions at base frustrated any photographic aircraft from taking off during the whole day. During this breakdown in air reconnaissance, the "Tirpitz" left Trondheim and proceeded northwards through Fro Havet and close up the coast of Norway until dark. She was, however, not unseen. At 1801 hours H.M.S./M. Seawolf, on patrol outside Fro Havet in position 6432N x 0959E, sighted a large warship 10 miles away to the southeastward steering 045° and out of attacking range. In this vulnerable position the submarine was unable to surface to make a W/T report until 2350 hours.(1)

The German records establish that their long range air reconnaissance sighted and reported PQ12 at 1205 hours on the 5 March in a position 70 miles southeastward of Jan Mayen Island. The U-boats waiting between this island and Bear Island were ordered to form an interception line and the "Tirpitz" raised steam for three hours notice. Early on the 6 March the Naval War staff, with Hitler's approval, decided to despatch her to attack the convoy. At 1100 hours the "Tirpitz", with the 5th Destroyer and 2nd Torpedo boat flotillas, put to sea. After being escorted well into the open sea, the "Tirpitz", at 1852 hours, sent the torpedo boats and one destroyer back and proceeded with three destroyers towards the convoy which it was estimated would be found in approximately 7200 N x 0900 E by 1500 hours on the 7 March.

The receipt of the "Seawolf's" signal at nearly midnight, although establishing the departure of one major unit, left the Admiralty uncertain as to which one. For this reason the flying of "Prowl" and "Prowler" was continued in case another ship should sail and urgent priority was given for photographic cover of the Trondheim anchorages. The first sortie on the 7 March failed but the next one obtained photographs at 1500 hours which confirmed that the "Scheer" and "Prinz Eugen" were still in harbour but disclosed the departure of the "Tirpitz" and three destroyers. At 1632 hours a "raider distress" message was intercepted from a merchant ship in position 7235N x 1050E which indicated the whereabouts of the "Tirpitz" and destroyers. In readiness for an attack during the battleship's return journey, nine Beauforts were sent to Sumburgh in the Shetlands together with four Beaufighters as escort. Of the other available Beauforts, seven were kept at Wick in case the "Prinz Eugen" should try to return to Germany and eight were at Leuchars to deal with any naval reinforcements that might be sent from Germany. Six Beaufighters were

- (1) At 10 miles range through the periscope the captain of the "Seawolf" was unable to identify the precise unit. His signal, therefore, reported the sighting of one battleship or heavy cruiser.

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at Wick to provide escort if these latter strikes were necessary Bomber Command had six Lancasters and six Halifax aircraft at Lossiemouth ready to co-operate.

During the 8 March the weather prevented any photographic reconnaissance of Trondheim. By now only four Catalinas were serviceable. This and a series of gales made it increasingly difficult to maintain "Prowl" and "Prowler". The "Tirpitz" was in latitudes too far to the north to undertake additional air searches but the C.-in-C. Home Fleet was taking steps to cover both PQ12 and the homeward bound QP 8 by standing over at high speed towards the Norwegian coast. In expectation of the "Tirpitz's" imminent return towards Trondheim, a Catalina was despatched at 0530 hours on the 9th to carry out a crossover patrol athwart her estimated track while the one Liberator available in Northern Ireland took off at 0651 hours and swept up the ship's estimated homeward course.⁽¹⁾ H.M.S. Victorious with a destroyer escort, had been ordered by the C.-in-C. Home Fleet to press ahead at utmost speed in an attempt to get between the "Tirpitz" and the Norwegian coast. By 0700 hours on the 9th, they had reached position 6845N x 0745E.

Appendix XXI

To turn back to the German movements. After clearing from Fro Havet at dusk on the 6th, the force had proceeded northwards till 0950 hours on the 7th (See Map XV). As no further reports had been received of the position of PQ12 from either reconnaissance aircraft or U-boats, the "Tirpitz" detached the three destroyers to sweep to the northward while she searched to the northwestward. At 1632 hours the "Tirpitz" also picked up the distress message from the merchant ship. She inferred that her destroyers were the cause and that they were in the vicinity of the convoy. The position given in the signal was closed and at 1728 hours the destroyers were met in 7238N x 0756E. It was learnt that one of them had sunk the Russian SS "Ijora" but from her course she was plainly not a member of the PQ 12 convoy. In actual fact she was a straggler from the westbound convoy QP 8. Stocks of oil fuel in the destroyers were running low and the rising sea prevented refuelling from the "Tirpitz". After vain endeavours to effect this during the night of the 7th/8th, the "Tirpitz" continued the search alone in an area to the south and southwest of Bear Island and in fact only some 60 to 120 miles to the southward of PQ 12. At 1120 hours on the 8th, the Group Command North signalled a new area where it was thought the convoy might be found. The "Tirpitz" headed westward towards this area but with little hope of success owing to inadequate air reconnaissance, unfavourable weather and a nagging uncertainty of the British naval dispositions.⁽²⁾ At 2025 hours she signalled her intention of returning and ten minutes later set course to the southward for Fro Havet, reaching the latitude of the Lofoten islands by dawn on the 9 March.

As soon as light permitted, the "Victorious" flew off air searches ahead. One of these, at 0800 hours, sighted the

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- (1) The Catalina crossover - Between 0945E and 1150E along 6630N Ref. CC/G1/9/3/42.
The Liberator sweep - Between 6538N x 1052E and 6720N x 1043E Ref. LV/G1/9/3/42.
 - (2) In the official report on the operation, Group Command North drew attention to the deplorable lack of air reconnaissance and stated that, for future operations, it was essential to strengthen the Luftwaffe in Northern Norway and to provide a higher standard of competence among the pilots in this particular task.

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"Tirpitz" in position 6747N x 0830 steering south. Soon afterwards the enemy ship became aware of being shadowed by a carrier borne type of aircraft and altered course to the east at high speed towards the shelter of Vest fjord. The "Victorious" launched a strike of twelve torpedo Albacores who attacked at 0930 hours but the "Tirpitz" successfully avoided all torpedoes. She entered Vest fjord at 1130 hours and proceeded up into Ofot fjord ultimately anchoring in Bogen fjord at 1620 hours on the 9 March.(1)

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The British authorities were unaware of this destination for the "Tirpitz" and assumed that the observed dash towards the Norwegian coast was to gain air cover and that the journey would be continued that day towards Fro Havet. "Prowler" and the "east to west" crossover patrol were maintained during the remainder of the 9th. Photographic cover confirmed that the "Tirpitz" had not returned to Trondheim.

After the almost unbroken sequence of long range patrols since the 4 March, the shortage of serviceable aircraft had become acute and, in consultation with the Admiralty staff, it was decided that the existing patrols should be discontinued but some form of watch must be maintained north of Fro Havet to intercept the "Tirpitz" as she came south. During the 10 March, P.R. sorties were flown along the coast between latitudes 66° and 67°N and it was again confirmed that the ship had not entered Trondheim. From 2040 hours a new Catalina patrol was inaugurated. This extended for 30 miles out from the coast in latitude 6555N.(2) It was maintained by relays of four Catalinas up till 0300 hours on the 12th when hopeless weather conditions put a stop to it. Photographic reconnaissance on the 11th had once more confirmed the continued absence of the "Tirpitz" from the Trondheim area. Impossible flying weather, either at base or around Trondheim, persisted until the 18th March during which time no flying off the coast or over the anchorages produced any result. At 1215 hours on the 18th a photographic sortie was at last successful and revealed the "Tirpitz" once more in her old berth in Foetten fjord.

Appendix XXI

In point of fact the "Tirpitz" had remained in Bogen fjord until the 12 March when the weather further south deteriorated. At 2300 hours she put to sea and proceeded southwards, keeping very close to the Norwegian coast, until 1000 hours on the 13th. She then opened her offing from the coast to 20 miles and continued unseen into Fro Havet, finally mooring in Foetten fjord at 2100 hours on the 13 March.

(v) The heavy cruiser "Admiral Hipper" transferred to Trondheim

No sooner had the "Tirpitz" been re-located than various indications from enemy air activity and W/T traffic gave rise, later on the 18 March, to suspicions that some naval movement was about to take place along the Norwegian coast. Coastal reconnaissance was interrupted by further bad weather and nothing unusual was sighted during the 19th. From past experience it was considered likely that any naval unit on the move would traverse the open stretch of coast around south Norway just before dawn. Accordingly one Hudson was

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- (1) For the precise position of Bogen fjord see Map XVIII.
(2) Between longitudes 1031E and 1145E along latitude 6555N
Ref. RO/G5/10/3/42.

ordered to be on "Stand" patrol by 0500 hours on the 20 March followed by an armed reconnaissance of 15 torpedo Beauforts to be at the northern limit of "Stand" patrol by 0545 hours.⁽¹⁾ From thence they were to sweep to the southeast along the coast.

Appendix XXII

The German move was, in fact, the transfer of the heavy cruiser "Admiral Hipper" from Brunsbittel to Trondheim. This was in accordance with the enemy plan to concentrate the major units in Norwegian waters and was carried out under the code name of "Eisenbahn". She left Brunsbittel at 1230 hours British time on the 19 March and proceeded northwards through the Heligoland Bight, passing the Horn Reefs at 2025 hours. The mouth of the Skagerrack was traversed between midnight and 0330 hours on the 20th. Skudesnes fjord was entered at 0630 hours and the ship entered the Inner Leads northbound at about 0730 hours.

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The Hudson never reached the Norwegian coast, being compelled to return, when only 80 miles out from base, by severe icing conditions. The Leuchars detachment of Beauforts, less two aircraft whose engines failed to start, was not airborne till 0430 hours. On the way across two more aircraft dropped out owing to engine trouble. One of the remaining two found no cloud cover when nearing the coast of Norway at 0637 hours and returned to base. The other made a landfall in the mouth of Skudesnes fjord at 0626 hours, turned southwards until 0642 hours and when off Egersund set course for base. This latter aircraft must have been within a few miles of the "Hipper" when the landfall was made but presumably, in the early light, the enemy ship was invisible against the rocky islands in Skudesnes fjord. The Wick detachment, less two aircraft who failed to take off, were airborne even later. The first one left at 0500 and the last at 0526 hours. Landfalls were made at Utsire Light and outside Skudesnes fjord between 0645 and 0716 hours. All too late to have a chance of sighting the "Hipper". On their subsequent sweep to the southeast, one enemy destroyer was sighted northbound off Obrestad at 0709 hours and two more, also northbound, at 0730 hours about 30 miles southwest of Lister.

At 0730 hours, a photographic sortie was made over Stavanger, Hangesund, Bergen and the Inner Leads as far north as Sogne fjord (see Map XVI). This failed to obtain results owing to low cloud. A sortie to the Trondheim area confirmed the presence of the "Tirpitz", "Scheer" and "Prinz Eugen" at 1015 hours. Another sortie over the Inner Leads at 1510 hours sighted and photographed the "Hipper", escorted by three destroyers and a torpedo boat, in the northern end of the Hjelte fjord (position 6039N x 0450E). When clear of the area the aircraft made a W/T sighting report to base.⁽²⁾ At this time, three Beauforts of No. 86 Squadron were on a reconnaissance sweep southwards from Stadtlandet and, as it was thought possible that the "Hipper" might leave the Inner Leads at Feje Light, the aircraft were diverted by W/T signal from base. Unfortunately only one of them received the signal and he saw no signs of the enemy between Utvaer and Feje up to 1730 hours when he had to return. The next possible exit from the Inner

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- (1) Hudson V/608 Squadron. Nine Beauforts of No. 86 Squadron from Wick. Three Beauforts of No. 42 Squadron and three of No. 217 Squadron from Leuchars.
 - (2) This signal was intercepted by the "Hipper" and the position was confirmed as correct in her log. See Appendix XXII.

ibid.

Leads was through Aspo fjord and a strike of 11 Beauforts was sent to intercept the "Hipper" should she emerge into the open sea at this point at dusk.⁽¹⁾ The Wick detachment of this strike took off at 1720 hours but, when making the Norwegian coast at 1830 hours, the leader developed engine trouble and, after instructing the others by R/T to carry on, set course for base. However, the R/T message was misunderstood and the other three aircraft also returned to base. The Sumburgh detachment of seven Beauforts was airborne between 1746 and 1755 hours and arrived off Bremanger Island at 1910 hours. From here they coasted down to Utvaer Light by 1930 hours where most of them lost touch with each other in the gathering darkness. Independently they remained until 1940 hours cruising in the area off Aspo fjord but sighted nothing.⁽²⁾

In point of fact, the "Hipper" with her escort was still in the Inner Leads at this time and did not enter the open sea from Aspo fjord until 2050 hours when it was quite dark. She kept to the sea in a wide detour round Stadtlandet and re-entered the Inner Leads at Bredsund at 0200 hours on the 21st. Continuing along them for the rest of her journey, she finally anchored in Lo fjord at 1400 hours on the 21 March.

All available Beauforts remained at short notice from 0600 hours on the 21 March. The coast patrols between Trondheim and Bergen, which took off before first light, encountered low cloud with severe icing conditions and saw nothing. They were no more successful in the afternoon. Three photographic sorties were flown during the day to the Trondheim area and over the Inner Leads but all were frustrated by continuous low cloud. Similar weather, made worse by fog, obtained during the 22 March and it was assumed that the "Hipper" had arrived in Trondheim.

(vi) Precautions against an attack on convoys PQ 13 and PQ 14

At 1000 hours on the 22 March, the Home Fleet sailed from Scapa Flow for Iceland, preparatory to supporting convoy PQ 13 which had left west-about round Iceland on the 18th. Patrols "Prowl" and "Prowler" were commenced from 2016 hours on the 22nd and continued during the 23rd in shocking weather which finally put a stop to them at 1558 hours. Photographic reconnaissance was impossible as also was a Beaufighter visual sortie to the Aas Fiord anchorages. By this date the convoy was becoming vulnerable to a sally from Trondheim and, late on the 23rd, the Admiralty requested a crossover patrol at right angles to the coast just south of the Lofoten Isles. However, Coastal Command only possessed five Catalinas in a serviceable condition and they could not hope to maintain such a distant patrol for long. A compromise was agreed upon whereby three Catalinas would carry out a sweep from Fro Havet at 1100 hours on the 24 March extending up the coast to the southernmost island in the Lofotens and thence to the northwest towards the position of PQ 13.⁽³⁾ On reaching latitude 70°N, which was the operational range limit, the aircraft were to return on reciprocal tracks.

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- (1) Four Beauforts of No. 86 Squadron from Wick. Six of No. 42 and one of No. 217 Squadrons from Sumburgh.
 - (2) Three of these aircraft crashed in Scotland on return.
 - (3) The mean tracks of this sweep and of the two subsequent modifications are shown on Map XIV under the name of "Lotus" by which they were finally known.

C.C./G5/24/3/42

During the 24 March, gales with low cloud and driving rain cancelled this sweep and indeed all flying off or over the Norwegian coast. To compensate for the advance of PQ 13, the Catalina sweep was adjusted for the 25 March to keep due north after reaching the Lofoten Islands but the continuance of gale conditions prevented any take off, neither was it possible to view the Trondheim anchorages. Late in the day, enemy W/T activity gave rise to a scare lest the "Prinz Eugen" might be coming south in addition to a possible sally by the battleships to the northward. It was of course natural to assume that, now the "Hipper" was in the Trondheim area, it would not be long before the "Prinz Eugen" left for dry-docking and refit in Germany. Photographic reconnaissance over Trondheim and the Inner Leads was requested at the highest priority for the 26th and the torpedo Beauforts were brought to two hours notice. The Catalina sweep was again adjusted for PQ 13's position and was scheduled to cover a track up the Norwegian coast outside the Lofoten Islands to latitude 70°30'N. On the 26th, though the three Catalinas did take off, they were forced by continuous hail and icing conditions to abandon their flight soon after commencing the sweep while low 10/10ths cloud frustrated all reconnaissance over Trondheim or the Inner Leads.

C.C./G2/25/3/42

It was considered that the unusually severe pack ice conditions in the Kattegat and Skagerrack might well be the governing factor in any enemy plans for the movement to or from Germany of major naval units as well for their normal shipping communications. From the 27 March, therefore, a nightly sortie in this area by a long range Hudson aircraft was instituted as far as longitude 11° East which was kept up till 1 April.

C.C./G5/26/3/42

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Further north the bad weather conditions persisted during the 27 March. Photographic sorties to Aas Fiord again failed and the Catalina sweep once more had to turn back after starting up the coast of Norway. On the 28th, partial photographic cover was at last secured which disclosed the "Tirpitz" in her usual berth and the "Hipper" under way at slow speed just to the east of Trondheim town. In case she might be starting on a sally to intercept PQ 13, one Catalina took off at 1900 hours to do No. 3 track of the Catalina "Lotus" sweep but at 2350 hours the aircraft ran into heavy continuous snow in position 67°00'N x 103°00'E and had to return to base. Efforts to fly this sweep were discontinued from the 29 March as PQ 13 was, by then, nearing the safety of Murmansk. Low cloud frustrated the photographic sorties on the 29th and 30th but Bomber Command decided to launch an attack on the anchorages in Foetten and Lo Fiords. This took place during the night of the 30/31 March and was undertaken by 34 Halifaxes of No. 4 Group Bomber Command. One aircraft had to abandon the operation owing to engine trouble and five Halifaxes were missing. Of the remainder, 25 failed to identify the target area in adverse weather conditions of low cloud and mist in valleys and fiords, two dropped bombs on the estimated position of the targets and one bombed active flak positions during the approach. No damage was inflicted on any enemy naval unit. Photographic reconnaissance was successful on the 31 March and disclosed the "Tirpitz", "Scheer" and "Prinz Eugen" in their usual positions and the "Hipper" cruising slowly off Trondheim town in position 63°34'N x 103°30'E. On the same day, convoy PQ 13 arrived in Murmansk and precautionary flying north of Trondheim was relaxed.

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Similar precautions to safeguard convoy PQ 14

Weather conditions prevented any view of the major units for the next week and it was not till the 8 April that all the

enemy ships were again photographed. They were still in the same positions. During this time no breakout patrols were flown, partly because of the interval before the next PQ convoy became vulnerable, and partly because of the superior claims on long range aircraft for Atlantic convoy protection and the detection of blockade runners in the Bay of Biscay.

On the 8 April, convoy PQ 14 sailed from Iceland. The three Catalina sweeps up and out from the Norwegian coast were standardised under the names of Lotus I, II and III so that, depending on the progress of the PQ convoy, the appropriate sweep could be selected. (See Map XIV). From the 8 April, ice reconnaissances were flown at intervals north of Iceland and up to Jan Mayen island⁽¹⁾ and in the Skagerack. From the 12th, two photographic sorties daily were carried out over the Aas fiord anchorages. "Lotus II" was flown on the 13, 14 and 15 April. It was then discontinued in view of the daily confirmation of the presence of all four major naval units in their usual positions and the near approach of PQ 14 to Murmansk. After the 17th only a single daily sortie was required over the Trondheim area and on the 19th the Admiralty cancelled the precedence of Fleet reconnaissance.

(vii) Operation "Bluebeard". An air attack on the Trondheim area⁽²⁾

By the middle of April, the shortening nights had forced the abandonment of the inshore submarine patrols in Fro Havet and Gripholen. Instead, four submarines were stationed well away from the coast and subsequently moved slowly northwards so as to keep between the advancing convoy and the Trondheim area. Convoy PQ 15 sailed from Iceland on the 26 April.

In an attempt to immobilise the German naval units, an air operation was planned, under the code name of "Bluebeard", to attack them in the Aas fiord anchorages on the next favourable night after the 25 April using Halifax and Lancaster aircraft of Bomber Command. In co-operation, Coastal Command undertook to saturate the enemy R.D.F. stations in Fro Havet and Kristiansund, to provide a diversionary attack on Aalsund roadstead and to attack the enemy fighter airfields at Lade, Vaernes and Herdla.⁽³⁾

- (1) See Chapter VIII for details of these and subsequent ice reconnaissances in aid of the convoys to Russia.
- (2) At the 7th Meeting of the Cabinet Defence Committee (operations) held on the 2 March, the Prime Minister had drawn attention to the fact that, although the "Tirpitz" was still at Trondheim, no attempt was being made to attack her from the air. She was the most important vessel in the naval situation and her elimination would profoundly affect the course of the war. C.A.S. pointed out the difficulties as the ship was tucked in under the shadow of the hills and protected by heavy defence; the chance of a hit was so slight as to make the operation scarcely worth while. However, the Prime Minister requested that attacks should be made when the moon was favourable but without prejudice to other important operations. The attack on the night of the 30/31 March was one such attempt and Operation Bluebeard was a similar but larger scale effort. Refs. C.A.S. Folder 601(B) and S.50128.
- (3) Lade airfield was two miles outside Trondheim town, Vaernes was at the eastern extremity of Stjordals fiord. Herdla was situated on the island of that name in the latitude of Bergen and from which enemy fighters could intercept the returning bombers.

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RO/G5/27/4/42

Photographic reconnaissance on the 27 April established the presence of all four big ships in their usual anchorages, the weather was suitable and the executive signal for Operation Bluebeard was accordingly made for that night.

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Catalina J/210 Squadron and Hudsons W/608 and Y/48 Squadrons patrolled close off the R.D.F. Stations in Fro Havet and Kristiansund from 2300 hours on the 27th and 0017 hours on the 28th. Ten Hudsons of Nos. 608 and 48 Squadrons(1) carried out bombing attacks on shipping and flak positions in the Aalsund area between 2315 and 2359 hours. Two Beaufighters of No. 248 Squadron(2) attacked Lade airfield at 2356 hours. One of these aircraft failed to return. The bomber strike of 31 Halifaxes and 12 Lancasters(3) attacked the anchorages in Aas fiord according to schedule between 0001 and 0115 hours. The two Beaufighters of No. 235 Squadron(4) detailed to attack Vaernes airfield arrived late, and seeing bomb flashes, search-lights and flak in the target area, did not press home their attack. Two Beaufighters of No. 248 Squadron strafed the runways at Herdla from 0100 to 0130 hours, another found the airfield but accurate flak prevented attack and the fourth failed to locate the target.(5)

ibid.

No direct results were observed from the Bomber Command strike. Five aircraft were missing(6) and eight returned damaged by flak, which was intense. 16 claimed to have bombed individual targets and 15 dropped their loads through the smoke screen put up from the anchorages. Two aircraft were forced to jettison their bombs owing to flak and five others, being unable to find the primary target, bombed subsidiary objects such as flak positions, merchant ships and Vaernes airfield.

ibid.

Photographs taken later on the 28th confirmed the continued presence of four naval units and no damage to them could be discerned. The weather remaining favourable, the operation was repeated during the ensuing night 28th/29th but this time Coastal Command only provided four Beaufighters of No. 235 Squadron who approached the target area at 8000 feet, above the Bomber Command strike. The attack was made between 0030 and 0100 hours by 23 Halifaxes and 11 Lancasters. Conditions were not so good owing to a more extensive smoke screen. Although only two Halifaxes were missing, ten aircraft were damaged by flak. Three aircraft claimed to have seen the targets, the remainder bombed through smoke.(7)

(viii) Typical examples of precautionary flying off the coast of Norway

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During daylight on the 29 April, three photographic sorties were made which all confirmed the undamaged presence of three of the major units but showed no trace of the "~~Ram~~ Scheer". One destroyer was also missing from the anchorage in Hopleelven. The Admiralty made the "Fleet reconnaissance take precedence" signal and, in case she might be on her way south, the coastal

- (1) K.D.O.E. and Q/608 Squadron and P.R.W.S. and B/48 Squadron.
- (2) A and X/248 Squadron. "X" failed to return.
- (3) Halifaxes of No. 4 Group and Lancasters of No. 5 Group.
- (4) Tand W/235 Squadron.
- (5) D.Q.T. and G/248 Squadron respectively.
- (6) 4 Halifaxes and 1 Lancaster.
- (7) German records established that in neither of these "Bluebeard" attacks was any damage inflicted on the ships.

reconnaissances down to south Norway were increased. To guard against a breakout to the north the patrol "Lotus II" was flown from 2357 hours on the 29th to 0725 hours on the 30 April. At 1200 hours, photographs were obtained which revealed the "~~Van~~ Scheer" off Trondheim town steaming in a southwesterly direction. "Lotus II" was again flown, from 1335 to 2300 hours. On the 1 May although the first sortie reported the "~~Van~~ Scheer" again missing, the second sortie revealed her at anchor close off Trondheim town. As convoy PQ 15 was vulnerable, "Lotus II" was flown for the next three days during which time low cloud prevented any photographic cover of the Trondheim area.

A "B2" report was received by Admiralty Intelligence at 1600 hours on the 4 May to the effect that a cruiser with three destroyers had been seen outward bound from Trondheim. "Lotus III" was flown from 0235 hours on the 5th but had to be abandoned owing to fog in position 6747N x 1000E. The other coastal patrols were much interrupted by rain and poor visibility during the day and no photographic cover was possible. As convoy PQ 15 arrived this day at Murmansk, precautions against a northern breakout were relaxed but, in case the "B2" report referred to the "Prinz Eugen" coming south, the Admiralty requested special measures off southwest Norway on the 6 May. The coastal patrols were intensified and an armed reconnaissance of six Beauforts swept coastwise from Kristiansand south to Stavanger during the afternoon. Visibility was poor in all areas and no signs of the cruiser were seen. Similar conditions persisted and frustrated all efforts to view the Trondheim area on the 6th, 7th and 8th. At 0900 hours on the 8 May, the Admiralty cancelled the precedence of Fleet reconnaissance.

On the 10 May the scare revived when, at 0505 hours, the aircraft on "Bert" patrol reported what the pilot took to be a Hipper class cruiser in a position just to the north of Haugesund. After lengthy cross examination of the crew it was finally established that the "cruiser" must have been a small island but in the interim, until the evening of the 11 May, very intensive flying was done off the Norwegian coast and over the Inner Leads. Photographic sorties over the Trondheim area, which had been fruitless on the 9th, 10th and 11th, were partially successful on the 12 May disclosing the "Tirpitz", "Hipper" and "Prinz Eugen" in their usual positions but small clouds obscured the "~~Van~~ Scheer's" berth and she was not seen. However, flying was relaxed in preparation for the next rise in effort scheduled in aid of convoy PQ 16. Additional to the ocean patrols was the constant reconnaissance required southwards from the Trondheim area to try to locate and attack enemy naval units moving from or back to Germany. As the examples given in this section show, this was greatly intensified from time to time by scares. The effect expressed in wastage of flying hours and the wearing down of the still limited numbers of Coastal Command aircraft resulted, by the end of May, in a policy of minimum daily effort which was only brought to high intensity on the receipt of a firm warning from Admiralty Intelligence that moves of major units were probable.(1)

- (1) The intelligence which formed the basis of these warnings was culled from a variety of sources among which were agents reports, the constant study of photographic cover reports of all enemy naval bases, unusual enemy W/T traffic and the moves of enemy air formations as given by the "Y" service.

- (ix) The transference of the "Prinz Eugen" from Trondheim to Germany and the Pocket battleship "Lutzow" from Germany to Trondheim - May 1942

13 May

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At 1000 hours on the 13 May, Admiralty Intelligence reported that information had been received from the Naval Attaché at Stockholm to the effect that the "Lutzow" would probably be leaving the Baltic on the 15th or 16th bound for the Tromso area. The "Lutzow" was believed to be at this time in Swinemunde, although on the last occasion of photographic cover of that port (on the 17 April) she was not disclosed.

Also on the 13 May, H.M.S. Trinidad, after effecting temporary repairs to damage sustained in her action with enemy destroyers on the 29 March(1) set out from Murmansk bound for a United States dockyard escorted by four cruisers and four destroyers. Following the failure to locate the "Von Scheer", last seen in Trondheim on the 1 May, and the news about the "Lutzow" the Admiralty ordered Fleet Reconnaissance to take precedence in Nos. 15 and 18 Groups and Iceland while the C.-in-C. Home Fleet requested Lotus III sweep to be carried out and priority for photographic reconnaissance in the Narvik area.(2)

14 May

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Records.

On the 14 May, Lotus III and the Narvik Sortie were flown without locating the "Von Scheer" and two photographic sorties were made through the Skagerrack, Kattegat and Great Belt areas without finding the "Lutzow". During the day, H.M.S. Trinidad was attacked by enemy aircraft operating from Banak in northern Norway. She was repeatedly hit and damaged to such an extent that she had to be abandoned and sunk by one of the escorts. In case the returning escort should be molested by the missing "Von Scheer" the C.-in-C. Home Fleet put to sea and, before leaving, requested Lotus III, Sentry III and sorties over Narvik and Trondheim. After the Fleet had left harbour the Admiralty assumed responsibility for ordering details of Fleet Reconnaissance and added a commitment for photographic sorties in the Kattegat, Great Belt and western Baltic areas to locate the "Lutzow".

15 May

During the 15 May, A/A and A/U air escort were given to the Home Fleet, Lotus III and Sentry III were flown by Catalinas of No. 210 Squadron for 24 hours and three photographic sorties were carried out between the Kattegat and Cape Arcona in the Western Baltic. No trace of the "Lutzow" was found.(3) Regarding the "Von Scheer", cloud conditions frustrated the Trondheim reconnaissance and no signs of the ship were seen in

- (1) See Chapter VIII Part I Section (iv).
- (2) The only aircraft capable of photographic sorties to the Narvik area were special long range Mosquitoes. Only two of such aircraft were in existence in Coastal Command.
- (3) In point of fact, the "Lutzow" and destroyer escort were anchored off Cape Arcona between 0900 and 1100 hours on the 15 May. They left this area at 1500 hours westbound for the Great Belt. Although flying over this area, none of the three photographic sorties saw this force.

ibid.

the Narvik area although the Bogen fjord was not actually covered.(1) Further intelligence reports reached the Admiralty during the day that the "Lutzow" had commenced her journey from the Baltic and aerial minelaying was ordered for the night of the 15th/16th in the Haugesund channel (code name Bottle). This operation was postponed owing to weather but was carried out on the night of the 16th/17th by six Hampdens of No. 455 Squadron.

16 May

ibid.

Photographic sorties were ordered, as soon as light permitted on the 16 May, over Skagerrack and Kattegat. At 0755 hours a report was received at H.Q.C.C. that a Bomber Command aircraft, returning from a Baltic sortie, had sighted the wakes of large fast moving vessels northbound in the entrance to the Great Belt at 0215 hours.(2) The first Kattegat sortie reported by W/T at 1110 hours the sighting of one large warship escorted by five destroyers in a position 10 miles east of Laeso Island in the Kattegat steering 350° at 15 knots.(3) It therefore appeared that the force might be rounding southwest Norway at anytime onward from 1800 hours. However, the meteorological forecast was of deteriorating visibility and relief sorties of P.R. aircraft were ordered off as soon as possible to maintain touch before the weather broke up, as it was thought possible that the enemy force might put into Kristiansand to await darkness and/or foul weather. A torpedo Beaufort strike was organised to be off Kristiansand by 2300 hours. This was the utmost range possible and, should the "Lutzow" not be found here or in the harbour, the strike should sweep back coastwise to Jaederens Point before returning. However, the relief photographic sortie sighted the enemy force at 1630 hours in a position 22 miles N.N.E. of the Skaw but steering south. The Beaufort strike was cancelled and orders given for "Stand" Patrol to be maintained all night with a strike force at immediate readiness.(4)

Meanwhile, in the north, Lotus I and Sentry III had been maintained. The first photographic sortie to Trondheim had viewed and photographed the "Tirpitz" and "Prinz Eugen" but

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- (1) The "Scheer" had arrived in this fjord unseen from Trondheim on the 5 May. She was not discovered here by air reconnaissance until the 26 May.
 - (2) This was, in fact, the "Lutzow" and escort.
 - (3) The photographs taken at the time identified the large warship as the "Lutzow".
 - (4) The "Lutzow", escorted by four destroyers and one torpedo boat, had traversed the passage out of the Baltic into the Kattegat during the night of the 15th/16th. She passed the Skaw at 1300 hours on the 16th Steering N.N.W. She had observed the photographic aircraft at 1110 hours and its W/T sighting report had been intercepted. To put the British off the scent, the German Naval Command ordered her to double back on her track at 1500 hours until darkness and then to revert to the previous route. Thus, when sighted at 1630 hours, she was on a southerly course. After dark she again rounded the Skaw and, steering a westerly course, made the Norwegian coast at 0330 hours on the 17 May. She anchored at 0345 hours in Kvarenes fjord, a small opening off Kvaase fjord which itself is some three miles east of Kristiansand fjord. See Map XXI. Reference the Log of the "Lutzow".

ibid.

partial cloud had covered the possible positions of the "Hipper" and "Von Scheer". The second sortie at 1645 hours had seen the "Tirpitz" but reported the "Prinz Eugen" berth as empty. One warship was seen near Lo fjord with a destroyer in attendance and another warship was seen, escorted by four destroyers, steering southeast at 10-15 knots in the Inner Leads between Trondheim and the open sea. By 2000 hours, the development of the photographs taken in the area identified the first warship as the "Hipper" and the second as the "Prinz Eugen".⁽¹⁾ No trace of the "Von Scheer" was found.

ibid.

In view of all this enemy naval activity, the sailings of convoys PQ 16 and QP 12 were cancelled together with the complementary ocean air reconnaissance and all efforts were concentrated on the Norwegian coast where the "Prinz Eugen" was now regarded as Target No. 1 and the "Lutzow" as Target No. 2. As the former was obviously committed to her long expected journey to Germany, a strike was directed to Stadtlandet timed for the period during which it was calculated that the ship would round this peninsula. Fourteen Beauforts took off between 2305 and 2340 hours from Wick and Sumburgh⁽²⁾ and patrolled off Stadtlandet between 0038 and 0253 hours on the 17th while twelve Beauforts of No. 42 Squadron stood at readiness at Leuchars awaiting further news of the "Lutzow". The Stadtlandet strike saw no signs of the enemy but the timing was absolutely correct. Reference to the log of the "Prinz Eugen" shows that she rounded the peninsula between midnight and 0200 hours and that she saw four low flying aircraft pass fairly close astern at 0058 hours in conditions of extreme darkness.

Appendix XXIII
and Map. XIX

17 May

Before dawn the coastal reconnaissances were at full intensity and, as soon as light permitted, photographic aircraft patrolled the Inner Leads, the Skagerrack, Kristiansand and Skaw areas. No trace of the "Lutzow" was found in spite of numerous sorties during the day although photographs of Kristiansand showed, in the harbour, the four destroyers and one torpedo boat which had been her escort the previous day.⁽³⁾ Better luck attended the search over the Inner Leads. At 1200 hours, the P.R. aircraft reported, by W/T, one pocket battleship with four escorts in the Inner Leads about 15 miles north of Haugesund steering northeasterly at 10 knots.⁽⁴⁾ This force was again sighted soon afterwards, at 1205 hours, by Beaufighter D/248 Squadron on "Bert" patrol. He correctly identified the major unit as the "Prinz Eugen" and confirmed the northeasterly course. He had to delay sending his W/T report until getting

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- (1) Following the torpedo damage inflicted on the "Prinz Eugen" by H.M. S/M Trident on the 23 February, temporary repairs had been effected and a "jury" stern piece fitted to the ship. She left Lo fjord at 1100 hours on the 16 May escorted by four destroyers. The force, under the code name of "Magic Flute", was bound for Kiel. See Appendix XXIII.
- (2) Nine Beauforts of No. 86 Squadron from Wick and five of the same squadron from Sumburgh.
- (3) The "Lutzow" was securely hidden in Kvarenes fjord where she was awaiting a new aircraft from Wilhelmshaven to replace her existing defective one. This did not arrive until the 18 May and the ship did not leave Kvarenes fjord until 2300 hours bound for Trondheim. Reference the log of the "Lutzow".
- (4). When developed later, the photographs established that the "Pocket battleship" was the "Prinz Eugen".

clear of pursuit by Me. 109s at 1242 hours.⁽¹⁾ Further relays of reconnaissance aircraft were despatched to keep the "Prinz Eugen" under observation but no more news arrived until a photographic aircraft reported by W/T at 1600 hours that the enemy force had been sighted at 1540 hours outside Karmo Island in position 5912N x 0507E steering south once more at 17 knots.

The A.O.C.-in-C. decided on a maximum strike effort at once. One Beaufighter - X/235 Squadron - was despatched immediately to re-locate and report the position of the enemy and two separate strike forces were organised to take off from Leuchars and Wick at around 1745 and 1800 hours respectively.⁽²⁾ The former were to make for position 5740N x 0750E and work back towards the northwest until sighting the enemy and the latter to landfall at Egero Island and sweep northwards along the coast. Beaufighter X/235 Squadron was airborne at 1719 hours and at 1906 hours sighted the "Prinz Eugen" and four destroyers steaming on course 120° at high speed about 15 miles to the south of Egero Island. Having avoided pursuit by Me. 109s, this aircraft sent a W/T report at 1935 hours. The position was relayed out to the two strikes by H.Q. No. 18 Group and was picked up by the Leuchars strike at 2003 hours who altered course and located the enemy at 2015 hours but it was, unfortunately, not received by any of the Wick Beaufort strike who made a landfall at Egero Island at 2000 hours and, according to orders, turned north thus missing the "Prinz Eugen" altogether. However, the Hudsons of this strike, being at 13,000 to 15,000 feet, had a much better field of vision and one of them sighted the enemy as early as 1938 hours but did not attack. Seven other Hudsons located the force at various times between 1943 and 2106 hours aided by the smoke of A/A fire and burning aircraft. Two tried to bomb but were frustrated by intense flak or attacks by Me. 109s, one merely made a W/T sighting report and three bombed from 13,000 feet. In the latter case, two of the aircraft were unable, owing to necessary evasive action, to observe any results and one saw his bombs burst about 100 feet astern of the "Prinz Eugen".

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- (1) After rounding Stadtlandet, the "Prinz Eugen" kept in the Inner Leads until 1125 hours, by which time she was about 10 miles north of Haugesund. At this point the commanding officer of the ship decided to double back on his tracks until he received more certain information regarding mine dangers off Haugesund. Shortly after the turn-about, at 1203 hours, a British aircraft was seen overhead and its subsequent W/T report was intercepted. At 1300 hours the journey south was resumed and, not receiving an all-clear for the Haugesund channel, the "Prinz Eugen" at 1400 hours took to the open sea outside Karmo Island where, at 1533 hours, another British aircraft was seen. See Appendix XXIII, and Map XIX.

- (2) Leuchars Strike
Twelve Beauforts of No. 42 Squadron escorted by four Beaufighters of Nos. 235 and 248 Squadrons and six Blenheims of No. 404 Squadron. They set course in formation from Leuchars at 1802 hours.

Wick Strike

Fifteen Beauforts of No. 86 Squadron escorted by four Beaufighters of Nos. 235 and 248 Squadrons with a high level diversion bombing force of twelve Hudsons from Nos. 48 and 608 Squadrons. They set course in formation from Wick at 1813 hours.

ibid.
and Map. XIX

One, R/48 squadron, was shot down by enemy fighters and four failed to locate the enemy.

No. 18 Group
O.R.B. and
Map XX.

The Leuchars strike, in formation, sighted the enemy force at 2015 hours and turned in to attack from the southward. On the approach they split, half attacking the "Prinz Eugen" from her port side from out of the sun and the other half from her starboard side. The escorting Beaufighters made cannon attacks on the destroyers to reduce their A/A fire, (losing A/235 squadron in the process) and the Blenheims engaged some of the numerous Me. 109s. Amidst intense flak and fighter opposition the torpedo attack was pressed home. Nine torpedoes are known to have been released but one of the three Beauforts that were shot down may also have done so as the German report states that ten torpedoes were dropped. Although two aircraft claimed to have made hits, in fact none were obtained. The "Prinz Eugen" was, of course, taking evasive action and, as her log shows, was steaming at much higher speeds than thought possible with her jury rigged stern. Map XX taken from the log of the "Prinz Eugen" gives a reasonably accurate picture of the attack, except that the number of aircraft shot down is exaggerated.

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The Wick Beaufort strike, not having received the relayed enemy position signal, turned north along the coast after making their landfall at Egero Island at 2000 hours. They immediately ran into strong interception forces of Me. 109s. and were also fired at by shore flak positions. The formation was broken up and four of the Beauforts were soon shot down. After cruising around until 2035 hours, harried by enemy fighters and without seeing any naval force, the remaining aircraft set course for base.(1)

18 May

H.Q.C.C.
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Not knowing which way back to Germany the "Prinz Eugen" would take(2) and anxious to locate the "Lutzow", reconnaissances were detailed continuously for the west coast of Denmark, the Skagerrack and the areas around Bergen, Stavanger and Kristiansand. The weather closed down in fog over Scotland and much of England from 0900 hours which severely curtailed the programme. Nothing was seen or reported until 1530 hours when the pilot of one of the photographic aircraft engaged in the Skagerrack reconnaissance, stated on landing that, at 1355 hours, in thick weather and from 1000 feet he had seen a large naval unit in Kvarenes fjord. He could not take photographs but, from his experience in ship recognition, he would stake his reputation that the ship was the "Lutzow" and not the "Prinz Eugen". No signs of the latter had been seen off the west coast of Denmark by aircraft of No. 16 Group and both the C.-in-C. Rosyth and a section of the Admiralty considered that the ship in Kvarenes fjord was the "Prinz Eugen", however, the pilot of the aircraft - Squadron Leader Young - stuck to his opinion. The situation was again confused at 0025 hours on the 19th by the receipt of information from the

- (1) Total losses in Leuchars and Wick strikes were 7 Beauforts, 1 Beaufighter and 1 Hudson. Total claims were two possible hits on the "Prinz Eugen" and five Me. 109s. shot down.
- (2) After the attacks, the "Prinz Eugen" proceeded into the Skagerrack and, after a short pause off Kvaase fjord, continued round the Skaw at 0500 hours on the 18 May, through the Kattegat and Great Belt, arriving in Kiel at 2115 hours. Reference the ship's log.
See Appendix XXIII.

Naval Attaché at Stockholm that a German warship, reported as the "Lutzow", had been seen at 1000 hours on the 18th southbound in the Kattegat. Photographic reconnaissances were accordingly laid on the highest priority for Kvarenes fjord, Kiel, Emden and Wilhelmshaven, as soon as light permitted on the 19th, in order to clarify the position.(1)

19 May

Meanwhile, the A.O.C.-in-C. and the Admiralty Operational Staff agreed that it was more probably the "Lutzow" in Kvarenes fjord and that she would, or possibly had, resumed her journey northwards during the dark hours and would make the Skudesnes fjord at dawn (0600 hours) on the 19th. A strike was, therefore organised of as many Beauforts as possible, with Beaufighter escort, to go to the Stavanger area by dawn and, if sighting nothing there, to sweep southwards along the coast. The coastal air patrols before first light were being much hampered by very bad visibility in low cloud and fog patches and, although the Scottish airfields were clearing somewhat from 0350 hours, it was 0550 hours before the strike(2) finally got away. As they were so late on the original plan, they made a landfall in the middle of the Skudesnes fjord (reaching this at 0755 hours) and turned north past the Haugesund area. At 0809 hours, having sighted nothing, they set course to base from position 5940N x 0505E.(3) The low clouds and foggy conditions made photographic sorties over the Kristiansund, Stavanger and Bergen areas useless so a Beaufighter was sent to search the Inner Leads between Haugesund and Bergen. At 1004 hours, this aircraft flying at 100 feet under low cloud, suddenly sighted only 800 yards away, the "Lutzow" and two destroyers steaming 290° at 8 knots in the Inner Leads off the entrance to Grimstad fjord. It was assumed that she would anchor in this fjord until later in the day and get under way in time to round Stadtlandet Peninsula between midnight and 0200 hours. Allowing her an average of 15 knots in the Inner Leads, this would mean she would have to leave Grimstad fjord at about 1630 hours.

A plan of action was proposed by the A.O.C.-in-C. to the Admiralty. Beaufighter reconnaissance was to be kept up over Grimstad fjord and the Inner Leads. If and when the "Lutzow" seemed committed to the northern passage from Grimstad fjord, a Beaufort strike would proceed to and be circling in a position some 50 to 60 miles off Stadtlandet by 0030 hours on the 20 May. A special Wellington aircraft fitted with A.S.V. was to keep watch at Stadtlandet from 2330 hours and signal the Beauforts when the "Lutzow" emerged from the Inner Leads. If the Wellington had not signalled by 0130 hours, the Beauforts were to sweep round Stadtlandet and to the north to prudent limit of endurance. The A.O.C.-in-C. also suggested air laid mines either in front of and/or behind the ship if she was located in the Inner Leads. The Admiralty Operations Staff

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- (1) It was not until 1915 hours on the 19th that the sortie to Kiel confirmed by photographs the arrival there of the "Prinz Eugen".
 - (2) The strike consisted of six Torpedo Beauforts of No. 42 Squadron escorted by three Beaufighters of Nos. 235 and 248 Squadrons.
 - (3) They were much too late. The "Lutzow" and destroyer escort left Kvarenes fjord at 2300 hours on the 18th and proceeded very close round the southwest tip of Norway. She passed the latitude of Stavanger soon after 0500 hours on the 19 May, reaching Haugesund at 0700 hours and being well inside the Inner Leads by 0800 hours. See Map XXI.

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Staff Records.

were in general agreement with this plan except they considered it better to send the Beauforts in two waves timed to arrive off Stadtlandet between midnight and 0100 hours and they ruled out mining as being too complicated and liable to cause the enemy to double back or go to earth in the maze of minor fjords in the Inner Leads.

ibid.

At 1430 hours, the Beaufighter reconnaissance reported the "Lutzow" as being at anchor inside a net defence close to the shore in Grimstad fjord thus, it was thought, confirming the assumption in the proposed plan.(1) A photographic sortie over the fjord at 1500 hours was frustrated by low cloud. At 1630 hours, the A.O.C.-in-C. suggested, on the telephone, to the A.O.C. No. 18 Group that, as the "Lutzow" would be expecting an attack in the Stadtlandet area, it might be profitable to launch an auxiliary attack as a surprise while she was still in the Inner Leads. He gave two suitable positions, one in the northern end of Hjelte fjord and the other in the mouth of Sogne fjord. The A.O.C. No. 18 Group agreed but preferred, if an auxiliary strike was going to be sent, to attack immediately in the Grimstad fjord and, in view of the reported net defence around the ship, to use aircraft armed with 1000 lb. bombs. It was, however, pointed out to him that, by supposition, the ship was about to or had already left the fjord. Further discussion followed and it was finally agreed that if the ship had not left by 2130 hours, a strike of eight Beauforts armed with 1000 lb. bombs should be despatched to Grimstad fjord but that this was not to affect the main plan of interception off Stadtlandet.

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At 1910 hours, a photographic sortie landed with the news that the pilot had visually seen the "Lutzow" still at anchor in the same position at 1820 hours.(2) Orders were given that a Beaufighter was to be over Grimstad fjord at 2015 hours and another at 2215 hours. If the "Lutzow" was still there, W/T silence was to be observed but if not there, a W/T signal was to be made to that effect, and a search carried out up the Inner Leads as far as latitude 6115N (ASPO fjord). The first of these Beaufighters - T/235 squadron - landed at 2150 hours reporting that a possible cruiser and two destroyers had been sighted still at anchor in the same position at 2014 hours. This was another misidentification of the mine sweeping vessels in the anchorage.(3) However, the arrival at 2155 hours of the interpretation of the photographs taken at 1820 hours proved to the A.O.C.-in-Cs. satisfaction that the bird had flown and the Beaufort bombing strike to Grimstad fjord was cancelled.

- (1) This was correct, though in point of fact the "Lutzow" after being sighted at 1004 hours, had gone on to the northern end of Hjelte fjord where it debouches into the open sea. Here she turned back at 1100 hours and at 1200 hours was once more off the entrance to Grimstad fjord. This time she went into the fjord and anchored at 1245 hours in a prepared berth in position 6020N x 0515E. See Map XXI.
- (2) The subsequent development of his photographs, by 2155 hours, disproved this visual report. There were indeed one vessel inside the net defence but it was an "M" class minesweeper. The "Lutzow" had actually left Grimstad fjord at 1630 hours and at 1700 hours was steaming up the Hjelte fjord. See Map. XXI.
- (3) The second Beaufighter made the same mistake later on at 2313 hours.

At 2200 hours, it now being apparent that the "Lutzow" had in all probability sailed at the estimated hour, the main plan was set in motion.⁽¹⁾ The special A.S.V. Wellington took off, somewhat later than intended, at 2237 hours and made a landfall at Bremanger Island (25 miles south of Stadtlandet) at 0040 hours on the 20 May. From there the Wellington patrolled out to a position 30 miles W.N.W. of Stadtlandet and between 0107 hours and 0500 hours shifted to an area to the northwestward of the peninsula. No ship indications were obtained on the A.S.V. and increasingly foggy conditions with severe icing hindered any visual watch. According to the plan the Beaufort torpedo strike should have taken off at about 2245 hours. As this hour passed with no confirmation from H.Q. No. 18 Group of their despatch, telephoned discussions took place between the Senior Air Staff Officer at H.Q. Coastal Command and the A.O.C. No. 18 Group up to 2315 hours at which hour the latter finally agreed to send the strike from Wick immediately.⁽²⁾

20 May

However, it was not till 0035 hours on the 20th that the first wave of four Beauforts were airborne followed by a second wave of six at 0045 hours. In addition, a high level bombing strike of 17 Hudsons armed with 250 lb. S.A.P. bombs took off at intervals between 0028 and 0115 hours.⁽³⁾ This force arrived off Bremanger Island from 0230 till 0315 hours turning north to sweep round the Stadtlandet Peninsula. They were, of course, more than two hours too late, to stand a chance of intercepting the "Lutzow". In point of fact, at the moment when the A.S.V. Wellington made a landfall on the outside of Bremanger Island, the "Lutzow" was re-entering the Inner Leads 35 miles away to the north having already rounded Stadtlandet Peninsula. Reference to Map XXI shows that the German force progressed nearly as estimated and if the original times in the main plan had been adhered to an interception would have been probable. As it was, the torpedo strike saw nothing and after searching off Stadtlandet and to the north for half an hour in poor visibility they returned to Wick. The Hudsons, with their greater endurance, were more successful. Three of them, in foggy conditions, ran over unidentified ships which fired at them between 0220 and 0305 hours. A fourth - M/608 Squadron - while searching the Inner Leads to the northeast of Stadtlandet, located a large warship at 0330 hours between the islands of Lepso and Haramso. After shadowing for 25 minutes in poor visibility this ship was identified as the "Lutzow" escorted by five destroyers in position 6244N x 0635E C⁰ 040° 20 knots. A W/T sighting report was immediately made and shadowing continued until 0433 hours when the aircraft had to leave.

- (1) This view was strengthened at 2230 hours when information was received from the Admiralty Intelligence Branch of a B3 report from an agent which stated that a large warship with four destroyers had passed Askvolde (6120N x 0505E) at about 2030 hours northbound at 20 knots.
- (2) In spite of the evidence against the visual reports by the photographic interpretation, and the agent's B3 report, the A.O.C. No. 18 Group seems to have had doubts as to whether the "Lutzow" had really left Grimstad fjord as early as estimated and whether, therefore, it was wise to despatch the Beauforts at the planned time.
- (3) The torpedo strike consisted of seven Beauforts of No. 86 and three Beauforts of No. 42 Squadrons and the bombing strike of seven Hudsons of No. 48 and ten Hudsons of No. 608 Squadrons.

ibid.

A follow-up strike, to take advantage of any possible location reports, had been despatched from Wick at 0150 hours consisting of four torpedo Beauforts of No. 42 Squadron. One of these aircraft - J/42 Squadron - picked up the Hudsons' W/T report, and acting on it, located the "Lutzow" off Bud at 0450 hours. But the target was close inshore and among islands so no torpedo attack could be made. One other Beaufort took in the message but failed to find the enemy force. Photographic sorties were directed to this area, and at 0745 hours the "Lutzow" was sighted and photographed steaming up the channel leading to Trondheim fjord. Three subsequent sorties during the day were driven off by Me. 109s. On the next day, at 1010 hours, the Trondheim anchorages were successfully photographed confirming the "Tirpitz" in Foetten fjord, the "Lutzow" and "Hipper" in Lo fjord and five destroyers in Hopleelven. The "Scheer" was still unlocated but it was assumed she was somewhere in the Narvik or Tromso area.

Thus ended the partial success in intercepting the "Prinz Eugen" and the failure to attack the "Lutzow". The account has been given in some detail to illustrate the importance of Intelligence reports before intensive reconnaissance could commence, the difficulties in shadowing an enemy force in the intricacies of the Inner Leads passage and to emphasize the necessity for exact timing of any strike if attack was to eventuate.

(x) The final stage of home based air reconnaissance in Arctic waters

H.Q.C.C.
Naval Staff
Log.

With the completion of these operations off the Norwegian coast, convoys PQ 16 and QP 12 sailed from Iceland and Murmansk respectively on the 20 and 21 May. Lotus III was scheduled for the 22nd but continuous fog prevented the flying of this sweep. Before putting to sea early on the 23 May in support of PQ 16, the C.-in-C. Home Fleet requested Lotus III and Sentry III with intensified photographic cover of Trondheim and Narvik. Should there be any indication of a breakout, he asked that continuous flying of the Sentries, Polar, Bear and Frice be instituted. Fleet Reconnaissance was made a priority over Trade Protection and later on the 23rd the Admiralty assumed responsibility for conducting operations. All three major units were viewed in Trondheim but 10/10th cloud frustrated the Narvik reconnaissance. During the day, German long range aircraft located and reported both PQ 16 and the accompanying cruiser force. Lotus III and Sentry III were maintained by Catalina and Liberator aircraft until 0130 hours on the 24th. In view of the shortage of long range aircraft in Coastal Command⁽¹⁾, the ambitious programme asked for by the C.-in-C. Home Fleet was, by agreement with the Admiralty, cut down so as to avoid using up the limited number of aircraft early on and having nothing available if an emergency arose later in the convoy's progress. The Lotus and Sentry patrols were, therefore, not performed on the 24 May. Cloud prevented a view of the Trondheim and Narvik areas during the 24th and 25th and the

ibid.

(1) Sunderland flying boats were not of sufficient range to carry out these extended patrols, indeed this class of aircraft had already been rated as "medium range". The only suitable squadrons in the Command were No. 210 Catalinas and No. 120 Liberators. Ice reconnaissance to the northeast of Iceland and to Spitzbergen had also to be provided from these two squadrons. See Chapter VIII.

Admiralty requested Lotus and Sentry patrols to commence in the afternoon of the 25th.(1)

At 1600 hours on the 25 May, the Admiralty received a B2 report from an agent that either the "Lutzow" or the "Hipper" accompanied by two destroyers and a large tanker had passed north bound out of the Trondheim fjords at 0300 hours that morning. The Admiralty estimated that this was the "Lutzow" bound for Narvik and a W/T signal was sent to the Catalina then on Lotus III instructing him to fly close to the coast for the first half of his sweep.(2) Further sentry patrols were not required but additional tracks of Lotus III were asked for. Accordingly Lotus III was performed from 0200 hours on the 26th to 0140 hours on the 27th by a total of four Catalinas and two Liberators. At 1240 hours on the 26th the Narvik photographic sortie made a W/T signal, as he was returning, that two large warships and some destroyers had been seen at 1015 hours at anchor in Bogen fjord. The subsequent development of the photographs identified them as the two pocket battleships "Lutzow" and "~~Weser~~ Scheer" with four destroyers. Meantime news was received that convoy PQ 16 was being attacked by enemy aircraft and it seemed possible that a sally might be made by the big ships from Bogen fjord. A new patrol was designed to afford reconnaissance between the exit from the Bogen area and the convoy's position(3) and flown by a Liberator between 0550 and 0915 hours on the 27 May.(4)

The Admiralty appreciation was that PQ 16 would be south-west of Bear Island (See Map XXII) by 0800 hours on the 27th and the most critical period would be from then until 0800 hours on the 28th. The new patrol was flown again between 1900 and 2200 hours by a Catalina and a Liberator followed by two Catalinas between 0700 and 1100 hours on the 28th. A Liberator on the same patrol failed to return.(5) No move, however, was made by the enemy major units who were viewed in their same positions by photographic cover on the 27th. Cloud prevented confirmation on the 28th but by the 29th the Admiralty considered the risk of interception of PQ 16 to be at an end and the flying of the new patrol was discontinued.

It was realised that such extended patrols as this and the Lotus series could not be performed with the requisite continuity by the few home based long range aircraft. In readiness for future convoys on the route to Russia, plans were initiated to base Coastal Command flying boats in North Russia. The story of this measure is given in Chapter VIII and the narrative of Fleet Reconnaissance is continued in Section (vi) of that chapter.

ibid.

No. 18 Group
O.R.B.
Appendices.

H.Q.C.C. Naval
Staff Log
and No. 18 Group
O.R.B. Appendices.

- (1) The first sortie on Lotus III returned early on account of W/T trouble. The second sortie, by K/210 Squadron, was performed from 1827 hours on the 25th to 0200 hours on the 26th. One sortie of Sentry III was flown by D/120 Squadron between 1500 and 2330 hours.
- (2) The B2 report was correct. The "Lutzow" subsequently arrived in Bogen fjord at about 2330 hours on the 25 May. At 1830 hours, K/210 Squadron, then commencing Lotus III off Fro Havet, received the W/T instructions to fly the coastwise track of his patrol. This he did but it was too late as the "Lutzow" by 1800 hours was steaming up Vest fjord and it was not till 2024 hours that the Catalina reached the entrance of the fjord and he then altered course to keep outside the Lofoten Islands so missing the enemy force. Reference - Log of the "Lutzow" and No. 18 Group O.R.B.
- (3) The new patrol. From Stornoway to $71^{\circ}\text{N} \times 19^{\circ}\text{E}$ to $71^{\circ}\text{N} \times 23^{\circ}\text{E}$ and return on reciprocal track. CC/G3/26/5/42.
- (4) These are the effective times of the interception part of the patrol in latitude 71°N . It took six hours to get there and six hours to get back.
- (5) This Liberator I (D/120 Squadron) - Pilot - Flying Officer Walton - while returning from the Patrol, met three Me.109.s and, although one of these was shot down, the subsequent combat with the other two badly damaged the aircraft, killing one and wounding two others of the crew. The Liberator crashed into the sea and the Pilot, navigator, flight engineer and one wounded gunner climbed into the two dinghies which had been released. They began to paddle towards land which was just visible to the east. They were in the dinghies for 48 hours and suffered severely from the cold. The navigator died after 36 hours and the others were completely numbed. At last they drifted to an island where for two days they hid in a cave. Deciding to seek help they stumbled straight into the hands of a German Patrol but managed to escape by feigning collapse. They then stole a boat in which they reached the mainland of Norway. Without compass or map they made their way towards the Swedish frontier which they finally reached safely after 31 days of constant evasion.

CHAPTER VIII

Part I - THE CONVOYS TO AND FROM RUSSIAIntroduction

Since the fall of France in 1940, Great Britain had stood alone against the axis powers but from the 22 June 1941, when the German attack on Russia commenced, a new ally was gained. Potentially Russia was a source of extensive manpower and materials but time was needed for their development and organisation into the production of modern up-to-date war equipment on the scale necessary to oppose the might of the German armed forces. The geographical remoteness of this new ally confined the efforts at first made on her behalf to British Naval action off the coasts of northern Norway and the running of convoys containing tanks, aircraft and other war equipment through the Arctic Ocean to her northern ports of Archangel and Murmansk.

The War at Sea
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On 6 July, 1941 the Admiralty informed the C.-in-C., Home Fleet that it was essential we should do everything possible to assist the Russians and that the latter had asked us to attack enemy transports carrying army reinforcements to Petsamo and Kirkenes. Accordingly an operation was carried out with fleet aircraft carriers off these ports. 38 Albacores and 18 Fulmars of the Fleet Air Arm attacked on 30 July but found few ships in harbour. Heavy opposition was encountered resulting in the loss of 12 Albacores and four Fulmars. The only effective method of interfering with the steady stream of German shipping was the establishment of a naval force based on the Russian Coast to maintain patrols between Ribachi Peninsula and Vadso but the strong enemy air forces along this coast and the totally inadequate Russian fighter defence at Murmansk made this impracticable.⁽¹⁾

C.O.S. (41)
255th, 262nd and
276th meetings

Admiralty 2203/15/8/41
and
C.O.S. (41) 282nd,
285th, 289th and
354th meetings

An alternative plan was for an operational base at Spitzbergen. A force of two cruisers and two destroyers left Iceland on 27 July to reconnoitre the island and destroy any enemy shipping found in the area. No Germans were found either in Spitzbergen or Bear Island. The Norwegian technicians at the Spitzbergen coal mine and W/T station on Bear Island were evacuated at their own request and the W/T installation destroyed. An adverse report was made on the proposal to establish a naval base in which the C.-in-C., Home Fleet strongly concurred. The Chiefs of Staff decided to abandon the project and to send instead a small expedition to deny the coal to the enemy and evacuate the civil population.⁽²⁾

This expedition consisted of 500 officers and men, chiefly Canadians, in the troopship "Empress of Canada" escorted by two cruisers and three destroyers arriving on 24 August. The coal dumps were fired, demolition was carried out in the mine and the Russian inhabitants evacuated to Archangel. The expedition then re-embarked taking with them the Norwegian inhabitants and returned to the United Kingdom. The two cruisers carried out a sweep off the Norwegian Coast and on 7 September in heavy weather and poor visibility engaged a German convoy off Porsanger Fiord. The

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- (1) See Map XXII for the situation of place names.
(2) On 27.7.41 the Prime Minister minuted the Chiefs of Staff that all possible assistance was to be given to the Russians as a matter of utmost urgency.
Reference - C.O.S. (41) 259th meeting.

few merchant ships escaped but the gunnery training ship "Bremse" was sunk and three escort ships severely damaged.

Although it had proved impracticable to base a surface naval force in these northern waters, two British submarines operated from Polyarnoe in the Kola Inlet from the middle of August, sinking five merchant ships and transports and setting fire to two more.

(i) Early convoy movements

Convoys carrying war supplies and equipment to Russia commenced in August 1941. These were unmolested by enemy action until the end of December 1941. During this period seven eastbound convoys (Dervish and P.Q.1 to 6) and four returning convoys of empty ships (Q.P.1 to 4) had made the passage; 53 ships had arrived in Russia and 34 had returned without loss. (1)

U-boats commenced operating in the Bear Island area in the last days of 1941 and one of them intercepted the leading section of P.Q.7. The ships were unescorted and the subsequent attack sank S.S. Waziristan of 5,135 tons on the 2 January, 1942, about 40 miles southeast of Bear Island. The rear section, P.Q.7B, was not attacked and arrived safely at Murmansk which had become the terminal port in Russia, in place of Archangel.

The U-boats now operated in the approaches to the Kola Inlet, up which Murmansk is situated. The next convoy, P.Q.8, was attacked to the north eastward of this inlet and S.S. Harmatris - 5,395 tons - was torpedoed on 17 January, but reached harbour in tow. On the following day H.M.S. Matabele, one of the two escorting destroyers was torpedoed off the inlet and sank with only two survivors.

Convoys P.Q.9 and 10 were sailed in company on 1 February, followed on the 6 February by P.Q.11. Both reached Murmansk unmolested. During January and February three returning convoys of empty ships (Q.P.5, 6 and 7) arrived in the U.K. without loss. Up to this time the convoys had been given very light surface escort. All the outward bound convoys except P.Q.2 and 11 had sailed from Hvalfiord west-about through the Denmark Straits. Air escort against U-boats was provided for as long as possible after sailing but was limited to sorties by Northrop float-planes of No. 330 Squadron and occasional Hudson Sorties by

(1)	Convoy Code Name	Departed from	Date	Arrived at	Date	No. of Ships	Ships Sunk
	Dervish	Hvalfiord	21. 8.41	Archangel	31. 8.41	47	n11
	P.Q.1	"	29. 9.41	"	11.10.41	10	n11
	P.Q.2	Scapa Flow	17.10.41	"	30.10.41	6	n11
	P.Q.3	Hvalfiord	9.11.41	"	28.11.41	8	n11
	P.Q.4	"	17.11.41	"	28.11.41	8	n11
	P.Q.5	"	27.11.41	"	2.12.41	7	n11
	P.Q.6	"	8.12.41	(Murmansk Molotovsk)	20.12.41 23.12.41	7	n11
	P.Q.7A	"	26.12.41	Murmansk	12. 1.42	11	1
	P.Q.7B	"	31.12.41	"	11. 1.42)		
	P.Q.8	"	8. 1.42	"	17. 1.42	6	n11
	P.Q.9	"	1. 2.42	"	10. 2.42	11	n11
	P.Q.10	"					
	P.Q.11	Loch Ewe	6. 2.42	"	23. 2.42	13	n11

No. 269 Squadron.(1). Their range only allowed such escort up to about 150 miles to the Northward of Iceland. The sparse numbers of longer ranged Coastal Command aircraft were fully occupied in supporting the main Atlantic convoys and in providing anti-breakout patrols whenever any of the German major naval units were reported to be on the move. Frequent sorties were flown to the northwest of Iceland to determine the ice conditions and A/U sweeps were carried out from time to time over the route used by the convoys around Iceland as additional security. But in point of fact the only serious U/boat threat was far away at the Russian end of the route.

(ii) Increase in enemy forces based in Norway

A.M. A.X. 292
21/2
Adm. 1716A/22/2
S.7010/17/10
Encls. 8B
and 8C.

Decisions taken by the German High Command, to which detailed references is made in Chapter V Section (iv) and Chapter VII, had resulted in the appearance of the battleship "Tirpitz" in Trondheim on 17 January 1942 followed on the 23 February by the pocket Battleship "Scheer" and the heavy cruiser "Prinz Eugen".(2) There was also a marked re-inforcement of the German Air Force in Norway both of fighter and long range bomber squadrons. In view of these movements it was expected that the spring, during which ice would still compel the convoys to pass through focal areas near the enemy coast, would produce air attacks from northern Norway in addition to surface ship and U-boat attack especially as the increasing length of daylight with better weather condition would no longer hamper such operations by the enemy. The Russians were asked therefore to provide strong and continuous A/U Patrols off the Kola Inlet and to give long range air protection to the convoys when off their coasts. On our part, from 1 March, 1942 onwards, heavy ships of the Home Fleet including a fleet aircraft carrier provided distant escort of the convoys as far as Bear Island and the close escort was increased in numbers and strength. Coastal Command undertook to maintain frequent photographic reconnaissance of the Trondheim fiords and the flying of special patrols off the Norwegian Coast abreast of Trondheim. The former were intensified just before and up to five days after the departure of a Russian Convoy and the latter from four days after in order to locate any move by the enemy major naval units to intercept it.(3)

(iii) Threat by Surface attack

C.-in-C. Home On the 1 March the outward bound P.Q.12 and homeward Fleet Despatches bound Q.P.8 sailed simultaneously from Hvalfiord and Murmansk

- (1) Up to this time such escort totalled 38 sorties of 167 hours of which 49 hours were actually with the convoys. Bad weather frequently resulted in convoys not being met. Subsequently, between 1 March and 6 July 1942 the air escort from Iceland amounted to 83 sorties of 518 hours of which 236 hours was actually with the convoys. As it was possible to include some Sunderland and U.S.N. Catalina sorties from time to time the range of escort often extended to some 450 miles N.E. of Iceland.
- (2) For the itineraries of these ships see Chapter VII.
- (3) In addition a detachment of Liberators from No.120 Squadron in Northern Ireland were sent to Iceland in readiness for extended reconnaissance. These aircraft with long range Catalinas of No.210 Squadron and the American Catalina Squadron in Iceland, carried out an increasing number of ice reconnaissances to Jan Mayen and Bear Islands during March and April. Two were completed in March, five in April.

respectively. (1) A Focke-Wulf on long range reconnaissance located and reported P.Q.12 at noon on 5 March in a position about 70 miles S.S.E. of Jan Mayen Island. During the afternoon of the 6 March the "Tirpitz" put to sea escorted by three destroyers in an attempt to intercept. Owing to a gap in Coastal Command's offshore air patrols this move was not detected (2) but the ship was observed and reported by H.M. S/M Seawolf on the evening of the 6 March when just to the north of the exit from Trondheim and proceeding north-eastwards up the Norwegian Coast. Lack of German air reconnaissance frustrated "Tirpitz's" efforts to intercept either convoy but her destroyers ran across one Russian merchant vessel - S.S. Ijora of 2,815 tons - who was a straggler well astern of Q.P.8 and sank her on 7 March after which the battleship searched unsuccessfully for P.Q.12 until 2030/8 and then commenced her return journey. Meanwhile the C.-in-C. Home Fleet in H.M.S. King George V with H.M.S. Victorious (fleet carrier), H.M.S. Berwick and six destroyers were closing the Norwegian coast at utmost speed in order to cut off the "Tirpitz". At 0800 hours on 9 March, reconnaissance aircraft from the Victorious located her about 100 miles to the westward of the Lofoten Isles, steering south. A torpedo attack was launched by aircraft from the carrier but no hits were obtained and the "Tirpitz" escaped at high speed into the Vestfiord and Narvik. (3)

(iv) Enemy attacks by surface, submarine and air forces

The next pair of convoys - P.Q.13 and Q.P.9 - were sailed on 18th and 21 March from Hvalfiord and Murmansk respectively. U-boats were known to be operating off the Kola Inlet. Five minesweeping trawlers and one Russian destroyer re-inforced the surface escorts off the Murmansk coast but no Russian air support was afforded further than the immediate vicinity of Kola. P.Q.13 was located by enemy aircraft just east of Bear Island and attacked by dive bombers on 28 March losing three ships of total tonnage 16,510 sunk. On the next day three enemy destroyers attempted to attack the convoy but were engaged by H.M. ships Trinidad and Eclipse. One enemy destroyer was sunk and the other two damaged; both British ships were damaged but not severely. U-boats attacked on the 30th when the convoy was some 70 miles northeast of the Kola Inlet and sank two more ships of total tonnage 11,507. The homebound convoy - Q.P.9 - got through without being detected though one U-boat - U.655 - was sighted south of Bear Island in low visibility on 24 March and sunk by H.M.S. Sharpshooter.

Early in April 1942 the enemy re-inforced his U-boat

(1)	Departed from	Date	Arrived at	Date	No. of Ships	Ships Sunk
{ P.Q.12 Q.P.8	Hvalfiord	1.3.42	Murmansk	12.3.42	17	nil
	Murmansk	1.3.42	Reykjavik	12.3.42	6	1 (straggler)
{ P.Q.13 Q.P.9	Hvalfiord	18.3.42	Murmansk	31.3.42	19	5
	Murmansk	21.3.42	Reykjavik	1.4.42	19	nil
{ P.Q.14 Q.P.10	Hvalfiord	8.4.42	Murmansk	19.4.42	9	1
	Murmansk	10.4.42	Reykjavik	21.4.42	24 (after 14 went into Akureyri)	4

- (2) The frequent movement of enemy major units on the Norwegian Coast and the attempts by Coastal Command aircraft to locate and attack them are dealt with in greater detail in Chapter VII.
- (3) For a more detailed account of this sortie by the "Tirpitz" see Chapter VII.

Coastal Command
Naval Staff Log

C.-in-C.
Home Fleet
Despatches

Ship names and
tonnages from
Admty.
B.R.1337

and airforces⁽¹⁾ in northern Norway and maintained three destroyers for offensive action at Kirkenes in addition to the heavy ship threat from Trondheim.⁽²⁾ There was nothing we could do but persevere with Coastal Commands limited number of flying boats in reconnaissance patrols well off-shore outside the exits from Trondheim fiord. Cloud conditions and lack of Mosquito aircraft almost nullified the photographic watch on the heavy ships in their anchorages up Foetten and Lo fiords. The ever shortening nights made it impossible to maintain our submarines in Fro Havet and Gripholm, the two exits from the Trondheim fiord. Instead, these submarines were withdrawn later in April to positions 120 miles off the Norwegian coast and moved to the north-eastward from longitude 3° to 14°E as the P.Q. convoys progressed on their journey in order to keep between them and the coast.

C.C.
S. 7010/17/10
and 24A

C.-in-C. Home
Fleet
Despatches

P.Q. 14 and Q.P. 10⁽³⁾ sailed on the 8 and 10 April respectively from either end. The former was located by F.W. aircraft on the 16 April losing one ship of 6,985 tons. The latter was attacked by enemy aircraft and U-boats for three days from 11th to 13th between the Kola Inlet and Bear Island losing four ships (two by E/A and two by U-boats) totalling 24,481 tons.

P.Q. 15 and Q.P. 11⁽⁴⁾ sailed on the 26 April respectively.

C.C.
S. 7010/17/10
Encls. 24A and
B.

The eastbound convoy's escort included a "CAM" ship.⁽⁵⁾ The distant cover for both convoys consisted of heavy ships in which for the first time United States major units operated as part of the Home Fleet.⁽⁶⁾ Four British submarines were disposed off the Norwegian Coast, moving northeastwards with the convoy to provide cover against the enemy surface forces at Trondheim. They were joined later by another submarine which had accompanied P.Q. 15 as far as longitude 50°E.

R.A.F. Iceland
O.R.B.
Appendices

P.Q. 15 was reported by a F.W. aircraft on 28 April which was attacked by the Northrop float plane of No. 330 Squadron engaged in giving A/U escort to the convoy. On the 29th a U-boat gained contact and reported. The convoy was attacked by six - J.U. 88 bombers on the 1 May without success. The next day six torpedo carrying aircraft

- (1) Air attacks by the Germans on shipping in Murmansk which had commenced in March 1942 were intensified. Up to May 18, three ships totalling 16,769 tons had been destroyed and two others severely damaged. See Appendix XXIV.
- (2) Towards the end of March the heavy cruiser "HIPPER" was sent up from Germany to Trondheim to take the place of the damaged "Prinz Eugen". See Chapter VII.
- (3) P.Q. 14 started with 23 ships. On 9 April the convoy ran into ice when north of Iceland and 14 ships had to return to harbour in Akureyri.
- (4)

	Departed from	Date	Arrived at	Date	No. of Ships	Ships Sunk
P.Q. 15	Hvalfiord	26.4.42	Murmansk	5.5.42	25	3
Q.P. 11	Murmansk	28.4.42	Reykjavik	8.5.42	13	1
- (5) A "Cam" ship was a merchant vessel fitted with gear for catapulting off a Hurricane fighter, i.e. "Catapult Aircraft Merchant".
- (6) The battleship "Washington" and the 8-inch cruisers "Wichita" and "Tuscaloosa".

C.-in-C. Home Fleet Despatches attacked and sunk three ships of total tonnage 15,808 about 90 miles south of Bear Island. Although shadowed by E/A and U-boats, as far as longitude 36°E no further attacks occurred. (1)

Q.P.11 was located and reported both by enemy aircraft and U-boats on 29 April and on the following day H.M.S. Edinburgh, stationed about 15 miles ahead of the convoy, was torpedoed by a U/boat and had her stern blown off. She proceeded in tow and was escorted towards Murmansk. The convoy was then attacked unsuccessfully by four torpedo aircraft. On the 1 May five attacks were delivered when east of Bear Island by three large enemy destroyers. The escort, though greatly inferior in gun power, drove off these attacks but one merchant vessel - the Russian S.S. Tsiolkovsky of 2,847 tons - was sunk and H.M.S. Amazon was damaged. No further losses were suffered by this convoy.

These three enemy destroyers then attacked the disabled cruiser "Edinburgh" on the 2 May and, after a series of gallant actions, one enemy destroyer was sunk and the other two damaged. The Edinburgh was again torpedoed and had to be abandoned and sunk while both the escorting destroyers, H.M.S. Foresight and Forrester were seriously damaged.

ibid

H.M.S. Trinidad, who had been damaged in the action with German destroyers on 29 March, had effected temporary repairs at Murmansk and set out on 13 May for proper dockyard refit in the United States escorted by four cruisers and four destroyers. The Russians promised long range fighter escort but, though the weather was perfect, this did not put in an appearance. The party was sighted by enemy aircraft on 14 May when about 240 miles north west of Kola Inlet and heavily attacked by bombers and torpedo aircraft. H.M.S. Trinidad was repeatedly hit causing fires and a heavy list. She had to be abandoned and was finally sunk by one of the escort. The escort force returning to Iceland was shadowed until 2000 hours on 15 May when 25 JU.88's attacked with bombs. No hits were scored but as this attack took place over 350 miles from the nearest enemy airfield it meant that convoys must hence forth expect air attack at any time during at least five days of their passage.

(v) Extended air protection and reconnaissance

R.A.F. Iceland
O.R.B.
Appendices

P.Q.16 and Q.P.12(2) sailed from Hvalfiord and Murmansk on 20 and 21 May respectively. By using Sunderlands and the Catalinas of U.S.N. No.73 Squadron based in Iceland, P.Q.16 was afforded A/U air escort further than usual, this extending to Latitude 70°N Long. 1°E. As a measure against the

- (1) The War Diaries of Luftflotte 5 state that the low cloud and snow conditions prevented the successful employment of bomber aircraft but favoured the operation of torpedo aircraft. A heavy attack by the latter was prepared for the 4 May but contact with the convoy was lost in worsening weather and was not renewed before P.Q.15 entered Murmansk.

(2)	Departed from	Date	Arrived at	Date	No. of Ships	Ships sunk
{	P.Q.16 Hvalfiord	20.5.42	(Murmansk)	30.5.42	35	7
			(Archangel)	1.6.42		
{	Q.P.12 Murmansk	21.5.42	Iceland	30.5.42	14	nil

C.-in-C.
Home Fleet
Despatches

expected air attacks all merchant vessels in P.Q.16 carried balloons. Owing to the inability of the Russians to provide air co-operation Coastal Command were asked for reconnaissance and long range fighter aircraft (to be based in North Russia) but the number of such aircraft available was insufficient to meet these requirements.

Between the 16 and 18 May the "Prinz Eugen", having completed temporary repairs, was proceeding down the Norwegian inner leads en route for Germany and the pocket battleship "Lutzow" was on passage up them on the 19th having left the Baltic on 15 May. Both ships were located and attacked by Coastal Command but without success.⁽¹⁾ The usual Catalina and Liberator patrols off the Trondheim area were intensified after the "Lutzow" arrived in Trondheim on 20 May and were extended as far north as 71°N x 23°E when photographic reconnaissance on the 26th disclosed that both pocket battleships - Lutzow and Scheer - were lying in Bogen Fiord near Narvik.⁽²⁾ Such very extended patrols could not be kept up for more than three days with the small numbers of long range aircraft available.⁽³⁾

Information on the ice boundaries between Jan Mayen Island, Bear Island and Spitzbergen were provided during May by several sorties undertaken by Catalina aircraft of No. 210 Squadron. These flights were in connection with a special expedition which landed in Spitzbergen⁽⁴⁾ but the knowledge of the extent of firm ice was invaluable in planning the routes of the Russian convoys.

C.-in-C.
Home Fleet
Despatches

P.Q.16 was located by F.W. aircraft on 24 May and shadowed continuously for the next six days. The first air attack, 380 miles from any enemy airfield, was made on 25th by eight torpedo aircraft and 20 - JU.88 bombers. No ships were sunk but one American - S.S. Carlton of 5,127 tons - had to turn back in tow for Iceland owing to a fractured main steam pipe. One JU.88 was shot down and three damaged. The main air attack started P.M. 26 May and continued almost without respite until 30 May. During this period the convoy was, owing to the ice line, never more than 250 miles from Banak the nearest German airfield. 34 torpedo aircraft and 210 bomber aircraft attacks were made sinking six ships of total tonnage 37,014 and damaging three others as well as the Polish destroyer "Garland". Three enemy aircraft were shot down and twelve damaged. Numerous attempts were made by U-boats to attack but with one exception - an American ship of 6,191 tons sunk - they were driven off. During the last two days some Russian fighters were present.⁽⁵⁾

Q.P.12 reached Iceland without being attacked as the enemy was concentrating on the eastbound convoy.

(vi) The operation of Coastal Command aircraft from North Russia for P.Q.17

After the experiences, during the passage of P.Q.16, which demonstrated the difficulty of maintaining air patrols

- (1) See Chapter VII.
- (2) See Map XVIII.
- (3) The total flying hours expended in these reconnaissances of Trondheim and off the Norwegian Coast between 21 and 29 May was 295. Ref. CC/S.7010/17/10 Encl.37A.
- (4) Part II of this chapter.
- (5) For details of the German air operations against P.Q.16. See Appendix XXV.

C.C.
M.S. 115,108
Encl. 8A

ibid
Encl. 9A

from the United Kingdom off the northern Norwegian coast the A.O.C.-in-C. wrote on the 2 June to the Air Ministry suggesting that a flying boat base for Coastal Command aircraft should be established in the Kola Inlet which would substantially increase the effective time spent on patrol. He also forwarded to the Admiralty an appreciation on the feasibility of establishing a flying boat base at Spitzbergen in Advent Bay which would enable A/U cover to be given to the convoys from Jan Mayen Island till coming under the Russian coastal patrols off Murmansk. In the same letter the A.O.C.-in-C., suggested that if a land aerodrome could be made available in the Murmansk area the establishment of torpedo aircraft would seriously threaten enemy surface vessels operating against the convoys when east of Bear Island.

ibid
Encls. 10A, 11A
12A and 13A

C.C.
S. 7010/17/10
Encl. 32A

Accordingly signals were sent by the Admiralty on the 7 and 8 June to the Senior British Naval Officer in N. Russia requesting that the practicability of operating torpedo bombers be reported on, and stressing that in discussing this matter with the Soviet authorities they must understand that it was a project under consideration only and in no way would relieve them of their obligations to secure the convoys against submarine and air attack. Regarding this latter, a personal signal was sent on 7 June from the First Sea Lord to Admiral Miles who was head of the Naval Mission to Soviet Russia.⁽¹⁾ In it, reference was made to an improvement in the measures taken by the Soviet to assist in the passage of convoy P.Q.16 but pointed out that in spite of this there was still a loss of 20% among the merchant ships from enemy action at the Russian end of the route. It was insisted that if these convoys were to continue the Soviet authorities must not only maintain their help at the present level but must make further efforts. Suggestions were made as to the direction of these efforts. Stress was laid on the indications that the enemy intended to move his major naval units to Altenfiord in the North Cape area. This was beyond the range of our air reconnaissance and the Russians could, therefore, give valuable help in providing such reconnaissance and in attacking these ships when located. The operation of Russian submarines in the area east of Bear Island would prove a useful deterrent to sorties by the enemy ships. Finally it was strongly recommended that Banak, the main enemy airfield in the extreme north of Norway, should be bombed as early as practicable after the sailing of the next convoy.⁽²⁾

C.C.
M.S. 15,108
Encls. 17A,
20A and 27A

Replying to the queries on the torpedo bomber proposition, the S.B.N.O., N. Russia signalled on the 9 June that the Russians maintained at least eight torpedo bomber type aircraft at Vaenga so that facilities for maintaining and operating such aircraft were in existence. This was followed on the 11 June by a signal from Admiral Miles that the Russians would welcome the assistance which would be provided by British torpedo bombers.

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- (1) This was part of the British Services delegation to Soviet Russia known as "30 Mission" whose headquarters were in Moscow.
 - (2) A reply was received from Admiral Miles on the 16 June to the effect that the People's Commissar had stated that all Soviet naval resources in the north would be concentrated on protection of convoys and that, while he was not satisfied with the air effort for P.Q.16, he was hopeful of better results in the future. Efforts would be made to get more long range fighters and as many long range Hurricanes as possible would be sent north before convoy P.Q.17 arrived.
Ref. M.S. 15,108 encl. 32A.

ibid
Encls. 23A
and 24A.

C.C.
S.7010/17/10
Encls. 33A
and 36A.

The question of augmenting the numbers of long range fighters was also pursued but the shortage of such aircraft in Coastal Command and the difficulties of the transit flight were such that this project was abandoned. A request to the Air Ministry by the Admiralty on the 14 June for an allocation to Coastal Command of six long range Mosquito aircraft in view of the hazardous nature of close reconnaissance of the most northern ports of Norway by Liberator or Catalina aircraft had to be refused. The Air Ministry, although fully realising the vital importance of this reconnaissance, were forced to reply that no additional long range Mosquitoes were in existence.

C.C.
M.S. 15,108
Encl. 28A

ibid
Encl. 31A

ibid
Encls. 36A, 37A,
45A.

Meanwhile consideration of the proposals for basing flying boats at Spitzbergen and in the Kola Inlet had resulted in the decision that Spitzbergen presented too many difficulties of climate, accessibility and defence. The Kola Inlet project, however, was perfectly practicable and on the 15 June the Air Ministry authorised "30 Mission" to obtain permission from the Soviet authorities for the basing of Catalina aircraft in North Russia. The Russians agreed to this proposal and furnished full details of flying boat facilities at Grasnaya near Vaenga on the Kola Inlet and at Lake Lakhta near Archangel. Arrangements were completed by the 25 June for eight Catalina aircraft from Nos. 210 and 240 Squadrons to be available to carry out patrols off northernmost Norway, land either at Grasnaya or Lake Lakhta and operate for a short time from those bases before returning to the United Kingdom. A small servicing party of 15 ratings was to be ferried out as passengers in the first three aircraft which took off, together with a signals officer and a pack W/T installation. A re-arming and refuelling party with a bomb scow and other stores took passage in one of the ships of the convoy.

In view of the weakness at this period of Coastal Command in torpedo bomber squadrons⁽¹⁾ the Admiralty objected to any torpedo aircraft being diverted to North Russia in spite of the readiness of the Russians to receive them at Vaenga.

The next convoy to Russia - P.Q.17 - had not been planned to sail before the 27 June. The delay, since the previous convoy, was partly owing to the complete review and re-organisation given to the measures of defence but mainly because the naval operation for running supplies to Malta, which took place earlier in June, left insufficient destroyers in the Home Fleet for the simultaneous running of the convoy to Russia.

Heavy enemy air raids during June had destroyed most of the town and off-loading facilities at Murmansk.⁽²⁾ This necessitated the port of Archangel in the White Sea being used as the Russian terminus. P.Q.17 and Q.P.13 actually sailed from Hvalfiord and Archangel on the 27 and 28 June respectively.⁽³⁾ Frequent ice reconnaissances and sorties

(1) One squadron of Beauforts - No.86 - and one squadron of Hampdens - No.415 were the only fully trained T.B. squadrons. Nos.144, 455 and 489 Hampdens were still under training.

(2) For details of these raids see Appendix XXIV.

	Departed from	Date	Arrived at	Date	No. of Ships	Ships Sunk
P.Q.17	Hvalfiord	27.6.42	Archangel	11-27.7.42	37	23
Q.P.13	Archangel	26.6.42	Iceland	6.7.42	35	6*

* Sunk by mines in British minefield off N.W. Iceland.

in connection with the expedition on Spitzbergen had established that the ice conditions allowed a more northerly passage and a considerable evasive detour in the Barents Sea before approaching the White Sea from the north eastward.

A line of British Submarines was established at a distance of about 120 miles off the north west coast of Norway. (1) Heavy ships of the Home Fleet provided the usual distant cover to the P.Q. convoy and a small dummy convoy to mislead enemy air reconnaissance proceeded westwards of the Shetlands with orders to turn back not further east than longitude 1°E about noon on 30 June. The naval escort to the convoy included a force which proceeded to Icefiord in Spitzbergen with re-inforcements and supplies for the little expedition there. This force was subsequently to rejoin the convoy support force. (See Part II of this chapter section (iv).)

C.C.
S.7010/17/10
Encls. 41A
42A and 47A

P.Q.17 was located by enemy aircraft and U-boats on 1 July when about 70 miles east of Jan Mayen Island and thereafter was shadowed continuously except for intervals in fog. (This fog did, however, decrease the number of air attacks.) On 1 July two Catalinas "B" and "C" of No.210 Squadron proceeded to Lake Lakhta, near Archangel, carrying out patrols off Northern Norway on the way. See Map XXII.

C. in C.
Home Fleet
Despatches
C.C.
S.7010/17/10
Encl. 60A

The situation at the commencement of the operation was that the Germans possessed a strong bomber force in North Norway, including some torpedo bombers, a considerable force of U-boats cruising between Jan Mayen Island and the Barents Sea, and four major naval units disposed between Trondheim, Narvik and Altenfiord. By the 3 July the "Tirpitz" and "Hipper" had moved up to Narvik (2) and "Scheer" and "Lutzow" were either in or on their way to Altenfiord. In view of this concentration of German heavy ships the A.O.C. in C. Coastal Command had represented the desirability of moving a torpedo bomber squadron to Vaenga, just north of Murmansk, prior to the sailing of the convoys but as has been mentioned this was not approved by the Admiralty. The only threats, therefore, to the enemy naval forces were the remote menace of the Home Fleet which, by reason of the enemy air strength, could only approach the coast of Norway at a very great risk, the concentration of British and Russian submarines around the most northern portion of the coast and a small and not very highly trained Russian air striking force based in the Murmansk area. (3)

Appendix XXVI

C.C.
S.7010/17/10
Encl. 87A

ibid
Encl. 59A

On 3 July, three more Catalinas left for Russia carrying out full reconnaissance patrols on the way. Together with the Catalinas already in Russia a series of crossover patrols were planned between positions 7130N x 1900E and 7150N x 2345E. Only one of these was maintained at a time and the particular one was selected which best provided a

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- (1) Although the enemy heavy naval units had not yet gone up to Altenfiord, information received by the Admiralty Intelligence Division on 13.6.42 indicated that they would do so as soon as the next Arctic convoy was located. Ref. CC/S.7010/17/10 Encl. 46A.
 - (2) To guard against a possible break out of any of these units into the Atlantic, special patrols were flown thenceforth both north and south of Iceland. On 3 July a P.R.U. aircraft reported the Trondheim anchorages as empty.
 - (3) The actual composition is not at present known but it included 8 torpedo bombers and between 30 to 40 Hurricanes and Tomahawks. Ref. MS.15108 Encls. 17A and 87A.

ibid
Encl. 61A, 67A
70A, 77A

screen between Alten Fiord and the P.Q.17 as it progressed to the eastward.⁽¹⁾ On the 4, 5 and 6 July the remaining three Catalinas took off from the United Kingdom.⁽²⁾ Owing to comparatively limited refuelling facilities at Lake Lakta, the Russian authorities organised an advanced base for the flying boats at Grasnaya on the Kola Inlet near Murmansk. Operating at such a distance without maintenance crews and with temporary W/T communications the crossover patrols were kept up with only one serious gap in the cover. This occurred on 4 July and was due to an accident to a Liberator of No. 120 Squadron when taking off from Stornoway to take part in the crossover patrol scheme. It resulted in a gap of no cover between 1100 and 1700 hours on that day, but as events proved the enemy did not attempt to break out at this time.

C. in C.
Home Fleet
Despatches

Meanwhile air attacks had developed on P.Q.17 between the 2 and 4 July during which three merchant ships of total tonnage 19,209 were sunk by torpedoes and one seriously damaged while at least five enemy aircraft were shot down.

Although no P.R.U. aircraft had been able to verify the departure of the German major units from the Narvik area, Admiralty intelligence was tolerably certain that the two pocket battleships were in Altenfjord. It was known that the "Tirpitz", "Hipper" and destroyers had left the Trondheim area by 1400 hours on 3 July but their whereabouts were not known. In view of the gap in air reconnaissance between 1100 and 1700 hours the Admiralty considered that some or all of the enemy major units might have put to sea to intercept the convoy now that it was well to the east of Bear Island. Moreover it was possible that some including the Tirpitz might be steering for the Atlantic now that the Home Fleet was at sea in Arctic waters. Accordingly at 2111 hours on the 4 July, when the convoy was about 40 miles southeast of Seahorse Island, the Admiralty ordered the cruiser support force to withdraw to the westward at high speed and at 2123 hours signalled the convoy P.Q.17 to disperse and proceed independently to Russian ports.

No force in fact left Altenfjord until noon on the 5 July. It then consisted of the "Tirpitz", "Hipper" and six destroyers. The Russian submarine "K.21" attacked and reported them at 1700 hours in 7130N x 2350E C° 045° and claimed two torpedo hits on the "Tirpitz".⁽³⁾ At 2029 hours they were again sighted and reported by the British submarine "P.54" in 7120N x 2750E C° 060° towards the scattered remnants of the convoy. Soon after "P.54's" sighting the enemy abandoned their enterprise and returned to harbour without even reaching the Catalina air patrols, which were

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- (1) The "Tirpitz" and "Hipper" had now left the Narvik area and had joined the two Pocket battleships in Altenfjord. The line of British submarines, which were to seaward of the air patrols, was shifted round in similar fashion. Two Russian submarines were stationed closer to the coast off the main exit from Altenfjord.
 - (2) The first two aircraft, B and C/210 sqdn. returned to U.K. on the 5/6 July carrying out patrols on the way.
 - (3) No mention of any attack by a hostile submarine is made in the war diary of the "Tirpitz". No damage at all was suffered by the battleship during this operation. See Appendix XXVI.

by now just to seaward of the line of British submarines.⁽¹⁾ At the time, however, this retreat was not known and one Catalina was diverted first to the position of K.21's attack, then to P.54's area and finally, when no sighting was obtained, patrols were established more to the north-eastward so as to cover the scattered ships of P.Q.17.

On the 6 July Admiralty Intelligence indicated that the enemy naval force had returned to Altenfiord and to obtain confirmation the A.O.C.-in-C. offered to send a P.R.U. Mosquito from the U.K. to do a reconnaissance in this area, provided the Russians could receive the aircraft at Vaenga. This was agreed to and the aircraft took off at 0726 hours on the 7 July. Photographs were taken and the aircraft landed at Vaenga at 1200 hours and refuelled. On the outward journey at 1045 hours the pilot saw all four major units escorted by eight destroyers, three E-boats and a tanker steering to the northwest out of Fugloy Fiord, obviously on their way back to the south.⁽²⁾ The rest of the operations carried out by the Catalinas consisted of sorties in search of damaged and sinking ships of the convoy. The scattered and defenceless convoy had been subjected to powerful air and U-boat attacks. In spite of widespread searches by the Catalinas, by corvettes and by minesweepers a fortnight elapsed before the fate of the various ships of the convoy were fully known. Of the 34 ships remaining when the convoy scattered, 20 were sunk aggregating 115,094 tons.⁽³⁾ Only 14 eventually reached Archangel out of the 37 which started from Iceland.

C.C.
S.7010/17/10
Encl. 87A

Admty.
B.R.1337

Q.P.13, which sailed from Archangel on 26 June, was sighted by enemy aircraft on the 30th but once more the enemy's policy was to concentrate on the eastbound convoy and it was not attacked. However, the convoy, on reaching Iceland, split into two portions - one direct to the United Kingdom and the other via the Denmark Straits to Hvalfiord. This latter portion ran foul of our own mine-field off the northwest corner of Iceland losing six merchant vessels of total tonnage 37,264 and H.M.S. Nigler sunk.

C.C.
S.7010/17/10
Encl. 87A

The Catalina's were recalled from north Russia on the 8 July and had all returned to the U.K. by the 11th. To maintain the patrols and searches between the 1 and 10 July four aircraft of No.210 Squadron and four aircraft of

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- (1) The German Naval Staff considered that the scattered convoy was being adequately disposed of by air and U-boat attacks. Now that the battle force had been reported and in view of the limited success likely, circumstances did not justify the risk of possible interception by British units containing an aircraft carrier. The operation was broken off at 2132 hours. See Appendix XXVI.
 - (2) After the German force broke off their interception operation at 2132/5, they returned to Altenfiord to refuel. Early on 7 July the whole fleet weighed and proceeded for the Vestfiord but ran into fog off Arnoy Island. When getting under way again to pass through Fugloy fjord a British aircraft was seen overhead at 1045 hours and a jumbled sighting report was intercepted. The fleet resumed their journey and without further incident passed through Gimsoystraumen and arrived in Bogenfiord during the night of the 7/8 July. See Appendix XXVI.
 - (3) 10 by U-boat and 10 by air attack. For details of the air operations see Appendix XXV.

No.240 Squadron had operated from Lake Lakhta or Grasnaya. (1)

The crews and W/T signal parties were very well received by the Russians and the improvised ground organisation was extremely effective. The weakest link in the operational chain was that of communications and it was realised that before a similar operation was undertaken it would be necessary to establish a small R.A.F. Headquarters with suitable W/T communication. As the A.O.C.-in-C. said in the conclusions of his report "the outstanding interest of this operation was in the fact that it was possible to carry out fairly effective reconnaissance in an area over 1000 miles from the Home base of the aircraft concerned".

CC/M.S.15,108
Encl. 67A

Regarding the sortie of the German heavy naval units which caused the order for the dispersal of the convoy with such disastrous results, the A.O.C. in a letter to the Air Ministry dated the 5 July suggested that had there been a torpedo bomber squadron at Vaenga to attack these ships the Admiralty might not have given this order. He urged most strongly that his previous proposal to send such a squadron to North Russia be favourably re-considered and implemented before the sailing of the next P.Q. convoy.

(vii) The despatch of a balanced force of aircraft to North Russia for P.Q.18

C.C.
M.S.15,106
Encl. 4A, 16A
and
M.S. 15,108
Encls. 78A, 88A
93A and 98A

Owing to another large scale naval operation in the Mediterranean for the relief of Malta which necessitated the withdrawal of many Home Fleet cruisers and destroyers the next Russian convoy - P.Q.18 - was postponed until early September 1942. During this period plans were worked out for the despatch to North Russia of a much larger force of Coastal Command aircraft to provide air support during the passage of this convoy. The whole Programme was given the code name of operation "Orator" and contained three distinct operations.

C.C. operational
order No.3/42
and M.S. 15,106
Encls. 20A and
63A, B and C.

(a) Orator - P.R.U. consisted of the operation of four P.R.U. Spitfires from Vaenga to provide information on the location of enemy major naval units in the most northerly Norwegian fiords.

(b) Orator - Ham consisted of the operation of two squadrons of Hampden torpedo bombers from Vaenga to act as a striking force should any of the naval units put to sea to attack the convoy.

(c) Orator - Cat consisted of the operation of Catalina flying boats from Lake Lakhta and/or Grasnaya to provide sea reconnaissance to locate and shadow these naval units and to give anti-U-boat escort to the convoys themselves.

The whole force was under the command of a Group Captain(2) with the title of Senior R.A.F. Officer North Russia and his task was to co-ordinate the R.A.F. force with whatever Russian Air Forces were allocated in the protection of the two convoys P.Q.18 and Q.P.14.

Ground personnel, equipment and torpedoes for the two

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- (1) During this period 23 sorties were made of total flying hours 368. The aircraft were B, C, E and N/210 Sqdn. and A, F, J and M/240 Sqdn.
(2) Group Captain F. L. Hopps A.F.C.

C.C.
M.S. 15,106
Encls. 13A and
21A.

also
M.S. 15,107
Encl. 26A

C.C.
M.S. 15,106
Encls. 22A and B
43A, 64A, 69A

C.C.
M.S. 15,107
Encl. 23B

Hampden Squadrons⁽¹⁾ were sent to Vaenga in the U.S. cruiser Tuscaloosa leaving Greenock on 13 August and arriving off Vaenga on 23 August where they were disembarked and transferred to the aerodrome. The aircraft of the two squadrons, numbering 32, took off on the transit flight from Sumburgh on 4 September. Much consideration had been given to the route, which lay across enemy territory, and to the fact that Vaenga was very near the then frontline between the Russian and German forces. To avoid the arrival of aircraft nearing the end of their endurance at an unfamiliar airfield during possible air raids, it was decided to route them to Afrikanda airfield in the Kandalashka area which was well behind the front line. After refuelling, the squadrons would then proceed to Vaenga airfield as the operational base. Unfortunately, although 19 aircraft landed safely at Afrikanda and four others at other airfields in the neighbourhood, three lost their way and six crashed in Norway or Sweden during the flight. Of the former, one reached the mouth of the Kola Inlet and was shot down by Russian fighters - an air raid was in progress at the time and in any case the aircraft was in a prohibited area - the other two ran out of petrol and force landed in positions nearer the Kandalashka district. One was damaged beyond repair, the other made a "wheel up" landing in soft mossy ground and was only slightly damaged.

ibid
Encl. 23B

Three Spitfires of the P.R.U. successfully made the flight during the afternoon of 1 September followed later in the day by the fourth Spitfire. By the 5 September these aircraft and the 24 surviving Hampdens were at Vaenga.⁽²⁾

The accommodation in the U.S. cruiser which took the Hampden ground personnel and equipment was not sufficient to perform the same service for the Catalinas of No. 210 Squadron; in addition the squadron was required to remain operational in the United Kingdom up to the last possible moment before proceeding to Russia. Three Catalinas of No. 422 Squadron were therefore employed in addition to four of No. 210 squadron in transporting essential personnel and stores to North Russia just prior to the departure of No. 210 squadron early in September.⁽³⁾

C.C.
M.S. 15,106
Encl. 73A

A final consultation was held on 31 August at No. 18 Group H.Q. between the Chief of Staff to the C. in C. Home Fleet, the A.O.C. 18 Group, the Fleet Aviation officer and Group Captain Hopps regarding the tasks for the Catalinas going to Russia. It was agreed that the first priority was reconnaissance of the enemy main naval units and the maintenance of anti-ship patrols. To this end a line of crossover patrols, numbered from one to ten, had been designed which stretched from 6900N x 1000E to 7120N x 3500E along the northern coasts of Norway and from which appropriate patrols could be selected according to the convoys' progress.⁽⁴⁾ After provision had been made for this commitment, escort was to be given to P.Q.18. The period during which P.Q.18 and Q.P.14 passed each other was considered of special importance. When these commitments had been fulfilled, escort was to be given to Q.P.14.

C.C.
M.S. 15,106,
Encl. 63B and C

C.C.
M.S. 15,107
Encl. 21C

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- (1) The squadrons selected were Nos. 144 and 455.
 - (2) See Map XXIII.
 - (3) The aircraft used were A, B and C, of No. 422 squadron and A, H, I and N of No. 210 squadron. 16 trips were made totalling 168 hours 39 minutes by No. 422 squadron, and 5 trips of 83 hours 25 minutes by No. 210 squadron.
 - (4) See Map XXIII.

C.C.
M.S. 15,106
Encl. 54A
and
M.S. 15,107
Encl. 21E

C.C.
M.S. 15,107
Encl. 21F

ibid
Encl. 23B

On 1 September Group Captain Hopps left in a Catalina for Grasnaya. Inspections of facilities at Grasnaya and Vaenga, consultations with the Senior British Naval officer at Polyarnoe, with Rear Admiral Miles of 30 Mission and General Kuznetsov (the Commanding Officer in North Russia) occupied the next three days. Afrikanda and Lake Lakhta were then visited and on return to Grasnaya final operation instructions, including combined strike tactics, were written and agreed to by General Kuznetsov. Resulting from the visits to all the aerodromes and stations it was realised that the difficulties of the communication made it essential to make Grasnaya the main operational flying boat base in spite of its proximity to the enemy front line. Accordingly Group Captain Hopps set up the necessary organisation at Grasnaya and made Lakhta the repairing and rest station. The headquarters of the Senior British Naval officer in North Russia was at Polyarnoe, situated on the Kola Inlet, and telephone communication with Grasnaya was an additional factor in making this decision. The signals staff was re-organised and S.R.A.F.O. set up an Area Combined Headquarters at Polyarnoe on 6 September.

C.C.
M.S. 15,106
Encls. 51A
and 91A

Naval escort and support forces were also on a much increased scale. P.Q.18 was to be accompanied by eight destroyers and corvettes with seven trawlers and mine-sweepers, two A/A ships, two submarines and the important innovation of H.M.S. Avenger - an auxiliary aircraft carrier equipped with 12 fighters and three Swordfish aircraft. All available destroyers from the Home Fleet were to form two groups, one to accompany the convoy as far as the longitude of Spitzbergen and the other, after refuelling at Spitzbergen, to continue the escort. Oilers were despatched to Lowe Sound for this purpose escorted by four cruisers and three destroyers whose additional task was the replenishment of provisions and stores for the winter to the little expedition established in Spitzbergen. The close escort was to take P.Q.18 right through to Archangel while the remainder of the covering forces including the "Avenger" would transfer to Q.P.14 when the two convoys crossed each other. (The North Russian local escort, consisting of Russian destroyers and British minesweepers, would escort Q.P. outward and P.Q. inward between Archangel and latitude 72°). British and Russian submarines were stationed at the commencement of the operation in areas close in to the various exits from fiords north of Narvik until D.10 day; thereafter the British submarines took up a line of patrol billets off the north of Norway just to seaward of the air patrol line and were shifted round so as to keep between Altenfiord and the P.Q. convoy⁽¹⁾. Finally the battle fleet would proceed to Akureyri in north Iceland ready to engage the enemy major units should intelligence or reconnaissance reports indicate their activities to the west of Bear Island.

C. in C. H.F.
Despatches

P.Q.18 sailed from Loch Ewe on 2 September, proceeding west-about round Iceland and passing through the Denmark Straits on 7 September, Air escort and A/U cover was given by Coastal Command from the 3 September to the 12th using aircraft based in north Scotland and Iceland.⁽²⁾ The convoy

- (1) See Map XXIII
- (2) The squadrons concerned were No. 58 Whitley, No.269 Hudsons, No.228 Sunderland, No.210 Catalina, No.73 U.S.N. Catalinas, No.330 Norwegian Catalinas and No.120 Liberators. Six of the last named squadron had been sent to Iceland on 4.9.42 so as to extend the air A/U cover as far north as possible. The last sortie left the convoy in 7415N x 0156E. A total of 42 sorties were flown of 400 hours giving 97½ hours with the convoy or the supporting naval force. One aircraft was lost and one U-boat sighted but not attacked.

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was sighted by a F.W.200 aircraft late on 8 September when rounding the north west corner of Iceland and was located and shadowed by U/boats from the 10th onwards.

The "Scheer", "Hipper", "Koln" and six destroyers moved from Narvik to Altenfiord later on the 10th. They were observed and reported off And Fiord by the inshore British submarines but at too great a range for an attack to be delivered. (1) The move of these units was the signal for Coastal Command to commence the anti-ship patrols to the north of Norway. (2) The first Catalina - N/210 Squadron - accordingly took off from Invergordon on 11 September, completed No.4 Patrol and landed at Grasnaya 18 hours later. Subsequent Catalina's took off at the requisite intervals from the U.K., completed the appointed patrols and landed in North Russia until by the 13th there were eight Catalina's at either Grasnaya or Lake Lakhta. Thereafter the anti-ship patrols were operated by the R.A.F. Headquarters in North Russia, being joined by one more Catalina on the 15 September.

C.C.
M.S. 15,107
Encl.21G

C. in C. H.F.
Despatches

Meanwhile P.Q.18 was attacked by a U/boat on the night of 12/13 September losing one merchant ship of 3,559 tons. Air attacks commenced on the afternoon of the 13th and resulted in the sinking of eight ships of aggregate tonnage 46,099 by torpedo aircraft while H.M.S. Avenger's fighters were engaging enemy high level bombers and shadowing aircraft. Another ship of 7,191 tons was lost that night by U/boat attack, followed by a British tanker of 8,992 tons on the 14 September. During the day two heavy torpedo attacks were delivered by 22 and 25 enemy aircraft respectively and two bombing attacks which, however, only succeeded in sinking one merchant vessel of 3,124 tons. A prolonged attack by some 30 bombers on the 15th was entirely without success. During this period, just over two days, the enemy lost at least 29 aircraft. No further air or U/boat attacks were made on P.Q.18 while the destroyer and aircraft carrier covering force was in company but off Cape Kanin at the entrance to the White Sea a further three air attacks succeeded in sinking one more ship of 5,446 tons. (3)

On 13 September, Admiralty Intelligence indicated that the battleship Tirpitz might have left Narvik and a P.R.U. Mosquito flown from the U.K. on the 14th reported that the Narvik anchorage was empty. (4) Acting on the intelligence report, the A.O. C. in C. sent a signal to S.R.A.F.O. North Russia giving the warning that "Tirpitz" was probably out and was unlocated. This was received by Group Captain Hopps on the night of 13/14th. His own P.R.U. reconnaissance had shown the presence in Altenfiord on 13 September of only the "Scheer", "Hipper", "Koln" and destroyers, so that the inference was that a sally towards the convoys might be imminent, if not already under way, by some of the enemy major units. Unfortunately, on this night took place the only gap in the maintenance of the crossover patrols. The Catalina detailed

C.C.
M.S. 15,107
Encl. 21F

- (1) The arrival of these units in Altenfiord was confirmed by P.R.U., Spitfire operating from Vaenga at 0700 hours on 11 September.
- (2) In addition the Battle Fleet put to sea from Akureyri in North Iceland.
- (3) For details of the German air operations against P.Q.18 see Appendix XXV.
- (4) The "Tirpitz" did not in fact put to sea but was exercising at the time of the P.R.U. sortie in the main fiord - Ofot Fiord - well away from the anchorage in Bogen Fiord. See Map XVIII.

to fly the anti-ship patrol during the night failed to start up owing to engine trouble. W/T Communication with Lake Lakhta was suffering one of the frequent "W/T Blackouts" endemic in northern latitudes so preventing a relief sortie being ordered from there. Repair work was carried on throughout the night and the aircraft was got away at dawn. The delay made it necessary to patrol further from the coast in case the enemy had slipped out during the gap. This made it impracticable to get the torpedo bombers off in time to intercept the enemy supposing the Catalina did locate them on the more distant patrol and make a first sighting report.

Group Captain Hopps therefore decided to send the Hampdens out on a reconnaissance in force, so as to have them airborne and ready to be homed if the Catalina sighted the enemy and able to strike on their own if sighting the enemy themselves during the course of their sweep. This sweep was designed to cover, for as long a distance as possible, the likely course to be steered if the enemy was bent on attacking the convoys. At the same time a P.R.U. Spitfire was sent to look at Altenfiord so that should the enemy units still be in harbour, the Hampdens could be recalled. As it happened, the P.R.U. Sortie was ineffective owing to bad weather and the 23 Hampdens carried out the sweep without incident. (1) Co-operation by the Russian bombers in accordance with the arrangements previously detailed in the combined operation orders also went without a hitch.

In point of fact the German force in Altenfiord had not put to sea (2) but the whereabouts of the "Tirpitz" were still unknown. Bad weather, low cloud and fog had frustrated all efforts at obtaining clear views of the Narvik or Trondheim areas since the 14 September when the usual anchorage near Narvik had been reported empty. This state of doubt lasted until the 18th when a P.R.U. Mosquito located the Tirpitz in her old anchorage in Bogen Fjord near Narvik.

Up to this day the cross-over anti-ship patrols had been maintained by the Catalina's based in North Russia with only the one gap in the cover already mentioned. It was decided to discontinue these patrols from the afternoon of the 18 September in view of the known position of the "Tirpitz", the fact that P.Q.18 was entering the White Sea and the knowledge that Q.P.14 was west of Bear Island. (3) It had been found possible to give anti-U/boat escort to P.Q.18 as well as maintain the anti-ship patrols and such escort commenced on 15 September when the convoy was met in 7538N x 4948E. Continuous escort was then afforded until P.Q.18 arrived in Archangel on the 19 September. (4)

C.C.
M.S. 15,107
Encl. 21B,
21F and 23B

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- (1) 23 Hampdens of Nos.144 and 455 squadrons took off at 0825 landing back at Vaenga at 1655 hours on the 14 September. For the track of this sweep see Map XXIII. The total effort of these two squadrons while in North Russia, including the initial transit flights was 81 sorties of 409 $\frac{1}{2}$ flying hours.
 - (2) They were seen by the next P.R.U. Sortie on the 14th and again on the 15th and 16 September. Still in Alten Fjord.
 - (3) 15 Catalina Sorties were employed in maintaining these patrols totalling 282 hours in the air of which 114 hours were spent actually on the patrols.
 - (4) 7 Catalina Sorties went to P.Q.18 totalling 112 hours of which 17 hours were spent actually with the convoy. 3 Sorties did not succeed in meeting the convoy owing to bad visibility.

C.C.
M.S. 15,107
Encl. 21G

Q.P.14 sailed from Archangel on the 13 September and suffered no attack in spite of enemy aircraft sightings on the 18th but it was picked up and shadowed by U-boats from the 19th. Efforts were made on the 16th to provide air reconnaissance over both convoys as they passed each other but only the naval covering force was sighted. The visibility was down to half a mile so the failure was not surprising. Low visibility on the 17th prevented Q.P.14 from being met by two Catalina sorties but successful escort was given on the 18 September for $3\frac{1}{2}$ hours leaving the convoy in 7617N x 2808E. Poor weather prevented further escort from North Russia. (1)

C. in C. H.F.
Despatches

U/boat attacks developed on the night of the 19 ~~22~~ September when one merchant ship of 4,937 tons and the minesweeper "Leda" were sunk. H.M. destroyer "Somali" was hit and crippled. After being in tow for four nights and three days, she broke in half and sank in a gale. A further attack by U-boats on the 22 September sank two more merchant ships of total tonnage 12,519 and the Royal Fleet Auxiliary "Grey Ranger". The convoy reached Cape Wrath on 26 September with no further loss. (2)

C.C.
M.S. 15,107
Encl. 23C

As soon as the range would permit, air escort was given to Q.P.14 from Scotland and Iceland. Catalinas supplied this on the 21 September at a distance of 800 miles from base. One of the aircraft - Z/330 Norwegian squadron - attacked a U/boat found near the convoy on the surface. The depth charges exploded out of damaging distance off the U/boat's starboard beam. The U/boat remained on the surface and a gun duel ensued during which the navigator was wounded and the aircraft sustained such damage that it was forced to leave the U/boat and ditch near the convoy, the crew being picked up by a destroyer. Bad weather prevented cover being given on the 22nd but it was renewed on the 23rd and 24th by Catalinas, Liberators, and Fortresses. Catalina U/210 squadron, while with the convoy on the 23 September, attacked and sank U-253 with a well aimed stick of depth charges. (3)

The Catalinas in North Russia were ordered home in detachments from the 20th onwards now that P.Q.18 was in harbour and Q.P.14 well on the homeward leg of the journey. The first three left on the 20th and by the 28 September, they had all returned except one which had been shot down by an enemy aircraft off the mouth of the Kola Inlet on the 25th whilst engaged on a special flight in connection with the expedition in Spitzbergen. The S.R.A.F.O. North Russia (Group Captain Hopps) arrived in the U.K. on 22 September in one of the returning aircraft. (4)

(1) The total effort was 3 sorties of $53\frac{3}{4}$ hours but only $3\frac{1}{2}$ hours with the convoy.

(2)

	Departed from	Date	Arrived at	Date	No. of Ships	Sunk
P.Q.18	Loch Ewe	2.9.42	Archangel	19.9.42	40	13
Q.P.14	Archangel	13.9.42	C. Wrath	26.9.42	21	4

(3) In giving A/U escort and cover to Q.P.14 and supporting naval forces from Scotland and Iceland 46 sorties were made totalling 401 flying hours. The squadrons employed were Nos.330 Norwegian Catalinas and Northrop float planes, No.210 Catalinas, No.120 Liberators, Nos. 220 and 206 Fortresses, No.612 Whitleys, No.269 Hudsons and No.48 Hudsons. Actual escort amounted to $76\frac{1}{2}$ hours. Four U-boats were sighted of which two were attacked. One was sunk and one aircraft was lost.

(4) This detachment had provided a total of 63 sorties totalling $791\frac{1}{2}$ flying hours

(viii) Disposal of aircraft remaining in North Russia

C.C.
M.S. 15,106
Encl. 96A

Regarding the Hampden and Spitfire aircraft still in Russia the A.O.C. in C. suggested to the Air Ministry on the 24 September that, in view of the adverse prevailing winds and weather, it would be unsafe to attempt to fly these aircraft back to this country. In these circumstances he considered it preferable to hand them as a free gift to the Russian Government and bring the crews back by sea, preferably in one of H.M. ships. Added weight was given to this suggestion by the report received on the 28th that an air raid on the previous day had damaged 12 of the Hampdens. Air raids at Vaenga had occurred almost daily throughout the operation but the enemy had given more attention to the western portion of the aerodrome where the Russian aircraft and Spitfires were accommodated. After the operation was finished the enemy bombed the eastern end resulting in the reported damage.

ibid
Encl. 101A

ibid
Encls. 110A
and 112A, 117A

After a further reminder on the subject by the A.O.C. in C. on 10 October the Air Ministry approved the suggestion. The Hampdens with their torpedoes and the Spitfires with their photographic equipment were accordingly handed over and the air crews with the ground personnel were brought home in H.M. ships "Argonaut", "Intrepid" and "Obdurate" leaving the Kola Inlet on 21 October. A small signal detachment was left at Grasnaya to enable the W/T Station to be operated when required and another small party of assorted trades was left, for just under a month at Vaenga, to deal with any difficulties that might arise regarding the aircraft. The latter were embarked for the U.K. on the 18 November.

ibid
Encls. 127A
and 130A

(ix) Summary

C.C.
M.S. 15,107
Encl. 24A
and B

The whole air operation in support of these two convoys and their covering naval forces employed 111 aircraft from 14 different squadrons. A total of 271 sorties aggregating 2290 hours were flown but owing to the great distances involved even with some of the aircraft based in North Russia - in itself an operation of considerable magnitude - this expenditure of flying hours only produced 194½ actually with convoys and 114 actually on the anti-ship patrols. The logical solution of protective air cover to convoys in mid-ocean, whether in the Arctic or Atlantic, and whether against U-boats or enemy aircraft, was for aircraft carriers to accompany the convoys thus providing their own air umbrella under far more economical flying conditions. Lack of such auxiliary carriers up to this period forced Coastal Command to undertake these two operations as well as an increasing amount of very long range flying in the Atlantic. H.M.S. Avenger was the first instance of the logical solution but it was nearly a year before the supply of these auxiliary aircraft carriers was large enough to attach them regularly to the Arctic convoys.

C. in C. H.F.
despatches

This difficulty of supplying air cover except by a major operation on the part of Coastal Command was the subject of considerable discussion and together with the problem of affording similar large scale naval support forces⁽¹⁾ resulted in the decision by the Admiralty to discontinue convoys for the time being. Instead it was decided to sail about 10 merchant ships independently each way between Iceland and

(1) The demands made on the Home Fleet in connection with the preparations for and operation of naval escort to the landings in North Africa made this impossible.

Archangel taking advantage of the long nights from the end of October and using the passage north of Bear Island. Trawlers were spaced along the route for life-saving and two British submarines were used as well for this purpose.

The first eastbound ship left Reykjavik on the 29 October and was followed by 12 others at intervals. Of these, five reached Archangel, four were sunk by U-boats, one ran aground near South Cape in Spitzbergen and three returned to Iceland. Only four westbound ships were sailed of which three reached Iceland and one was sunk. A fifth westbound ship sailed in mid-November, four more late in November and 15 in December. All arrived without loss.

(x) Future convoys restricted to the winter months

A westbound convoy (Q.P.15) of 30 ships sailed on the 17 November but was widely dispersed during the whole passage owing to tempestuous weather and continual darkness. 27 ships finally arrived safely in Icelandic waters, one returned to the Kola Inlet and two were sunk by U-boats.

To take advantage of the complete lack of daylight between late November and mid-January when no enemy air reconnaissance was possible, it was decided to re-commence convoys. After considerable discussion between C. C. Home Fleet and the Admiralty as to the size and frequency of the convoys it was agreed to sail 32 ships divided into two parts of 16 vessels each.

For security reasons the titles of the convoys were changed from P.Q. and Q.P. to J.W. and R.A., both starting with the number 51. J.W.51A sailed from Lock Ewe on the 15 December and arrived without incident at the Kola Inlet on 25 December. The second part, J.W.51B of 14 ships left Lock Ewe on the 22 December. Both these convoys were given air cover when weather permitted up to about 400 miles north of Scotland.

On the 31 December, J.W.51B on an easterly course in a position about 220 miles N.N.W. of the Kola Inlet was attacked by six large enemy destroyers backed up by the Pocket battle-ship "Lutzow" and heavy cruiser "Hipper". Despite continuous attacks, the two small escorting cruisers and the destroyer force with the convoy frustrated the enemy's attempts either to overwhelm the weak convoy close escorts or to cut up the convoy and he was finally compelled to retire and make for harbour after losing one large destroyer. The British losses were one destroyer and a minesweeper sunk and another destroyer severely damaged. No merchant ships were lost by the convoy which arrived safely in the Kola Inlet.⁽¹⁾ The westbound convoy, R.A.51 of 13 ships, left the Kola Inlet on the 30 December and arrived unmolested in the U.K. without loss.

(xi) Air Protection given by carrier borne aircraft

The J.W. and R.A. series of convoys continued throughout the winter until March 1943 when, in view of the

(1) H.M. destroyer "Achates" and H.M. minesweeper "Bramble" were sunk and H.M. destroyer "Onslow" was severely damaged. Her Captain, R. St. V. Sherbrooke, was wounded and lost his sight. He received the V.C. for the able and gallant manner in which he directed and led the engagement of very superior enemy forces. The two cruisers - H.M. Ships "Sheffield" and "Jamaica" - only suffered minor splinter damage with no casualties.

lengthening daylight hours they were discontinued until November 1943. Similarly they ceased in April 1944 during the summer, recommencing in August 1944 and thereafter were maintained until the end of the war. The regular provision of auxiliary aircraft carriers during these periods never again made it necessary to provide shore based air support in Arctic Waters though Coastal Command aircraft always afforded escort and A/U sweeps in protection against U-boats for these convoys and the supporting naval forces when within 300 - 400 miles of the air bases in north Scotland and Iceland.

Admty.
C.B. 04050
series and
B.R. 1337

Losses were small and were caused by U-boats operating in Arctic Waters. Despite the continued employment by the enemy of a northern contingent of U-boats based at Narvik numbering between 20 - 30 of these craft, they only succeeded in sinking 16 merchant ships out of 920 which sailed in convoy during this period from December 1942 to May 1945.

Chapter VIII - Part II - Reconnaissance and Operations over
Spitzbergen

(i) Preliminary Reconnaissance

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Sea. Vol.II

After the evacuation of the Russian and Norwegian inhabitants from Spitzbergen in August 1941,⁽¹⁾ it was known that the enemy had established meteorological parties but beyond a visit to Icefjord on 19 October by two British minesweepers⁽²⁾ no forces could be spared either to clear up the position or re-occupy the island.

C.C.
S.7010/H
Encl.1A

On the 12 March 1942 a requirement was given by H.Q. Coastal Command to No.15 Group for a special reconnaissance of Spitzbergen to be carried out on 1 April or as soon after as weather conditions would permit. Particular attention was to be given to the central western part of the islands including Icefjord, Lowe Sound, and Kongs Fjord. Two passengers were required to fly with the aircraft - Major Sverdrop and Lieut. A.R. Glen R.N.V.R.⁽³⁾ who were familiar with the islands and could give more exact details of the reconnaissance required. This flight was to obtain information on the location of firm ice between Jan Mayen Island and Spitzbergen, to report on the ice conditions in the fjords of West Spitzbergen Island and to ascertain if any enemy forces were on the island. Consequent on this report it was proposed to plan a small expedition composed of Norwegian volunteers to occupy the only places at which any landing in strength could be made by the enemy.

ibid
Encl. 22A

The reconnaissance was carried out in Catalina " " /240 squadron piloted by F/Lt. Hawkins on the 4 and 5 April in extremely severe conditions of bad icing on the aircraft and wind velocities over Spitzbergen of between 80 and 120 m.p.h. The information indicated that no enemy forces were in Spitzbergen and that the prevailing ice conditions would permit ships of the sealing type to penetrate the drift ice and reach Icefjord by the beginning of May.

(ii) The Norwegian expedition to Spitzbergen

ibid
Encls. 23A, 26A
29A

The final details of the operation - code name "Fritham" - were settled by the Norwegian Admiralty. It consisted of the Sealer "Solis" and icebreaker "Isbjorn" to be followed a month later by the Sealer "Quest". The first contingent carried a total force of 100 Norwegians who all had experience of life in Spitzbergen, armed with automatic weapons and some 3 inch mortars. They were to be equipped for a period of four months but could remain indefinitely as stocks of food and fuel were available in Spitzbergen. The expedition was under the leadership of Major Sverdrop. The Norwegian Naval Headquarters also asked if Coastal Command could attach one Catalina aircraft after the arrival of the first contingent to operate from Icefjord on ice reconnaissances in the Arctic latitudes to the west and east of

ibid
Encl. 33A

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- (1) See Chapter VIII Part I. Introduction.
 - (2) The two minesweepers found a small enemy party which had just arrived by air to establish a weather reporting station. The party escaped by air but some of their equipment was captured.
 - (3) Lieut. Glen had been the leader of the 1935 Oxford University expedition to Greenland. Major Sverdrop was an officer in the Norwegian Army and had much previous Polar experience. See Map XXII for the position of place names.

Spitzbergen. This was agreed to and it was arranged that the same aircraft should, prior to the sailing of the first contingent, carry out an ice reconnaissance to Bear Island, Icefjord in Spitzbergen and along the sea ice edge to Jan Mayen Island landing at Reykjavik with Lieut. Colonel Godfrey and Lieut. Glen as special observers.

ibid
Encl. 42A

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As No. 240 squadron was under orders to proceed to the Far East it was not possible to utilise the same aircraft or crew who did the first flight to Spitzbergen. Catalina "N" of No. 210 Squadron was selected manned by a specially picked crew under F/Lt. D.E. Healy. The ice reconnaissance flight was completed on 3 and 4 May, the aircraft being nearly 23 hours in the air. The information was of the greatest assistance to the little expedition "Fritham" which left Iceland on 7 May. This first contingent arrived safely in Icefjord but while landing stores at Barentsburg⁽¹⁾ they were attacked by enemy bombers and both ships were sunk.

(iii) Sorties in aid of the Survivors

C.C.
S. 7010/H
Encls. 63A
and B.

A special reconnaissance to Icefjord was ordered and flown by N/210 squadron piloted by F/Lt. Potier owing to F/Lt. Healy and his crew being withdrawn to take over a new Catalina in preparation for the air operation from Spitzbergen. On 12 May, N/210 found a Heinkel III with Skis on the snow in Advent Bay with six men nearby. Eight attacking runs were made by the Catalina destroying the Heinkel and killing or wounding three of the men. No signs of the Norwegian expedition were seen and the aircraft returned to Sullom Voe after being 24½ hours in the air.

ibid
Encls. 35A,
46A 55A, 56A
and 68A

Meanwhile the new Catalina - P/210 squadron - was fitted with all the special instruments which Polar research institutes and other Arctic authorities advised. There was no previous experience of flying or air navigation in very high latitudes upon which to draw and the contemplated basing of a flyingboat in these waters was a pioneer undertaking.

ibid
Encl. 74A

Following the news of the bombing of the expedition and the discovery of the Heinkel III in Advent Bay, a further reconnaissance was undertaken to clarify the position and locate the marooned Norwegian party. This was performed on the 25 and 26 May by F/Lt. Healy in the newly fitted out Catalina P/210 Squadron. Survivors were discovered in Gronfjord and it was established by visual signalling that nothing had been saved out of the ships: Germans were present in Advent Bay and a daily morning enemy air reconnaissance in force was carried out; Major Sverdrop and the wounded were all in Gronfjord. Further reconnoitring failed to locate any signs of the enemy in Advent Bay and after sending a signal of encouragement to the survivors the aircraft returned to the United Kingdom, completing a sea ice reconnaissance on the way, having been 27 hours in the air.

ibid
Encl. 81A
and 81B.

On the 28 May F/Lt. Healy again flew to Icefjord taking with him medical stores, arms and ammunition. At 0540 hours on the 29th, visual contact was made with the survivors in Gronfjord and the supplies were dropped by parachute. An interchange of signals established that the survivors at Gronfjord numbered 30 with six wounded men,

(1) See Map XXII.

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that up to 40 Germans were at large further up Icefjord and that a daily armed reconnaissance was carried out by four Focke-Wulf 200 aircraft. Ice in the fjord prevented any landing being attempted. P./210 Squadron then returned to Sullom Voe after being 24 hours airborne.

ibid
Encl. 82A

Three days later a further sortie was undertaken to drop more supplies but continuous fog on the outward trip accompanied by heavy snow and steadily worsening icing conditions forced F/Lt. Healy to abandon the flight after 17½ hours in the air.

ibid
Encl. 85A

On the 7 June another attempt was made and in spite of a belt of fog around the coasts of Spitzbergen, the risk was taken of penetrating inland in the hope of a clear patch. Fortunately a clearing was found off Gronfjord and, after waiting for a heavy snow storm to clear, the survivors were contacted by Aldis lamp. 20 rifles and 3000 rounds of ammunition were dropped, after which the fjord was searched for a possible ice free stretch of water. A suitable patch was found and the Catalina was waterborne in Gronfjord at 1800 hrs. Further stores were landed and the six wounded men taken aboard the aircraft together with survivors' mail and despatches from the Norwegian leader and Lieut. Glen. At 2021 hours the aircraft took off, arriving without incident at Sullom Voe after still another sortie of 24 hours.

ibid
Encls. 95A,
B and C

Further supplies were flown up by F/Lt. Healy⁽¹⁾ on 14 June and it was found that the survivors had moved up the Gronfjord to a mine shaft of the coalmine half a mile north of the destroyed village of Barentsburg. The aircraft landed on the fjord and transhipped supplies and mail. Lieut. Glen and two others were embarked and brought back to Akureyri in North Iceland after completing a sea-ice reconnaissance to Jan Mayen Island and Denmark Straits. This sortie also lasted 24 hours. The reports from the expedition indicated that the Germans had left Advent Bay and the direction of the daily enemy aircraft flights inclined to the view that they were stationed further to the north in Kongs Fjord.

ibid
Encls. 93A and
94A

On the 27 June F/Lt. Healy again flew up to Spitzbergen with passengers and supplies. The aircraft made a northerly track to locate the ice edge but owing to very dense fog allowing only occasional glimpses of ice beneath the aircraft when flying at 50 feet, the captain was compelled to discontinue the ice reconnaissance. Continuous sea fog was experienced to Spitzbergen where a reconnaissance of Sveagruva up the north east arm of Low Sound was carried out. After which the passengers and stores were disembarked at Gronfjord and the aircraft flew to Advent Bay where a JU. 88 was discovered on a prepared landing ground in Advent valley. The enemy aircraft, stores tent and W/T station were machine gunned and the JU. 88 was left on fire. A message was dropped to our forces at Barentsburg advising them of this new development and the aircraft returned to Sullom Voe, experiencing sea fog practically the whole way, after being 23½ hours in the air.

C.C.
M.S. 15,108
Encl. 106A

(iv) Relief and re-inforcement of the expedition

C.C. S. 7010/H
Encls. 98A, 103A
104A

Several ice reconnaissance sorties were made at the end of June and beginning of July to Scoresby Sound in

(1) F/Lt. Healy received the D.S.O. and his navigator, pilot officer Schofield, the D.F.C. on 18.6.42.

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Greenland, to the Jan Mayen Island area and to Bear and Sea Horse Islands by Catalinas of the Norwegian No. 330 Squadron and No. 210 Squadron. (1) These were undertaken to provide information on the exact position of the sea ice in aid of convoy P.Q.17 which sailed on the 27 June. Under cover of this convoy, a cruiser and a destroyer took 100 Norwegians and 1500 tons of stores for the relief and re-inforcement of the Norwegian expedition in Spitzbergen. This was known under the code name of "Gearbox". The men and stores were disembarked at Barentsburg on the evening of 2 July without incident and the ships rejoined the Battle Fleet covering P.Q.17 about 24 hours later.

(v) Further reconnaissances

C.C.
S.7010/H
Encl.111A

Commencing on 13 July a remarkable series of flights were made by Catalina N/210 squadron piloted by F/Lt. Holmes. The aircraft was airborne at Sullom Voe at 1359 hours and proceeded to Spitzbergen carrying out a sea-ice reconnaissance on the way. At 0025 hours on the 14th contact was made with the Norwegian ground party at Barentsburg after being taken for a hostile aircraft and being fired at. The aircraft landed on the fjord, delivered packages containing special stores and took off immediately for an extended ice and general reconnaissance to Seahorse Island and as far west as possible. At 0622 hours in position 7432N x 3740E the pilot sighted five lifeboats containing about 40 men. Food and cigarettes were dropped in camera covers and "Maewests". After seeing them safely collected an encouraging signal was made to the survivors and course was set direct to Archangel where the aircraft landed at 1340 hours. The Senior British Naval Officer was informed immediately of the position and number of boats sighted.

At 1625 hours on the 15th the aircraft took off to complete the ice reconnaissance and at the S.B.N.Os request to search for more surviving ships of convoy P.Q.17. Course was set for position 7753N x 3220E and from there search was made towards the large island of Nova Zembla, a landfall on which was made at 0530 hours on 16 July at Cape Nassau. The aircraft then coasted down the western side of the island and at 0730 hours sighted a ship at anchor in the centre of Moller Bay. The aircraft landed and taxied to the ship which was found to be S.S. "Empire Tideseaworthy" with 42 survivors from other ships on board and expecting a further 107 in a short time. The Catalina took off again at 0855 hours and almost immediately sighted and communicated with S.S. "Winston Salem" aground at the southern end of Moller Bay. On the return journey it was confirmed that the channel from Moller Bay to Cape Kanin was icefree and the aircraft was waterborne at Archangel at 1355 hours on the 16th. After a day's rest N/210 took off at 1857 hours on the 17th arriving without further incident at Sullom Voe at 1236 hours on the 18 July.

C.C.
M.S.15,108
Encl.106A

On the 29 July another sortie was made by F/Lt. Healy in Catalina P/210 Squadron to Barentsburg at the urgent request of the Norwegian force to convey anti-tetanus serum, to collect Lieut-Comdr. Glen and to bring back certain parts of the JU.88 destroyed on his previous flight. This was accomplished without any special incident, the sortie lasting 23½ hours.

- (1) F/Lt. Healy completed an extensive sortie up the coast-side of Greenland in P/210 Sqdn. F/Lt. Holmes carried out a reconnaissance of an area containing Seahorse Island, Bear Island and South Cape, Spitzbergen in N/210 Sqdn.

ibid

Routine ice reconnaissances were made towards the end of August in preparation for the sailing of the next Russian convoy. These included one sortie made by F/Lt. Healy from Iceland on 22 August which was intended to reach as far as the North Pole. However, impossible weather conditions culminating in an engine failure prevented the aircraft from getting further north than latitude 80° N, though important information was collected regarding ice conditions in the high latitudes off the east coast of Greenland.

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No further visits were paid to the Norwegian forces at Barentsburg during August and in early September as all available Catalinas, including those captained by previous "Spitzbergen pilots", were employed in "Operation Orator" at North Russian bases in support of convoy P.Q.18.⁽¹⁾ To provision and store the Norwegian force in Spitzbergen so that it might remain there through the winter a repeat operation (Gearbox II) was carried out by the cruiser force covering the convoy. H.M.S. Cumberland landed stores at Barentsburg on the 17 September and H.M.S. Sheffield on 18 September. Despite clear weather, the operation was completed without the enemy's knowledge.

(vi) F/Lt. Healy killed in action

After the operation supporting P.Q.18 and Q.P.14 was completed, F/Lt. Healy in Catalina S/210 Squadron was detailed to contact the Norwegian party at Barentsburg. The aircraft was airborne at Grasnaya in the Kola Inlet at 0717 hours on 25 September. Weather conditions became worse and worse and the aircraft was compelled to abandon the trip at 1058 hours in position 7343N x 2710E. When approaching the Murmansk coast the weather suddenly cleared and a JU. 88 was sighted quite close in position 7011N x 3608E. An engagement followed during which the enemy aircraft was repeatedly hit and finally broke off the engagement after inflicting damage on S/210. As the JU. 88 was escaping the enemy rear gunner fired a final burst and one bullet hit F/Lt. Healy mortally wounding him at 1329 hours. The aircraft force landed at Kildin Island and was beached at 1512 hours.

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No further flights to Spitzbergen were attempted during the rest of 1942. The naval force of one cruiser and two destroyers that brought back the aircrews and ground personnel after operation Orator called at Spitzbergen on their way out and landed further stores for the Norwegian party at Barentsburg on the 13 October.

(1) See Chapter VIII. Part I. Section (vii).

CHAPTER IX

BOMBING POLICY AND OPERATIONS AGAINST ENEMY PORTS AND NAVAL
OBJECTIVES. JULY 1940 TO FEBRUARY 1943(i) Introduction

When the period of the "Phoney War" ended in April 1940, the policy for the employment of the small long range bomber force had been agreed upon. After resisting demands for its use in direct support of the initial land fighting in Flanders, the C.-in-C. Bomber Command obtained Air Staff agreement and Defence Committee approval for a policy of night bombing against German communications, marshalling yards and synthetic oil targets together with a limited programme of minelaying. During the rapid advance of the German armies into France, the objectives in Germany naturally received less attention but after the fall of France the strategic bombing policy was resumed. In a short time, however, this policy had to be revised in view of the threat of invasion and, from July 4 1940, invasion shipping of all kinds in German and enemy occupied ports became the primary concern of Bomber Command. The directive issued that day gave first priority to attacks by the long range bombers on Kiel (where the Scharnhorst and Lutzow lay), Wilhelmshaven (where the Bismarck and Tirpitz were fitting out), and the docks at Hamburg, Bremen and Rotterdam. Minelaying was increased and medium bombers started the offensive against enemy occupied Channel ports.⁽¹⁾

A.M.
S.46368
encl. 66A

ibid
encl. 78A

From August 1940, when U-boat depredations were causing heavy shipping losses, requests were made both by Coastal Command and the Admiralty for bombing attacks to be made on the growing U-boat bases at Brest and Lorient. In face of all their commitments Bomber Command was unable to provide more than a token effort upon these, so Coastal Command's slender resources were drawn upon to make what amounted to little more than nuisance raids.

A.M. Signal
X.42 29 Aug.
and S.5644

During the four months (July to October), the scale of attack on naval ports, invasion ports and Biscay U-boat bases was as under:-

	German Ports			Invasion Ports			Biscay Bases		
1940	A/C	Tons	Loss	A/C	Tons	Loss	A/C	Tons	Loss
July	284	274	3	71	34	1	17	11	-
August	117	96	3	15	7	-	35	14	-
September	232	227	5	1,662	1,318(57)	18	63	40	1
October	501	467(33)	7	434	306(14)	8	72	39	-

N.B. The numbers in brackets denote tons of incendiary bombs.

(1) Actually, this directive was superseded on the 15 July by one giving priority to attacks on the German aircraft industry. However, despite conflicting directives, the greater part of the bombing effort in the next three month's was directed against invasion ports and objectives.

The September effort against invasion ports represented 60% of Bomber Command's available effort and was augmented when possible by Coastal Command aircraft. The shipping space assembled in these ports by the Germans amounted to 168 transports, 1,700 barges and 360 tugs besides numerous smaller unclassified craft. By the end of September, air attacks on invasion ports had sunk two and damaged ten transports, sunk 95 and damaged 126 barges, sunk five and damaged two tugs besides disposing of 15 to 20 small craft.⁽¹⁾

After the successful Battle of Britain and in view of the onset of winter weather conditions, the dwindling threat of invasion led to a review of the heavy bomber policy. It was considered that targets had been selected of much too varied a nature for the small force available, moreover many diversions were being made on urgent calls from the Admiralty⁽²⁾ and under these conditions no effective concentration of attack had been possible. Owing to lack of reliable after-evidence, the results of all these bombing efforts had been much overestimated. In this respect the day photographic reconnaissance unit had been employed in recording invasion preparations and night photography with the bombers was still in its infancy. The increasing use in October of photographic evidence in damage assessment revealed the inaccuracies and small effect of raids and Bomber Command were beginning to take a more pessimistic view of their efficacy.

A.M. S.4768
encl. 10A

ibid
encl. 12A

War Cabinet
280th conclusions
and
BC/S.23746/II
encl. 16B

The accession, in October, of the C.-in-C. Bomber Command to the position of Chief of the Air Staff brought a more realistic outlook on this subject to Chief of Staff and Cabinet deliberations. One of the results was the adoption early in 1941, of night area bombing with the use of incendiary bomb loads by the early bombers in order to guide those coming in after. Regarding immediate policy, a new directive was issued on the 30 October which laid down that German synthetic oil plants were to be the primary objective for precision bombing on moonlight nights but that regular concentrated attacks should be made on objectives in large towns and centres of industry during the moonless periods with the aim of causing, not only material destruction, but lowering of enemy civilian morale.

This policy was pursued as far as possible but, again, there had to be diversions at Admiralty request. The depredation of the Admiral Scheer in the Atlantic in November with the

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- (1) In the German account of Operation Sealion (supplement to Adty. M.I.R. Moh. 1947) it is stated that thanks to the careful planning of the Naval Staff these losses were replaced from reserves. These attacks, however, demonstrated the continued ability of the R.A.F. to strike at invasion preparations though the real cause of the postponement and final cancellation of the operation was the defeat of the German bombers by R.A.F. Fighter Command and the knowledge that the British Navy was entirely undefeated.
 - (2) At the beginning of October, the Admiralty had requested special efforts against Kiel, Wilhelmshaven and Hamburg in view of the serious potential threat offered by the major naval units then present in them.
Ref: B.C. 540. App. C.87 and A.M. Signal X.715 of 12.10.40.

A.M. Signals
X.873, 884
887. and
BC/S.23746/II
encl. 55A

possibility of her use of Brest or St. Nazaire as a future base and the increasing severity of shipping losses from U-boat attack caused requests for bomber action against all the Biscay ports (including the F.W. 200 airfield near Bordeaux) while later, in December, the possibility of the Scharnhorst and Gneisenau setting out on a commerce destroying cruise resulted in an urgent request for heavy attacks on Kiel where they lay together with the pocket battleship Lutzow and on Wilhelmshaven where the Tirpitz was fitting out. The Biscay ports received comparatively light attacks from Bomber Command though Coastal Command did what they could with their tiny force but the German ports received heavier raids.(1)

ibid
encl. 69A

On the 15 January 1941 the October Bombing Policy was reaffirmed but with the sole primary objective, until further orders, of German synthetic oil plants. Only if weather conditions precluded attacks on these were alternative targets against industrial towns to be taken. The sole diversion envisaged was a resumption of the attacks on invasion ports if the threat should arise and on naval forces at sea on special occasions. Minelaying operations were purposely not mentioned but on the 20 January permission was given to undertake them (A) For the training of inexperienced crews. (B) In order to make use of the new Stirling and Manchester aircraft where they had not yet been modified to full bomber operational requirements. (C) When conditions were unsuitable for other operations.

ibid
encl. 74A

In point of fact, diversions from this policy commenced immediately with the arrival in Brest of the Hipper and attacks by 433 Bomber and Coastal Command aircraft took place during the first three months of 1941. A total of 468 tons of bombs were dropped but the Hipper was not hit nor were her movements interfered with up to the time she left for home. Regarding the other ports in Germany and the Biscay, none of the attacks since mid-summer 1940 had had any success against either the major naval units or the U-boats and in fact very little inconvenience at all had been inflicted on the facilities of the various ports.(2) However, it is true that as far as the Biscay ports were concerned, the Germans did recognise the potential threat of air bombardment against operational U-boats and, at the beginning of 1941, started the foundations for the vast concrete shelters which a year later, provided complete protection from the heaviest air attack.

The meagre results of all the bombing done on naval targets were not a matter of surprise to the Air Staff who, although

(1)	German Ports			Biscay Bases		
	A/C	Tons	Loss	A/C	Tons	Loss
Nov. 1940	245	213(25)	7	127	86(7)	3
Dec. 1940	53	37(9)	1	231	181(7)	3
Jan. 1941	438	327(103)	6	144	107(9)	3
Feb. 1941	185	174(30)	4	163	183(2)	6

- (2) Reference - A.H.B.6 translations of German reports. Regarding merchant ships, during the period July 1940 to February 1941, no ships were destroyed in German Ports but two Finnish ships were damaged. The Isa - 2,803 tons and the Lusa - 1,460 tons, both in the Kiel Canal area.

not yet fully alive to the limitations of night bombing by the small force operating under indifferent continental weather conditions, clearly realised that no success, other than by blind chance, was likely against naval objectives until daylight precision bombing was practical. What did dismay them was the continued demand from the Naval Staff for action against these tiny targets which not only was unlikely to inflict severe damage but which detracted from the aim of concentrated raids systematically made on those areas which could be badly upset by massed bombing at night. On the other hand, it is perfectly understandable that, being unable to touch these ship or U-boat targets in harbour by purely naval action, the Admiralty should ask for action by the only Service which had the means to do so and which, even if not hitting them, at least imposed a hazard of war on their surroundings instead of allowing a peacetime atmosphere to continue in all naval bases and dockyard establishments. These conflicting outlooks became more marked in the summer of 1941.

(ii) The part played by Bomber Command in the Battle of the Atlantic.

The rising menace of the U-boat campaign, the activities of Focke-Wulf aircraft and the commerce raiding by enemy surface units resulted, on the 9 March 1941, in the Battle of Atlantic Directive under which Bomber Command were required to assist the Royal Navy and Coastal Command in an all-out offensive against these threats to our sea communications. The January Oil Policy was abandoned and bombing attacks were intensified against the German naval ports, U-boat building yards and operating bases, and the light bombers of No. 2 Group started the offensive against enemy Coastal shipping.⁽¹⁾ The arrival of the two battlecruisers Scharnhorst and Gneisenau in Brest at the end of March focussed attention on this port to the exclusion of the U-boat bases in the other Biscay ports.⁽²⁾

Towards the end of May, after a large expenditure of bombs on Brest and the U-boat building yards in Germany, the Air Staff pressed for a return to a strategic bombing policy and in June the Future Operational Planning Section produced a paper on the proposed programme. After discussion, the Chiefs of Staff recommended to the Prime Minister that, subject to the requirements of security (which included the Battle of the Atlantic), the main bombing effort should be directed:-

- (a) As a short term policy against transportation targets so as to achieve dislocation coupled with the maximum direct effort on morale.
- (b) As a long term policy, when the bomber force was large enough, entirely against the morale of the German people.

However, before these recommendations actually went to the Defence Committee, the 1st Sea Lord expressed a fear that they might interfere with priority accorded to Battle of the Atlantic targets. He put forward a suggestion that one third of the bomber effort should be earmarked for these which could be

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- (1) These operations have been dealt with in detail in the Anti-shipping chapters of Volume II and this Volume.
 - (2) The detailed story of the attacks on Brest is given in Chapter V of this Volume.

BC/S.23746/II
encl. 125B

JP(41)444
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C.O.S.(41)114(o)
Para. 5

C.O.S.(41)
216th conclusions
18 June

switched from U-boat building yards in Germany to the enemy naval units at Brest as circumstances dictated. The C.A.S. contended that the new policy covered the Battle of the Atlantic targets and that weather and moon conditions would ensure that a fair proportion would be so employed. On the 25 June, the Defence Committee approved the new bombing policy and a directive embodying this decision was sent to the A.O.C.-in-C. Bomber Command on the 9 July 1941.

Footnote(1) shows the scale of attack on Brest and the German ports where U-boat construction was going on. Regarding the enemy naval units in Brest, since their arrival at the end of March up to October 31, the 2,308 tons of A.P., S.A.P. and H.E. bombs varying in size from 4,000 lbs. to 250 lbs. had resulted in four hits on the Gneisenau(2) and one on the Prinz Eugen. While lying off La Pallice, the Scharnhorst had received five hits in the course of a single raid by eight aircraft but this was in a daylight attack and exemplified in a nutshell the Air Staff argument that only precision daylight bombing was likely to be of any use against naval targets. The night raids against U-boat construction yards in Germany were even more disappointing. The 5,213 tons of H.E. and 791 tons of incendiaries had inflicted minor

- (1) Scale of attacks under the March Directive - 60% of total bombing effort.

	Brest			German Ports		
1941	A/C	Tons	Loss	A/C	Tons	Loss
March	164	207	1	558	531(82)	11
April	487	576	7	651	679(137)	21
May	222	313(8)	-	798	1,080(190)	20
June	279	422	-	638	890(97)	41

Scale of attacks under the July Directive - 25% of total bombing effort.

July	307	439	17	505	557(95)	25
Aug.	4	6	-	359	409(56)	16
Sept.	176	270(1)	-	766	865(108)	31
Oct.	45	128	1	739	891(114)	18

N.B. On the 7 and 8 September 1941, four Bomber Command Fortresses attempted a daylight high level attack on the Scheer in Oslo but without success. Two of the aircraft were shot down by Me.109's. Further details are given in Chapter VII, Section (1).

- (2) Although these bomb hits caused fire and structural damage above the armoured deck, it was the torpedo hit by a Coastal Command Beaufort that put the Gneisenau out of action for nine months. See Chapter V. In addition to the hits on the naval units, one small tanker, the John A. Essberger - 739 tons, was sunk in Brest harbour.

Report by the
British Bombing
Survey Unit.
and
AHP/RMS/5

damage on dockyard installations but the planned output of U-boat was unaffected neither were any of the major naval units lying in these yards hit or damaged.(1) However, the attacks did stimulate the mounting of A/A guns and started a drain on the enemy's resources in material and personnel for defence purposes.

(iii) The U-boat operating bases - March 1941 to February 1942 inclusive.

It will have been noticed that, although the U-boat operating bases in the Bay of Biscay were specifically mentioned in the Battle of Atlantic Directive, the arrival of the two battlecruisers in Brest resulted in all bombing being concentrated on this port. For a short period this is understandable but its continuance for month after month is not easily explained. As the Naval Staff were the main instigators of the March directive, it is probable that the subsequent focussing of attacks on Brest to the exclusion of the U-boat bases was deliberate but the reason is not apparent in any contemporary Admiralty documents. During most of 1941 the extensive foundation work necessary for the erection of the massive U-boat concrete shelters was methodically pushed ahead without interference. All of it was carried out below sea level behind batteries of caissons. Even minor breaches in these would have brought the undertakings to a temporary standstill and periodic attacks with a proportion of the bomb tonnage lavished over Brest might well have frustrated their completion altogether. The vulnerable area at each of the U-boat bases was larger than the dry dock area at Brest which was frequently hit. Regular photographic reconnaissance recording the progress of these works was carried out during the whole year and frequent reports on the subject were issued by the Admiralty Intelligence Division but no worthwhile attacks were ever carried out.(2)

- (1) Regarding merchant ships, none were destroyed in German ports but in March the liner Europa - 49,746 tons was damaged at Bremenhaven and in September the Swedish Yarrowonga - 4,900 tons was damaged at Hamburg.
- (2) Scale of attack on the Biscay U-boat operation bases.

	Lorient		St. Nazaire		La Pallice		Bordeaux	
1941	A/C	Tons	A/C	Tons	A/C	Tons	A/C	Tons
March	105	122	5	6	-	-	-	-
April	19	25	-	-	-	-	38	40
May	4	2	51	36	5	3	-	-
June	-	-	6	3	-	-	-	-
July	47	67	-	-	46	88*	-	-
August	-	-	-	-	-	-	-	-
September	4	6	-	-	-	-	-	-
October	-	-	4	2	-	-	12	9

* These attacks were against the Scharnhorst lying off La Pallice.

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WM(41)104th
20 Oct.

C.O.S.(41)239(o)
21 Oct.

A month after his accession as A.O.C.-in-C. Coastal Command in June 1941, Sir Philip Joubert wrote to the C.A.S. suggesting that Bomber Command should be asked to attack the Biscay U-boat bases systematically, but the C.A.S. considered that this would be an unwarranted diversion from the July Bombing Policy. The request was repeated in September, and, following a sudden rise in the shipping losses due to U-boat action, the War Cabinet invited the Chiefs of Staff to consider whether the position in the Battle of the Atlantic called for a resumption of bombing attacks on U-boat operating bases and an intensification against the construction yards. Naval opinion was clear on the latter subject. A memorandum circulated by the 1st Sea Lord gave an account of the current shipping losses and demonstrated the possibilities from the rising numbers of U-boats which might well jeopardise the maintenance of our whole war effort including the strategic bomber offensive itself. He asked for action to reduce the rate of growth of the U-boat fleet by bombing the construction yards and the adjacent areas in which the shipyard workers were housed. Taking as an example the effect of the raids on Plymouth in March 1941, he estimated that comparable results would be obtained by five attacks each on Hamburg, Kiel, Bremen and Wilhelmshaven provided that the total sorties on each were 1335, 667, 534 and 667 respectively plus a percentage necessary to offset the considerable areas of water at each port. He also recommended that Bomber Command's directive should be amended to permit action against these ports on a higher priority and on the operational bases at Brest, Lorient, St. Nazaire and Bordeaux.

C.O.S.(41)367th
25 Oct.

The Air Ministry attitude was to resist the bombing of operational bases but to agree to a higher priority for the construction yards, especially at Hamburg and Kiel. One cannot help thinking that this agreement was largely due, not because the Air Staff had any faith in night bombing as a deterrent to U-boat construction, but to the fact that the large German ports offered as good an opportunity for massed raids against civilian morale as any other inland German city. Thus acquiescence to the Admiralty request would cost no departure from the cherished strategic bombing policy. A draft reply on these lines to the memorandum was approved by the Chiefs of Staff but, in deference to the wishes of the Admiralty, attention was drawn to the importance of Lorient as a U-boat base although no specific diversion to this port was mentioned. The draft was submitted to the Prime Minister and, after certain amendments, a new directive was approved for the month of November onwards in which the percentages of bombing effort on various types of targets were laid down as follows:-

	%
Transportation	45
Industrial and morale (mainly U-boat construction ports)	30
Battle of Atlantic targets (U-boat shipyards and Brest naval units)	15
Other targets including Berlin, Essen, Italy and sea mining.	10

Under this new programme, Lorient received one raid in November 1941 by which time the majority of the shelters at all the bases were complete with their massive concrete roofs which

rendered the U-boats in harbour and their servicing facilities safe from all further air attack.⁽¹⁾ The bombing during the whole of 1941 was thus of a very minor nuisance nature and had no effect on the progress of the shelters or the routine of the U-boats. The fact that shipping losses from U-boat action declined, with the exception of September, from June to December was probably the underlying reason for this lack of attention though the more obvious reasons are the Admiralty Staff's pre-occupation with the Brest group of enemy surface ships and the belief that raids on the construction yards were having far more effect on the production of U-boats than was really the case.

(iv) Brest and the German Ports - November 1941 to February 1942 inclusive.

If the operating U-boat bases got little bombing under the November programme, the ports of Kiel and Hamburg, which contained U-boat building yards, received heavy raids during this month. However, the serious casualties suffered by Bomber Command in offensive operations during the autumn, the delays in British aircraft production and the lower allocations of American built aircraft caused the Prime Minister to rule, on the 14 November, "that attacks should not be pressed unduly if our aircraft were likely to be exposed to extreme hazards whether from the enemy or the weather. The Bomber Force must be conserved till the spring."

In December, the obviously imminent departure of the major naval units from Brest caused an increasing proportion of bombing effort to be switched, at Admiralty request, to this port which culminated in February 1942 with their escape up Channel and further effort to attacking them on route. In the latter part of February, five raids were directed to Kiel and Wilhelmshaven in a last endeavour to hit these ships. In one case success was achieved. In the raid on Kiel during the night of the 26/27 February, the Gneisenau, lying in the floating dock, was hit twice in the bows by heavy bombs. The cumulative effect of the damage received in Brest, from the mine explosion off Terschelling and this latest attack was estimated to require over a year in dockyard hands and the ship was accordingly de-commissioned. Ultimately the plans for her refit were abandoned in January 1943.

The percentage of Bomber Command sorties devoted to naval objectives rose from 50% in December to 60% in January 1942 and 80% in February, consequently the strategic offensive

(1) Scale of attacks on the U-boat bases after the November Directive.

	Lorient		St. Nazaire		La Pallice	Bordeaux
	A/C	Tons	A/C	Tons	A/C Tons	A/C Tons
Nov. 1941	39	45	2	1	NIL	NIL
Dec. 1941	1	1	-	-		
Jan. 1942	1	1	48	80(3)		
Feb. 1942	-	-	9	20		
Mar. 1942	4	5	45	74		

against inland transportation and morale virtually ceased.(1)

(v) Enemy transportation ports

It will be remembered that the strategic policy adopted in July 1941 gave first priority to the dislocation of enemy transportation. In as far as this concerned sea transportation the effort is narrated in this Maritime War section. The offensive against enemy ships actually at sea is described in the Anti-Shipping chapters but the bombing of seaports was related to it whether directed against the North Sea commercial ports or as part of the Channel Stop campaign in the Straits of Dover.

After the threat of invasion had subsided in the winter of 1940/41, action against purely "invasion ports" was not reopened, but attacks were directed against certain ports between Den Helder and Ostend(2) as being terminal points in the enemy's system of coastal trade. Other ports between Dunkirk and Cherbourg(3) received attention as being calling places in the movement up or down Channel of enemy auxiliary raiders, blockade runners and naval traffic to or from the Biscay ports. For ease of reference, the scale of attack for the whole period of fourteen months is given as a

(1)	Brest			German Ports		
	A/C	Tons	Loss	A/C	Tons	Loss
Nov. 1941	37	133	-	539	685(44)	27
Dec. 1941	323	668(9)	10	210	243(46)	3
Jan. 1942	612	872(36)	8	509	592(100)	33
Feb. 1942	116	160	2	187	321(2)	9

During this period, in Brest a hit was obtained on the gates of the Scharnhorst's dry dock and slight splinter damage was inflicted on the Gneisenau's side plating. In the German ports, U-boat construction and dockyard work was unaffected. One merchant ship - the Monte Sarmiento of 13,625 tons was destroyed at Kiel on the night of the 26/27 February. There was one other operation carried out in this period by Bomber Command which was purely naval in objective. This took place on the night of the 29/30 January 1942 against the battleship Tirpitz recently arrived in Trondheim. Nine Halifaxes and seven Stirlings were despatched but were unable to locate the target. Details are given in Chapter VII, Section (ii).

- (2) Den Helder, IJmuiden, Rotterdam, Flushing and Ostend.
 (3) Dunkirk, Calais, Boulogne, Dieppe, Le Havre and Cherbourg.

footnote⁽¹⁾ together with the shipping destroyed or damaged in the harbours. This very considerable expenditure of aircraft and bombs resulted in the destruction of one merchant ship, damage to four others and little permanent damage to any of the port facilities.⁽²⁾ However, added to this small credit side there were delays in loading and discharging cargoes and an increasing drain on resources to provide A/A defences. Similar meagre results during this period from the air offensive against enemy shipping at sea were compensated by the enemy's necessity to ~~introduce convoys and an~~ ever increasing organisation of escort, flak and mine-sweeping craft which, in due course, taxed his naval resources severely.

reinforce his convoys
with an L

(vi) Clash of opinion between the Admiralty and the Air Ministry

The escape of the enemy naval units from Brest removed the main cause of diversion from the single minded prosecution of the bomber offensive against Germany. In the Prime Minister's words at this time in a minute to the Secretary of State for Air "the Brest question has settled itself. I am entirely

I.D.4/376
Encl. 47A

(1)

	Transportation Ports				Merchant Ships sunk	Merchant Ships damaged
	A/C	Tons	Loss			
Jan. 1941	54	60(5)	1	-	-	-
Feb.	313	295(42)	3	-	-	-
Mch.	151	171(12)	5	-	-	-
Apr.	126	126(18)	7	-	-	-
May	153	173(21)	6	-	-	-
June	142	230(8)	1	-	-	-
July	208	278(19)	7	-	-	2 (5,193 tons 5,749 tons)
Aug.	274	360(26)	11	-	-	-
Sept.	272	367(28)	2	1-5,831 tons	-	-
Oct.	356	497(32)	8	-	-	2 (3,767 tons 11,309 tons)
Nov.	191	305(26)	2	-	-	-
Dec.	193	245(20)	6	-	-	-
Jan. 1942	123	193(2)	1	-	-	-
Feb.	61	87	1	-	-	-
Totals	2617	3387(259)	61	1	4	

N.B. Of the five ships hit, four were at Rotterdam and one (11,309 tons) at Le Havre.

- (2) References:- Translations of German reports by A.H.B.6 and post war records of enemy shipping losses from Lloyds Shipping Branch, the Admiralty Intelligence Section and the German Shipowners Association.

in favour of the resumption of full bombing of Germany, subject to our not incurring heavy losses owing to bad weather and enemy resistance combined".

C.34638/111
encl. 11A

Accordingly a new directive was sent to the A.O.C.-in-C. Bomber Command on the 14 February 1942 relaxing the November policy of conservation and ordering the maximum effort possible to be employed against Germany during the next six months aimed at the morale of the civilian population, particularly of the industrial workers. The primary targets were to be the congested industrial towns of Essen, Duisberg, Dusseldorf and Cologne with alternative targets the naval towns of Emden, Wilhelmshaven and Bremen. These were all towns within range of Gee (the newly introduced radio aid to navigation) for bad visibility conditions and were reasonably easy to find in good weather by visual navigation. When weather conditions were particularly favourable, more distant towns outside Gee range could be attacked such as Hamburg, Kiel, Lubeck and Rostock in northern Germany; Berlin, Kassel and Hanover in central Germany; and Frankfurt, Mannheim, Schweinfurt and Stuttgart in the south. The Air Ministry emphasised that every effort should be made to confine bombing operations to the primary offensive against morale but certain diversionary attacks might be called for from time to time on objectives of immediate importance which included naval units and submarine building yards and bases. It is significant to note that the C.A.S. minuted the D.C.A.S. asking whether it was quite clear to Bomber Command that the aiming points on all occasions were to be the built-up areas and not the dockyard, U-boat yard or aircraft factory where these were mentioned in a Mission order.

I.D.4/376
encls. 49A and B.

D.O.(42)15
14.2.42.

CC/S.7010/3/4
Part I
encls. 56A and B

Commenting on this directive and the lifting of the conservation ban, the 1st Sea Lord said that he raised no objection to the proposed bombing Policy provided that certain immediate naval requirements for long range aircraft were met. These requirements had been drawn up in an Admiralty Staff Memorandum dated the 9 February in which the inadequacies of Coastal Command in home waters were stressed and the necessity for overseas squadrons was underlined. The immediate request was therefore made for an addition to the Home Air/Sea Forces of 5½ Squadrons of Wellingtons plus 36 Liberators and 54 Fortresses from the American allocation.⁽¹⁾ For the Indian Ocean, the minimum requirement was for the transference of three Catalina Squadrons from Coastal Command and two long range Bomber Squadrons from Bomber Command for training in reconnaissance duties.

By the end of February, the consequences following the entry of Japan and America into the war were visible in all their seriousness. Allied sea communications in the Far East were disrupted and shipping losses off the American seaboard were assuming alarming proportions. The Naval Staff in pressing their claims invoked the terms of the December/January Washington Conference in which it had been agreed that the vital lines of sea communication must be safeguarded at all

(1) Four of these Wellington Squadrons were for day A/U patrols in the Bay of Biscay and the equivalent of 1½ Squadrons was to be in the form of Wellingtons Mk.III off the bomber production line in order to equip the projected Leigh Light Squadrons for night patrols in this area. The Liberators and Fortresses were for long range ocean convoy escort and Fleet reconnaissance.

costs.(1) In effect the Naval demand would involve the withdrawal of $7\frac{1}{2}$ squadrons of Wellingtons from Bomber Command. Apart from five Wellington squadrons just equipped with Gee, Bomber Command only possessed $14\frac{1}{2}$ Wellington Squadrons and the prospect of halving the available backers-up for the Gee force was not acceptable to the Air Staff; moreover there was likely to be a further demand for compensation to Coastal Command for their squadrons diverted overseas.

On the 6 March 1942, the 1st Sea Lord circulated a paper in which was set out the long term requirements of the Navy to enable it to meet the increasing threat to those Sea communications which were the life lines of the British and American war effort. It stated that if control of these was lost, the war at sea was lost. If the war at sea was lost, the whole war was lost. The 1st Sea Lord then pointed out that such a situation could be created by one or more of the following:-

- (a) The enemy obtaining control by means of surface ships.
- (b) The reduction of British and American merchant tonnage to the extent that it could no longer maintain the minimum essential supplies.
- (c) The reduction of tanker tonnage to a degree which would seriously immobilise the armed forces.

As far as threat (a) was concerned, it was on the main fleets with adequate air support that control would ultimately depend and since both the present and prospective strengths of the British and American Capital Ships and Carriers showed only a barely adequate margin of superiority over Germany, Italy and Japan, the position was very dangerous. While the Admiralty were doing all in their power to cope with this situation, the measures were insufficient in themselves to redress the balance should the enemy succeed by attritional air or submarine attacks in reducing Allied naval strength. It was accordingly necessary to subject the enemy to similar treatment which could only be done by increasing the strength of the land-based air forces working over the sea and building up the Torpedo/Bomber Strike force as quickly as possible. As regards threats (b) and (c), the outlook in the U-boat war was serious in view of the addition to the U-boat fleet of some 20 new boats every month which far outbalanced the rate of sinkings. This danger, also, could only be mitigated by the provision of more shore-based aircraft for the better protection of convoys, attacking U-boats at sea and intensive bombing of U-boat building yards. The paper ended by saying "If we are not to conduct the war at sea at a disadvantage, we must have Naval Operational Control of all aircraft employed on sea operations on lines similar to those now in force with Coastal Command in Home waters".

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- (1) At the Washington Conference which terminated in January 1942 it had been agreed between the Prime Minister, the President, and their respective Staffs that, notwithstanding the situation in the Pacific, Germany remained the prime enemy. Only the minimum force necessary for safeguarding vital interests in other theatres should be diverted from operations designed to undermine German resistance in 1942 but it was acknowledged and agreed that the vital lines of sea communications must be safeguarded at all costs.

D.O.(42)23
6.3.42.

If the Admiralty's claims were satisfied, it would be at the expense of the bomber offensive. Either the resources of Bomber Command were to be dispersed in an attempt to contribute defensively to sea communications over vast areas or they were to be concentrated in order to bring the greatest possible weight to bear offensively against selected targets in Germany. These claims, and others made almost simultaneously by the War Office for Army co-operation, were considered by the Chiefs of Staff on the 11 March. In view of the unlikelihood of large scale Army Operations during the next six months the latter claim was soon disposed of but the Naval demands presented a much more intricate problem. There was no doubt that the dangerous situation which had arisen at sea was of vital concern both to the Americans and the British.

A.M./S.6457
encl. 75A

P.M. Personal
Telegram
T.493/2

The rival claims were referred to the Prime Minister again and again. On the 18 March, the Defence Committee gave a decision that Coastal Command was to transfer two more Catalina Squadrons to the Indian Ocean and at the next Battle of Atlantic Committee Meeting, on the 27th, the Prime Minister requested the C.A.S. to submit proposals as to how Coastal Command was to be compensated in Home Waters. On the 29 March, as a possible solution to the whole problem, the Prime Minister telegraphed to the President of the United States urging him to expedite the despatch of the first U.S. Bomber Groups to the United Kingdom. Even 100 U.S. aircraft, he said, working in this country before the end of May would lift the air offensive to the proper scale and enable the six Bomber Command squadrons to be spared to Biscay Bay patrols. Unfortunately the Americans had delays and difficulties of their own and this impassioned appeal could not be met.

A.M./S.6457
encl. 84A

ibid.
encl. 86A

ibid.
encls. 92A and B
and 93A

Regarding the compensation to Coastal Command, the C.A.S. minuted the Prime Minister that he deprecated any allocation of Liberators because the Americans were already restive about the Fortress Squadron in Coastal Command which was being used on tasks other than high level bombing for which these aircraft had in the first instance been supplied to the R.A.F. He proposed, therefore, to effect the compensation with Whitley aircraft. This was opposed by the 1st Sea Lord on the grounds that Whitleys were no suitable substitute for the much longer ranged Catalinas. As a solution the Defence Committee, on the 1 April, ruled a compromise transfer of eight Liberator aircraft and one squadron of Whitleys. The further compensation of Coastal Command for the three Beaufort Torpedo/Bomber Squadrons actually or about to be sent overseas was settled personally between the C.A.S. and the 1st Sea Lord by the transference, on the 12 April, of two Hampden Squadrons from Bomber Command with orders to re-equip and train as Torpedo Squadrons.

ibid.
encl. 95A

So far the various transferences from the Bomber force were in compensation to Coastal Command for the diversion of their squadrons to the Eastern Mediterranean and the Indian Ocean. On the 13 April, the Chiefs of Staff gave a decision that Bomber Command should transfer as soon as possible two Whitley and two Wellington squadrons to Coastal Command for A/U duties in the Bay of Biscay and N.W. Approaches. This transfer was to be regarded as a temporary loan until the long range strength of Coastal Command had been built up. Although Bomber Command had by this time lost in transfers and loans the equivalent of nine squadrons, the Admiralty was by no means satisfied. Their original immediate requirement had included 36 Liberators and 54 Fortresses and of these or their equivalent there was no sign. On the 8 May 1942, the 1st Sea Lord

CC/S.7010/3/4
Part I
encl. 67A

wrote to the C.A.S. saying that "the existing strength of Coastal Command was quite inadequate and there appeared to be no prospects of any appreciable improvement for a long time to come. In spite of all the thought that had been devoted to the balancing of home and overseas requirements and the efforts made to adjust the needs of Bomber and Coastal Commands we are a very long way from having our requirements met".

The root cause of the inability to satisfy naval demands was the overall shortage of aircraft.⁽¹⁾ Away back in the Spring of 1941, the expansion of the R.A.F. had been planned, under Target E, to reach a front line strength of 4,000 heavy and medium bombers by mid-1943. This figure could not be reached from British production alone and its achievement was dependent on a steady supply of aircraft from the United States. In the Autumn of 1941, when it became likely that America might soon enter the war, it was realised that American deliveries to the R.A.F. would fall and steps were taken to upgrade production in the United Kingdom. Soon after America's entry into the war this question of aircraft deliveries was discussed and under the terms of the Arnold/Portal Agreement, signed on the 1 January 1942, the allocations from United States production were considerably reduced. By the Spring, it was apparent that even these reduced expectations would not be fulfilled and, what was worse, the output of home production was disappointingly low. The culminating blow to any hopes of realising Target E came with the signing of the Arnold/Towers/Portal Agreement in Washington on the 21 June 1942. This laid down that, with certain minor exceptions, every appropriate States-built aircraft should be manned by American crews. The heavy and medium Bomber allocations from America were reduced to the merest trickle and there was nothing for it but to scrap Target E and budget for a new long term programme more in keeping with our reduced resources. The Admiralty seemed to ignore this shortage and, while allowing that the bombing offensive against Germany must take a prominent place in the allocation of available forces, took the view that the situation at sea required still more transfers so extensive that if granted would completely emasculate any bombing offensive. The Air Ministry, on the other hand, while appreciating the gravity of the position at sea, were not convinced that it was so critical as to necessitate a reversal of agreed strategy.

This clash of opinion between the Naval and Air Staffs was of too fundamental a nature to be settled without appeal to the highest authority. The problem before the Chiefs of Staff was two-fold. Taking into account the overall shortage of aircraft, could a balance be struck between the strategy of a bomber offensive against Germany already agreed upon at Washington and the allocation of sufficient air forces to ensure the safety of the main sea routes, or was the danger to the latter so great as to necessitate a reversal of Allied strategy in favour of a purely defensive role? In attempting to make a decision it was essential to get a considered assessment of what effect the existing bomber offensive was having and how much this could be increased in the ensuing months. This task had been attempted by the Joint Intelligence Committee but on such nebulous questions as the state of

(1) In May 1942, the average availability in Bomber Command totalled only 416 aircraft, composed of 136 heavy, 210 medium and 70 light bombers. Ref. B.C. Narrative Vol. IV App. 6.

J.I.C.(42)117(6)
6.4.42.

D.O.(42)47
20.5.42.

enemy morale and ability to make good raid damage in factories they had only produced inconclusive report. Accordingly, an independent enquiry, headed by Mr. Justice Singleton, was set up by the Prime Minister on the recommendation of the Chiefs of Staff. After an exhaustive survey, his report concluded that everything depended on the accuracy of the bombing and, though this had not been encouraging in recent months, if it could be improved to the necessary extent, the desired effect on German morale might be attained. Having regard to all the factors involved, it was not thought that great results could be hoped for within the next six months.

C.O.S.(42)171(0)
16.6.42.

C.O.S.(42)183(0)
23.6.42

Somewhat naturally both protagonists quoted freely from these inconclusive and ambiguous findings in order to support their very divergent views. The 1st Sea Lord held that the Singleton report gave no hope that continuous air attacks, even at the greatest possible strength, would seriously undermine the German will for War in the near future. On the other hand, the threat to sea communications, on which depended the very existence of the British war effort, was increasing daily and he called for an immediate increase in the land-based air forces working with the Navy. The C.A.S., however, maintained that the 1st Sea Lord's paper cited unrepresentative extracts from the Singleton report and he considered that unassailable arguments should be produced before a severe curtailment of the bombing offensive could be accepted.

C.O.S.(42)188th
24.6.42.

In the face of this impasse the Chiefs of Staff appointed, on the 24 June, a small Joint Committee headed by the Assistant Chief of the Naval Staff (Home Operations) and the Assistant Chief of the Air Staff (Policy) to review and advise on the general policy for the employment of the Air Forces. In their report the Committee agreed on the vital importance of sea communications and that the R.A.F. shared with the Navy the responsibility for their defence. They were also agreed on the forces necessary to meet this commitment, indeed the Air Ministry's expansion programme actually provided for numbers in excess of the Admiralty's minimum requirements but the point for decision was whether that programme would provide the essential minimum in time. If not, it could only be met by drawing on Bomber Command which in turn raised the question of whether the situation at sea was sufficiently dangerous to warrant a further retardation of the bomber offensive. The Admiralty were convinced that drastic steps should be taken at once; the Air Staff, while admitting the gravity of the situation, did not feel it was so immediately critical. Nevertheless, both A.C.N.S. and A.C.A.S. were agreed on certain specially urgent requirements for which a minimum essential provision should be made without waiting for the accelerated expansion programme. These were:-

- (1) Aircraft for long range A/U and blockade work in the Bay of Biscay.
- (2) Aircraft for Home Fleet reconnaissance.
- (3) Aircraft for the provision of an air controlled zone around Ceylon.

To meet the Home needs they recommended the temporary transfer of two Lancaster squadrons to Coastal Command and, to check the growth of the U-boat fleet, the placing of Hamburg, Kiel and Bremen (where over 60% of U-boats were built) on a high order of priority for the bomber offensive.

These recommendations were placed before the Chiefs of Staff on the 2 July and examined by them before submission of their views to the War Cabinet. On the 14 July, the C.A.S. sought the agreement of the Admiralty to drop the proposal for the transfer of the two Lancaster squadrons in view of a recent arrangement between Bomber and Coastal Commands whereby a certain number of Lancaster and Whitley O.T.U. Sorties had been made available for A/U patrols in the Bay of Biscay and N.W. Approaches.⁽¹⁾ This was accepted by the 1st Sea Lord and the arrangement was subsequently ratified by the Chiefs of Staff in their recommendations to the Cabinet which together with their agreed views on the situation were submitted to the War Cabinet on the 18 July. These were considered by the Cabinet on the 12 August in conjunction with a memorandum by the Rt. Hon. S. M. Bruce, the accredited representative of the Australian Government, who maintained that the Chiefs of Staff had not followed the priorities which they had laid down for themselves but had made additional action for the defence of sea communications subsidiary to the requirements of Bomber Command. He suggested that the Cabinet should call for facts and figures so that it could itself decide on the relative claims of security and the offensive against Germany adding that, once the position had been clarified, the United States should be approached so as to have a common policy for the security of sea routes implemented by a common effort.

Accordingly, the Cabinet called upon the Secretary of State for Air for a fuller statement of facts. His report of the existing strength and programme of future strength of the Allied Air Forces was conditioned by emphasis on the provisional nature of all target programmes. As regards existing policy, he stated that this was in accordance with the United Nations strategy which was that the defeat of Germany was the key to victory and that only the minimum force necessary to safeguard vital interests in other theatres should be diverted from operations against the Reich. He added that only a month before the Combined Chiefs of Staff had placed in the forefront of their recommendations for 1942/43 "that Allied Air strength should continue to be built up in the United Kingdom to provide a constantly increasing intensity of air attack on Germany". As to what contribution the bomber force had made to the sea war, he reminded the Cabinet that, apart from the recently instituted system whereby first line and O.T.U. aircraft of Bomber Command were used for A/U patrols, since March two squadrons had been sent to Ceylon, eight squadrons had been loaned or transferred to Coastal Command and a further two squadrons had been formed in Coastal Command at the expense of Bomber Command.⁽²⁾ None of this took account of the indirect contribution of Bomber Command to the war at sea by the attacks on naval bases and U-boat building yards on the Baltic, German and North Sea coasts and the factories elsewhere in Germany engaged in the manufacture of submarine components. Moreover the Command had laid many thousands of mines since the inception of the scheme in 1940 and during the past three months alone had laid over 3000.

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- (1) This arrangement was known as Operation Cakewalk and is described in Chapter III, Section (X).
 - (2) Nos. 82 and 110 Blenheim squadrons to Ceylon. Nos. 51, 77 and 58 Whitley, Nos. 304 and 311 Wellington, Nos. 144 and 455 Hampden and No. 61 Lancaster squadrons transferred or loaned to Coastal Command. Nos. 172 and 179 Leigh Light squadrons formed on Wellington Mk.III aircraft from the Bomber Command production line.

C.O.S.(42)342
14.7.42.

W.P.(42)302
18.7.42

WM(42)III Conc.
12.8.42. and
WP(42)326

W.P.(42)388
2.9.42.

C.C.S.94

AM/S.5714
encl. 133A

This report was accepted by the Cabinet as a justification that the R.A.F. and Bomber Command in particular was making the utmost contribution to the war at sea under the circumstances of overall shortage of aircraft. The Admiralty requirements had been partially satisfied and a somewhat shaky balance maintained between the needs of defensive and offensive operations. The bombing policy against Germany was re-affirmed and on the 17 September 1942, the Prime Minister instructed the Secretary of State for Air to prepare a scheme which would achieve "the prime military object" of raising the effective strength of Bomber Command from 38 Squadrons, to which it had shrunk⁽¹⁾ to 50 heavy and medium squadrons by the 31 December. He guaranteed that, once the plan had been approved, it would become binding and within certain unavoidable limits would receive priority over every competing claim during the next three months.

(vii) Bombing operations on Naval targets - March to October, 1942

Although the transfers mentioned in the previous Section caused a decline in the medium bomber strength, throughout the Summer, the heavy bomber position was showing a gradual improvement as squadrons re-equipped to Lancaster, Halifax and Stirling ~~and Manchester~~ four engined aircraft. The new offensive against enemy morale started on the night of the 8/9 March 1942 with the first of a long series of heavy attacks on Essen. At this time Bomber Command had a front line availability of some 420 aircraft but the majority were still the medium bomber class. Gee fulfilled its promise as a navigational aid and enabled high concentrations of aircraft both en route and over the target area but as a blind bombing device it failed to come up to expectations. In the last and most important stage of attack crews were still dependent on visual methods. When weather conditions of visibility inland were poor, the alternative naval ports were taken as targets owing to the greater chances of recognising landmarks in the final stage over towns situated near a coast line.

The morale objective in all these raids, to the exclusion of aiming marks in docks or shipbuilding yards, naturally resulted in little direct effect on naval refitting work or U-boat construction.⁽²⁾ Effects of area bombing on towns containing factories engaged in making component parts for submarines were even less discernable. There was however one case of direct action to interfere with U-boat output. This was a daylight raid by twelve Lancasters on the 17 April to attack the M.A.N. Diesel engine factory at Augsburg. In spite of diversionary operations over northern France by Fighter Command, four Lancasters were shot down by enemy fighters shortly after crossing the French coast. The remaining eight aircraft reached their objective and bombed the target with 17 - 1,000 lb. G.P. bombs. Subsequently, three more Lancasters were shot down and all five surviving aircraft were damaged. Severe structural damage was inflicted on the main

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- (1) Resulting from the various transfers and loans, Bomber Command's average availability was reduced by September to a total of 331 aircraft of which 178 were heavy, 109 medium and 44 light bombers. Ref: B.C. Narrative Vol. IV, App. 6.
 - (2) Reference accounts of raids given in the report of the British Bombing Survey Unit and in B.C. Narrative Vol. IV, Chapter 16.

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Diesel engine shops although little permanent damage was done to machine tools, cranes and elevators. The heavy casualties precluded any more daylight attacks for some months and, in the continued inability to provide long range fighter escort, they were only attempted later in 1942 under special conditions of cloud cover.

In March and April, there were some operations carried out against purely naval targets. The presence of the battleship Tirpitz in the Trondheim area constituted a standing threat to the convoys sailing to Russia and Bomber Command were asked to undertake attacks on her. These were carried out on the nights of the 30/31 March, the 27/28 and 28/29 April with 34, 43 and 34 heavy bombers respectively but did not succeed in damaging her or the other naval units in the anchorage.⁽¹⁾ In the combined operation against St. Nazaire on the night of the 27/28 March, 45 aircraft from Bomber Command took part but very poor weather seriously hampered the attack.⁽²⁾

Owing to the critical situation on the Russian front, the Bomber Command Directive was amended early in May to give priority to towns containing industries engaged in aircraft production so as to help reduce the enemy fighter supremacy in Russia. This distinction of objectives in target towns⁽³⁾ really meant very little. Contemporary analyses aided by both night and day photography showed that the majority of attacks, even on large built-up areas, were disappointingly inaccurate although Gee had enabled concentrations in time of upwards of 100 to 150 aircraft within the hour over target areas. It was beginning to be realised that a much greater weight of bombs with improved accuracy of aim was required before any lasting damage could be inflicted either to plant or morale.

This led in mid-May to discussions on the possibility of a raid using one thousand bombers. By bringing in "freshmen" or inexperienced crews and training aircraft in the O.T.U's this became practicable. The first of these "thousand bomber" raids took place on the night of the 30/31 May against Cologne and the second against Essen on the night of the 1/2 June. Four lighter raids averaging 170 aircraft each were made on Emden during June which caused widespread damage in the ship repair docks. The month closed with a thousand bomber and two lesser raids on Bremen with the Focke-Wulf aircraft works as the objective.⁽⁴⁾ Very serious fire damage was caused in the town and aircraft works but the dock and U-boat construction yards were not affected.

The considered results from the big raids were held to show that widespread and lasting destruction could be inflicted on major targets but the numbers were only achieved by including a large proportion of untrained crews among whom casualties were heavy. They were experimental operations which could not be repeated until many more front line experienced squadrons

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- (1) Details in Chapter VII, Sections (vi) and (vii).
 - (2) Details in Chapter VI, Section (ix).
 - (3) For instance Bremen and Hamburg contained both aircraft factories and U-boat building yards.
 - (4) In order to make up the numbers for this thousand bomber raid, Coastal Command provided 102 Wellingtons and Hudsons. 71 of these aircraft claimed to have bombed the target and five aircraft were lost. Bomber Command despatched 904 aircraft of which 705 dropped bombs and 51 aircraft were lost.

D.G.O. Folder
encl. 1E

were available. At the end of June the Air Staff sanctioned Bomber Command's proposal to use as large forces as possible against suitable targets in Germany on the three or four fine nights available in a month and to devote the remainder of the month to small scale diversionary raids and a greatly increased minelaying effort.

C.O.S.(42)326
30.6.42.

C.O.S.(42)194th
1.7.42.

For some time past, it had been the custom for the "freshmen" crews of Bomber Command squadrons to be given the French Channel ports as night objectives as a kind of battle training before graduating to the long distance sorties into Germany. On the 30 June 1942, the C.-in-C. Home Forces drew the attention of the Chiefs of Staff to the reported damage being inflicted by this bombing on the dock and harbour facilities of the Channel ports. He expressed the view that, if continued on the existing scale, the success of any attempted landing operations on the Continent that year would be seriously jeopardised. This was discussed at a Chiefs of Staff meeting on the 1 July and it was agreed that, in future, the Channel ports would only be bombed on occasions of the known presence of important shipping or E-boat concentrations. As the prospects of any second front landings receded during the subsequent weeks, the order was rescinded on the 26 August but by this time the bombers previously engaged on these attacks were being employed on the intensified minelaying campaign and the A.O.C.-in-C. Bomber Command was unwilling to revert to the more dangerous task of systematic attack on Channel Ports. This had the concurrence of the Chiefs of Staff and attacks were, in the future, only made on the special occasions referred to in their July decision.

Early in July another moderately heavy raid was delivered on Bremen but results were poor owing to scattered and inaccurate bombing. Wilhelmshaven was attacked on the night of the 8th/9th by 245 aircraft with the U-boat building yard as the direct objective but although there was some damage to residential property in the town and to a few workshops in the naval dockyard, the U-boat building slips were untouched. Later in the month, Hamburg received two big raids with the ship and U-boat yards as the nominal targets but again most of the damage was confined to residential buildings. The scattered and broadcast nature of all attacks at this period led to discussions on the feasibility of selecting special crews to act as pathfinders whose duty would be the pinpointing of precise objectives and the marking of them with special ground flares just before the arrival of the main force. In August, this idea developed into the formation of the Pathfinding Force but before they could acquire proficiency the Germans produced a jamming antidote to Gee so that for a time bombing operations were carried out at a double disadvantage. The weather during the month was poor and few raids of importance took place on towns containing naval targets. The largest was on Flensburg with the U-boat slips as the objective but the attack was a failure owing to poor visibility over the area. At the end of August an attack was made by six Lancasters on the aircraft carrier Graf Zeppelin fitting out at Gdynia but without success.

Owing to the increasing uncertainties of Gee and the inexperience of the Pathfinder Force, the limiting factor of weather on night operations prevented both the volume and accuracy of raids on the scale originally intended. In an attempt to maintain pressure on German morale during spells of poor weather, activities known as Moling and Scuttle were introduced. Selected crews were given roving commissions to

patrol specified zones of Germany in cloud cover both by day and at night. Any built-up areas seen through breaks in the cloud were bombed and if no such breaks were found, pre-selected key points were bombed on E.T.A. by D.R. navigation. Such bomb dropping was, naturally, on a small scale but during the summer and autumn an increasing number of light raids were delivered in this manner and on many occasions the targets selected were German coastal towns and U-boat building yards.

In the first half of September there were two heavy raids on Bremen and one on Wilhelmshaven. In each case over 200 aircraft took part. In the latter raid the Pathfinder Force was particularly successful in enabling 90% of the main body to bomb the objective. Considerable damage was caused in all three raids to residential property and a certain amount to factories and warehouses but very little in the ship or U-boat yards. By this time emphasis on the vital importance of an increased offensive on the U-boat industry was reaching a peak. Advantage was taken of a fair weather spell at the end of September and beginning of October to direct special attacks on the U-boat yards at Vegesack, Flensburg and Lubeck but, although a good deal of fire damage was caused in the built-up areas, the yards themselves escaped. The only heavy raid in October took place on the night of the 13th/14th and was directed against the town and harbour of Kiel. 246 aircraft actually dropped bombs but subsequent photographic reconnaissance revealed much scatter and about half the bombs fell in open country.

During this period, March to October 1942, while the arguments over defensive and offensive strategy were raging, the general bombing policy followed the lines of the February directive. As far as naval objectives were concerned the results were very disappointing. As can be seen in footnote⁽¹⁾ a very considerable bomber effort had been expended on ports and towns containing naval targets. No results had been obtained against any of the enemy major naval units and few

(1) 1942 Month	Biscay Bases			German Ports			Transportation Ports		
	A/C	Tons	Loss	A/C	Tons	Loss	A/C	Tons	Loss
Mar.	49	80	5	291	300(575)	21	98	133	6
Apr.	43	60	-	838	737(590)	35	430	618	14
May	81	147	2	228	354(90)	26	57	75	3
June	36	84	5	2,069	1,330(2,506)	138	132	151	2
July	-	-	-	1,132	1,387(1,115)	96	26	34	-
Aug.	-	-	-	128	245(100)	7	*147	176	7
Sept.	-	-	-	834	915(866)	53	59	64	-
Oct.	*15	26	3	301	354(333)	29	39	34	-
Totals	224	397	15	5,821	5,622(6,175)	405	988	1,285	32

* Starting in August and at the end of October, the U.S. 8th Air Force took an increasing part in attacks on transportation ports and Biscay bases respectively and their figures are included in these and subsequent monthly totals.

merchant ships were hit in any of the ports attacked. (1) Shipbuilding and repair work had not been interrupted to any great extent and the construction of U-boats was not affected in the slightest degree. A glance at Appendix II shows that during the whole of 1942 the building output was rising steadily from 15 per month at the beginning to over 20 a month at the end of the year, the planned programme being actually exceeded. Nevertheless hardships and loss of life had been inflicted on the workmen, the air menace had been forcibly brought home to them and much war effort was being diverted into defence and A.R.P. channels but the war at sea was little affected.

(viii) Policy and Bombing Operations - October 1942 to February 1943

The bombing policy during the spring, summer and early autumn of 1942 was, as has been recounted, little different from that laid down in the February directive. During the first half of the year the constant deliberations on future Allied strategy had hardened into a determination to mount ~~a~~ **the** major landing in Western Europe in 1943. In mid-August 1942, on instructions from the Chiefs of Staff, a particular policy was drawn up for adoption at an early date in preparation for the second front or operation "Roundup" as it was called. This postulated three main requirements before a landing in Western Europe could be attempted.

C.O.S. (42) 229
(Final)
14.8.42

- (1) The Allied Air Force to be overwhelmingly superior to the G.A.F.
- (2) The reduction of the transportation system in Western Europe.
- (3) The reduction of the U-boat menace to sea communications.

To meet these requirements it was recommended that the bombing policy should aim at the maximum devastation of German centres of industrial population selecting key points in the enemy submarine and aircraft building industries and the transportation system, the latter taking precedence as the date for the mounting of the land campaign approached.

It will be recounted in Chapter XII how the local operation on the Continent (Sledgehammer), to relieve the pressure on the Russian front, was abandoned in July 1942 in favour of a campaign in Northwest Africa (Torch). This meant inevitably

(1) Merchant Ships hit in port

March 1942	Orion Orion (Ge.) - ex-raider A - damaged at Le Havre.
April	Nil.
May	Nil.
June	(Hektos (Fi.) - 2,108 tons - sunk at Emden.
	(Masen (Swe.) - 1,316 tons - damaged at Emden.
July	Frode (Swe.) - 1,535 tons - damaged at Bremen.
August	(Cobra (Ge.) minelayer - 2,132 tons -)
	(sunk at Rotterdam
"	(Westerdam (Du.) - 10,500 tons -)
	(damaged at Rotterdam
September	(Solglint (Ge.) Oil refinery ship - 12,246 tons -)
	(very badly damaged in Cherbourg.
"	(Cygnus (Swe.) - 1,958 tons - damaged at Bremen.
October	Nil

that a large proportion of bombing effort would have to be diverted from Round-up objectives to support Torch. The British bombing policy, therefore, between October and the end of the year was governed by three main considerations.

- (a) Supporting the operation in Northwest Africa.
- (b) Maintaining the pressure against Germany.
- (c) Countering the U-boat menace.

(a) Operations in support of Torch

Bomber Command's main contribution consisted in heavy raids on Northern Italy, (1) in minelaying off the Biscay ports and in the Gulf of Genoa, and the deploying of certain squadrons to North Africa as soon as airfields had been captured. The additional contributions for A/U patrols and convoy escort by aircraft of both Bomber and the U.S. 8th Air Force Commands are recounted in Chapter XII, Section (ix). Furthermore the latter Command carried out a series of small daylight precision bombing raids, during October and November, on the U-boat operating bases in the Bay of Biscay (2) but the U-boats and their servicing facilities had been secure under their concrete protection for nine months by now and these raids had no effect whatever on their activities.

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(b) Maintaining the pressure against Germany

Bad weather and the priority accorded to the operations under (a) combined to reduce very considerably the effort expended against Germany. Of the six attacks of any size (i.e. more than 100 aircraft) made in November and December, only one was against a town containing naval objectives. This was one made on the night of the 9/10 November against Hamburg by 155 aircraft but dense cloud caused the complete failure of the attack. However, the conditions of bad weather which so hampered these few bombing operations over Germany were soon to be overcome by the introduction of new position and target finding devices.

The first of these to come into use was Oboe, (3) which was fitted to the Mosquito aircraft which led the Pathfinder Force. During January 1943, ten raids were carried out in Germany, using this method of position finding, with much

- (1) Between October and the end of December, fifteen attacks were delivered on Genoa, Milan and Turin dropping a total of 2,786 tons of bombs.

(2)

	No. of raids	Total A/C	Tons	Loss
Brest	1	23	51	-
Lorient	3	39	81	3
St. Nazaire	5	157	358	7
La Pallice	1	19	41	1

N.B. One small German ship - Margot - 620 tons - was sunk at St. Nazaire.

- (3) Oboe was a radio device whereby an aircraft could be directed by a ground station along a line passing directly over the target and, by signals passed back by the aircraft equipment to another ground station, could be fixed at precise points along that line.

See R.A.F.
Signals History
Vol. VI chaps.
IX and X.

C.O.S.(42)204th
22.12.42

improvement in the accuracy of bombing. The next was the revolutionary and famous H2S equipment⁽¹⁾ with which any aircraft could find the precise target no matter what weather and visibility conditions prevailed. As the essential parts of 10 cm. A.S.V. and H2S were identical there was a clash of requirement priority with Coastal Command who desperately needed the 10 cm. equipment to counter the use by U-boats of a search receiver which had neutralised the existing 1½ metre A.S.V. Apart from this clash in priorities, the Admiralty were opposed to the operational use of H2S before March 1943 at the earliest on account of the risk of compromise of all 10 cm. equipment through the loss of bombing aircraft over enemy territory. The U-boat war at sea was fast approaching a crisis and the Admiralty hoped for greatly increased sinkings of U-boats by the use of the A.S.V. version of ten centimetre radar, the nature of which the enemy was so far unaware. The ensuing deadlock was referred to the Prime Minister on the 22 December and, after hearing both sides of the case from the Admiralty and Air Staff, it was finally agreed by a majority vote that H2S should be released for use by the Pathfinder Force in January 1943. However, production delays retarded the equipping of aircraft in this Force and H2S was not used operationally until the night of the 30/31 January when thirteen fitted aircraft led an attack on Hamburg.

Initial teething troubles caused a reduced effectiveness from theoretical performance but by the latter part of February 1943 it was established that H2S enabled specific towns to be located, identified and bombed accurately irrespective of cloud conditions. Islands, coastlines, estuaries and built-up areas in isolated towns could be readily recognised by shape and relative positions. Thus the problem of accurate navigation under almost any weather conditions, night or day was solved and Bomber Command had at last got the aid for which it had waited so long. Footnote⁽²⁾ gives the scale of attack on German and enemy occupied ports as far west as St. Malo during the last of the period under review.

- (1) H2S was an adaption of the 10 cm. Air to Sea Radar. When fitted with it, an aircraft could "see" the town or built-up area clearly distinguished from surrounding natural features through any condition of cloud or poor visibility. Towns could be thus identified with tolerable certainty up to 25 miles away while large cities could be located at 35 to 55 miles range.

	German Ports			Transportation Ports			Merchant ships sunk or damaged
	A/C	Tons	Loss	A/C	Tns	Loss	
Nov. 1942	165	202(214)	16	35	30	7	Neumark (Ge.) - 7,851 tons damaged in Le Havre.
Dec. 1942	5	6	-	25	24	-	-
Jan. 1943	*167	317(171)	13	48	45	1	-
Feb. 1943	1,119	1,550(1,463)	46	138	178	3	-

* Starting in January 1943, the U.S. 8th Air Force plays an increasing part in long range bombing operations into Germany and their figures are included in this and subsequent totals.

(c) Countering the U-boat menace

The possibility of hindering U-boat operations by area bombing of the Biscay ports had been under examination from time to time during 1942. At the beginning of April, the A.O.C.-in-C. Bomber Command himself had asked for authority from the C.A.S. to "blitz" the ports but the C.A.S. replied that, in view of the possible political repercussions arising over the slaughter of Frenchmen, there seemed little chance of the Cabinet agreeing to such a proposal until all other methods of combating the U-boats at sea had been given a fair trial. At the end of May, the question was again raised, this time by D.B.ops. in a minute to the A.C.A.S.(Ops.) in which he pointed out that to "blitz" each of the Biscay bases by really heavy attacks in turn would so disrupt the port facilities as to make the task of re-establishment almost impossible. This opinion had been pressed by the A.O.C.-in-C. Coastal Command a year earlier and he now backed the suggestion again in a letter to the C.A.S. After considerable discussion, the proposal was placed before the Secretary of State for Air on the 10 June. He replied that if the Air Staff were really convinced that U-boat activity would be reduced by this measure he would feel compelled to ask the War Cabinet to consider whether it would not be worthwhile to incur the political odium of such bombing in order to achieve an object of such importance. After further consultations between the C.A.S., V.C.A.S. and Bomber Command it was decided that a reduction of U-boat activity would not necessarily accrue and the project was dropped.

In view of the importance of affording every possible protection to the Torch convoys in late October and November, the U.S. 8th Air Force undertook the series of daylight precision bombing attacks on the U-boat bases mentioned in (a) but without any resulting effect on their activities.

Throughout the remainder of the year, the question of area bombing of the ports was under review as a result of strong pressure from the Admiralty. On the 9 December the problem was examined by the Cabinet A/U Committee, the Naval members of which argued strongly in favour of blitz bombing while the Air Staff maintained their earlier view that political repercussions would not be balanced by any worthwhile result. Eventually the Prime Minister ruled that, before giving a decision, the matter must be referred to the Foreign Secretary.

Mr. Eden replied on the 18 December that he was reluctant to agree to the wholesale devastation of the ports unless it could be shown that such methods would materially help to keep down U-boat operations. The apparently unnecessary slaughter of the French civilian population would have a bad effect on the morale of the Fighting French in North Africa as well as adversely affecting public opinion in France both during and after the war. As the Air Staff appeared to be opposed to blitz bombing, Mr. Eden hoped that such drastic methods could be avoided. These views were endorsed by the Secretary of State for Air who informed the next Cabinet A/U Committee meeting that he had no proposals to make regarding area bombing of the U-boat bases.

The Admiralty, however, were still convinced that area attack was the only measure which would afford immediate relief to the serious situation at sea and on the 7 January 1943, the 1st Sea Lord circulated a memorandum to the War Cabinet in which he pressed very strongly for approval of such a policy. He argued that the four bases, at which between

C.M.S./330

Part I

Min. 50

ibid

Min. 49

ibid

encls. 51A

and 55A

ibid

Mins. 52 to 60

and encl. 61A

ibid

Min. 62 and

encl. 65A

A.M./C.39432/49

minutes

C.M.S. 330

Part I

encl. 70A

WP(43)11
7.1.43

75 and 80 U-boats were always present, formed the backbone of enemy U-boat operations against Allied shipping. All normal repairs and refits were carried out there and there was evidence that the servicing facilities were already tightly stretched.⁽¹⁾ It was essential to the enemy that the bases be kept running smoothly and to capacity, therefore any interference with them would be likely to hinder the turn round and inevitably create a bottleneck. Dislocation at one base would result in overcrowding at another thus rendering the U-boats themselves more vulnerable to attack since they could not all be housed in shelters. Although the Admiralty agreed that the concrete shelters would probably preclude any serious damage to the U-boats in them, they believed that the destruction of dockyard facilities would seriously impede their maintenance while experience had shown that even light bombing served to keep faint hearted labour from the docks. As the majority of this was composed of Frenchmen working for the Germans it was unlikely that they would have much stomach for heavy bombing.

Finally the 1st Sea Lord emphasised that, although such operations would divert bombing effort from Germany over a specified period, the U-boat threat brooked no delay if our offensive power was not to be seriously weakened by lack of shipping. He added that the bombing of construction yards was no alternative since it would not have any material effect on U-boat operations for at least six months, during which time it was expected that the shipping situation would become most acute.

WM(43) 6th
11.1.43

BC/S.23746
Vol. 4
encl. 111A

A.M./C.39432/49
Minutes

In face of such pressing arguments, the War Cabinet accepted the Admiralty view and on the 11 January 1943 approved in principle a policy of area bombing of the Biscay ports on high priority. On the 14 January, a directive was sent to the A.O.C.-in-C. Bomber Command giving the bases first priority subject to the proviso that such operations should not prejudice any attack which might be planned on Berlin or any concentrated raid of 200 or more aircraft which could be made on important objectives in Germany and Italy in suitable weather. The U-boat bases to be attacked were Lorient, La Pallice, Brest and St. Nazaire in that order. Initial operations were to continue against Lorient until the C.-in-C. was satisfied that the desired results had been achieved. They were then to be fully analysed and reviewed in the light of available evidence before proceeding with the attack on the next base. Special warning was to be given to the French population of the proposed operations and the C.-in-C. was then at liberty to choose any aiming point regardless of the probability that complete devastation of the inhabitable areas of the town might follow.

Although the U.S. 8th Air Force had carried out a daylight raid on Lorient on the 30 December by 40 Fortresses,⁽²⁾ the bombing of the port and town under the terms of the blitz policy actually began on the night of the 14/15 January with 101 aircraft followed by 131 aircraft on the next night. Before another raid could be planned, the Cabinet decided on the 20th that, contrary to the directive, there should be no

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- (1) There is no evidence of this from B. d U's War Diary or the Fuehrer Conferences on Naval Affairs.
 - (2) On the 30 December, 40 Fortresses attacked the U-boat pens at Lorient dropping 80-2,000 lb. G.P. bombs and losing three aircraft.

WM(43) 12th
20.1.43

pause to assess the effects of the raids on Lorient before proceeding with the attack on the remaining ports as opportunity offered.

BC/S.23746
Vol. 4
Encls. 124A
and 127A

Bomber Command were informed of this decision on the 23 and on the 27 January the A.O.C.-in-C. wrote officially to the Air Ministry protesting at the whole conception of the plan which he regarded as a complete waste of effort. He pointed out that although some 4,000 tons of bombs had been dropped on Brest when the Scharnhorst, Gneisenau and Prinz Eugen were in port, the damage inflicted on the dock facilities had not been serious. The effort then expended had apparently served to keep the ships out of action but there was no evidence that the bombing attacks had interfered in any way with their repairs or with the operations of U-boats from the port. On these grounds he declared that he most earnestly and indeed flatly refuted the contention that present operations as planned would in any way contribute to the reduction of U-boat activity.

C.C.S.(43)65th
21.1.43

Although the Air Staff were largely in sympathy with these views they considered that, in the light of the Casablanca Directive issued by the Combined Chiefs of Staff on the 21 January, they were committed to giving the policy a fair trial. In this Directive the Combined Chiefs of Staff had quoted the Biscay bases as objectives of great importance and had laid down that the day and night attacks recently inaugurated should be continued so that an assessment of their effects on U-boat operations could be made as soon as possible. If it was found that the desired results were being achieved the attacks should be continued.

C.O.S.(42)475(o)

C.O.S.(42)466(o)

It is thought that a brief summary of the reasons for calling the Casablanca Conference and its main conclusions may be given at this point. Allied expectations had during the summer, been for Operation Round-up to be mounted in 1943. The success of Operation Torch had opened up new possibilities the exploitation of which would mean committing Allied forces to further efforts in the Mediterranean against the "soft underbelly of Europe." This was viewed with misgiving by American authorities. Round-up had been postponed once and now it looked as if it would again have to be put off in favour of a campaign, tempting it was true, but not striking directly at Germany herself and therefore indecisive as regards the primary aim. These misgivings had been expressed in a J.C.S. paper on "Strategy in 1943" and circulated as a Chief of Staff paper. The British view, which envisaged further operations in the Mediterranean was likewise issued as a C.O.S. paper. The resulting deadlock was resolved at Casablanca in the middle of January 1943 where the Prime Minister, President Roosevelt and their principal advisers met in conference. Complete accord on matters of global warfare were achieved and the primary aim of the defeat of Germany in the shortest possible time was restated.

The defeat of the U-boat menace was declared a first charge on the resources of the United Nations, after which the aim was to be achieved by two main offensives:-

- (1) By the occupation of Sicily with the object of securing the line of sea communications in the Mediterranean, the threatening of Italy itself and diverting German pressure from the Russian front.
- (2) By the heaviest possible Anglo/American bomber

offensive from the United Kingdom against the German war effort and the assembly of the strongest land force possible, after meeting the needs of the Mediterranean theatre, in readiness to re-enter the Continent when German resistance had been weakened to the required extent.

C.O.S.(43)30(o)
27.1.43 It was under the first charge to defeat the U-boat menace that the Combined Chiefs of Staff favoured the air attack on the Biscay U-boat bases.

C.M.S. 330
Part I
Mins. 94 to 97

BC/S.23746
Vol. 4
encl. 139A

In an experiment of this nature, the Air Staff were convinced that it would be unjustifiable to extend operations to the other Biscay ports until sufficient evidence had been obtained from Lorient. They therefore suggested to the Secretary of State for Air that the Cabinet be asked to reverse their decision of the 20 January. He replied that, before making a formal appeal to the Cabinet, it would be as well to carry out one or two more attacks on Lorient so that an assessment such as that called for by the Combined Chiefs of Staff could be attempted. Bomber Command was accordingly instructed on the 14 February that their operations against the Biscay ports were to be confined for the time being to Lorient and that the policy would be reviewed when evidence as to the effects of their attacks was available.

In the meantime the restriction of bombing attacks to Lorient had, with one small exception, (1) been observed all the time. Heavy raids had taken place on three further nights in January and four in February. Photographic reconnaissance was not obtained until after the raid of the 23/24 January. It showed extensive damage by the raids to date, caused mainly by fire, throughout the whole town, in the Port de Commerce and in the Arsenal area. Daylight reconnaissance at the end of January revealed further extensive damage throughout the town and dock area. By the middle of February few buildings remained standing but the U-boat shelters remained

(1) On the 23 January, 19 Fortresses of the U.S. 8th A.F. attacked the U-boat pens at Brest dropping 45 tons of 1,000 and 500 lb. G.P. bombs and losing two aircraft.

quite unharmed. Footnote(1) gives the details of the attacks. A report issued by the Scientific Bureau of the French Army states that by the 17 February, 3,500 of the 4,500 to 5,000 houses in the town of Lorient had been completely destroyed and the majority of the remainder rendered uninhabitable. Nevertheless by the end of February there was no evidence that the raids had had any effect on the number of U-boats operating from the port or that their servicing facilities had been unduly interfered with.

D.O.(43) 1st
23.2.43

Notwithstanding this lack of success in the prime objective, the heat was turned on to St. Nazaire during the second half of February and in March. 1,088 aircraft dropped 2,960 tons of H.E. and incendiary bombs reducing this town also to ruins but without any sign of affecting operations by the

(1)

	No. of A/C	Tons H.E. I.B.	Type of bombs		Loss
Jan. 14/15	101	74(163)	4 - 4000lb. HC 1 - 2000lb. GP	136 - 1000lb. GP 22 - 500lb. GP	2
Jan. 15/16	131	140(145)	5 - 4000lb. HC 224 - 1000lb. GP	132 - 500lb. GP 15 - 250lb. GP	2
Jan. 23	35	77	92 - 1000lb. GP 160 - 500lb. GP		3
Jan. 23/24	109	124(163)	2 - 4000lb. GP 2 - 2000lb. GP	198 - 100lb. GP 61 - 500lb. GP	3
Jan. 26/27	124	81(109)	19 - 4000lb. HC 44 - 1000lb. GP	116 - 500lb. GP	5
Jan. 29/30	77	52(103)	8 - 4000lb. HC 77 - 1000lb. GP	9 - 500lb. GP	7
Feb. 4/5	120	97(116)	19 - 4000lb. HC 63 - 1000lb. GP	135 - 500lb. GP	1
Feb. 7/8	301	265(501)	63 - 4000lb. HC 253 - 1000lb. GP	167 - 500lb. GP	7
Feb. 13/14	430	541(621)	2 - 8000lb. HC 72 - 4000lb. HC	785 - 1000lb. GP 185 - 500lb. GP	7
Feb. 16/17	361	466(529)	132 - 4000lb. HC 22 - 2000lb. HC	366 - 1000lb. GP 204 - 500lb. GP	2
Totals	1,789	1,917 (2,450)			39

U-boats and certainly not inflicting loss among them.(1) It is almost inconceivable that the Naval Staff expected any better results than at Lorient and the continuation of such a policy at a time when offensive planning was set for an all-out air attack on German industrial economy seems a clear indication of the serious concern felt at all levels, from the War Cabinet downwards, at the grievous losses being inflicted on Allied shipping by U-boat warfare and the inability of the Allies to control it.

In mid-April, when victory in the decisive struggle going on in mid-Atlantic was discernible, Bomber Command was relieved of this commitment against the Biscay U-boat bases. Action was, however, continued by U.S. 8th A.F. daylight raids against the actual U-boat pens until mid-summer but at no time were the concrete shelters ever penetrated, neither had such bombardment any effect on U-boat servicing or their operational programme.

Summary

Between March 1942 and February 1943, when increased bomb loads and better navigational aids enabled heavier blows to be delivered, the strategic bombing force flew 24% of their total operational effort on tasks directly connected with the war at sea such as the bombing of transportation ports, mine-laying and attacks on specific naval targets. A further 20% of the effort was expended on German naval ports in the Baltic and North Sea. The employment of this 44% of total effort on objectives predominantly naval in character, at a time when the agreed strategic aim was the extensive attack on German industry and morale cannot be lightly disregarded. From a strictly naval point of view the considerable bombing effort had little effect on the movements of enemy war vessels or merchant ships and none at all on the output of new U-boats. The protagonists of the bomber offensive maintain that most of

(1) U-boat arrivals and departures in Biscay bases.

	Brest	Lorient	Nazaire	Pallice	Bordeaux	Totals
Sept. 1942	20	21	20	9	nil	70
Oct. 1942	29	21	26	14	nil	90
Nov. 1942	24	32	20	14	nil	90
Dec. 1942	28	31	32	16	nil	107
Jan. 1943	26	27	21	12	3	89
Feb. 1943	29	21	32	14	nil	96
Mch. 1943	30	32	33	16	8	119
Apr. 1943	26	34	32	16	9	117

Ref: B. d U. War Diary. No mention is made in the War Diary of the daylight raids in November 1942 or the heavy area bombing on Lorient and St. Nazaire during the first quarter of 1943. Lorient was the base for the long endurance 740 tons type. The drop in traffic at this port in February was fortuitous in that there were fewer arrivals owing to a large number of 740 tonners being on extended patrols.

this 44% was a misguided diversion from the true objective. While admitting that the area bombing of the Biscay U-boat bases early in 1943 was a waste of effort, it must be apparent that measures against enemy naval and merchant shipping in harbour and U-boat construction in Germany had to be attempted. That these attempts were prolonged in time was due to the inability to hit them soon enough. As far as results go, up to February 1943 the major contribution that Bomber Command made to the Sea War was undoubtedly in minelaying, a subject dealt with in Chapter X.

CHAPTER XAERIAL MINELAYING - JULY 1941 TO MARCH 1943(i) Introduction

In the period under consideration, Bomber Command's effort developed from the employment of the Hampdens of No.5 Group between July 1941 and January 1942 at a rate of 100 sorties per month to the use of four engined bombers from all groups at a rate of over 500 sorties per month early in 1943. Coastal Command continued their existing campaign up to the end of 1941 when, in the absence of any suitable aircraft, they ceased operations except for a short spell from August 1942 to March 1943 when limited laying off the Belgian and French Channel ports was undertaken with F.A.A. squadrons on loan to the Command.

By July 1941, the technique of minelaying had changed considerably. Minelaying can be developed successfully against an enemy in two ways. Either more and more new fields can be laid of which the enemy is unaware until suffering casualties or fields known to him can be added to with mines carrying special devices which cause him to believe the area safely swept when in fact it is not. In the early stages of the campaign when the Germans had not an adequate number of mine sweepers it was the policy to lay sparsely in a wide range of areas in order to strain to the utmost the enemy sweeping capacity. In practice this was a highly successful period when, for an expenditure of a small effort with low aircraft casualties, a large number of enemy vessels were sunk. In comparison, the more numerous aircraft endeavouring to sink ships by direct attack at sea or in port suffered heavy casualties and inflicted little loss on the enemy's shipping. The graph at Appendix XXX illustrates this fact. This period was followed from mid-September 1940 by one during which the extension of British naval operations off enemy occupied coasts west of Flushing limited the areas in which mines could be laid without risk to our own ships. By the time that technical developments had made it possible to lay mines without endangering our own ships, the enemy had built up a more adequate sweeping service and was using Mine Destructor ships (Sperrbrecher). With these aids it became comparatively easy for him to sweep, and keep swept, channels along which his coastwise shipping could pass. Offensive mine laying, therefore, in mid-1941, entered the second category of tactics and became a battle of technical wits. The composition of existing fields, or gardens as they were called, was varied by laying mines carrying improved firing mechanisms, delay arming clocks and devices to defeat the sweeping itself when it was thought that the enemy was committed to a definite procedure against the current type of mine. The mine laying aircraft, therefore, were directed to particular gardens whose purpose was against specific types of shipping instead of general objectives over widely dispersed area.

The responsibility for the siting of gardens lay with the Admiralty Mining Department who indicated the Coastal Command Headquarters the gardens to be planted and the variety of mine to be used. Coastal Command implemented the laying either with its own aircraft or, if not within range, by informing Bomber Command Headquarters so that their aircraft when available could undertake the more distant areas. It was the policy for Coastal Command to lay in areas between the Elbe and St. Nazaire and for Bomber Command to do the gardens east and south of these points. In practice there was quite a lot of overlapping on the junction positions, particularly along the Frisian Islands.

(ii) Minelaying - July and August 1941(a) Changes in location of certain gardens

CC/S.15171
encl. 81A

ibid
Min. 85

ibid
encl. 84A

AM/S.1636/II
encl. 77A

On the 14 June, a meeting between Admiralty and Coastal Command representatives was held to discuss the location of certain gardens with reference to their operational value and to the defences which the enemy had built up around them. The small gardens in the Rivers Scheldt and Maas and off the Texel were extended so as to give pilots greater latitude. Because of heavy air defences, the gardens off Cherbourg and La Pallice were enlarged so as to permit laying clear of A/A fire. The garden off Dieppe was considered in both respects but, as it would nullify its use to extend it, a decision was made that it should only be planted in an emergency. These changes were officially promulgated on the 16th July.

(b) Operations

During July, minelaying by Coastal Command was directed mainly against the Biscay ports. Off Brest⁽¹⁾ where the three enemy major naval units - Scharnhorst, Gneisenau and Prinz Eugen - were lying; off Lorient⁽²⁾ and St. Nazaire⁽³⁾ as being the premier U-boat operating bases. In this task they were aided by Bomber Command and a total of 22, 35 and 30 mines were laid outside these ports respectively by Beauforts of No.217 Squadron and Hampdens of No.5 Group. During the month the Scharnhorst moved down to La Pallice for a few days. Thick weather prevented Coastal Command from laying mines outside and Bomber Command although carrying out a bombing attack on the ship, only succeeded in laying one mine in the garden outside the port.⁽⁴⁾ In the Channel, No.22 Beaufort Squadron laid five mines off Le Havre⁽⁵⁾ and ten in

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- (1) The code name for the area was Jellyfish. The area to be mined was within all suitable water bounded on the North and East by the coast, on the West by Longitude 04° 46' W and on the South by latitude 48° 16' N.
- (2) Code name for the area was Artichoke. Mines were to be laid in all suitable waters lying North and East of a line joining the positions:-
- | | |
|--------------|--------------|
| 47° 46' 00"N | 03° 35' 00"W |
| 47° 40' 00"N | 03° 35' 00"W |
| 47° 35' 00"N | 03° 30' 00"W |
| 47° 35' 00"N | 03° 10' 00"W |
- (3) The code name for the area was Beech. The area to be mined was in all suitable water between the coast on the North and East and bounded on the West by Longitude 02° 30' W and on the South by latitude 47° 05' N.
- (4) The code name for the area was Cinnamon. There were two areas to be planted.
- (1) In the Coureau de la Pallice bounded as follows:-
- On the West by the meridian of 01° 17' 00"W
 - On the North by the 3 fathom line
 - On the East by the 5 fathom line
 - On the South by the parallel of 46° 06' 30"N
- (2) In the Rade de L'île d'Aix between Port Boyard and Pte. Ste. Catherine.
- (5) The code name for the area was Anemone.
- See Map XXIV for the general location of all gardens, and
See Appendix XXVIII for their code names.

the mouth of the River Seine.(1) No. 86 Beaufort Squadron laid 12 mines off the Frisian Islands(2) and were here overlapped by Bomber Command's operations who also laid 17 in this garden and a further 36 in the approaches to the River Elbe.(3) Working still further east Bomber Command planted 25 mines in the Kiel Bay and Canal area.(4) From all these operations two Coastal and four Bomber Command aircraft failed to return.

Bad weather and more pressing operations caused the total of mines laid in August to fall considerably below that for July. Coastal Command's Beaufort squadrons laid 23 mines off Biscay ports, one off Boulogne(5) and two in the River Maas Channel leading to Rotterdam.(6) The fourth Beaufort Squadron - No. 42 - operating from Leuchars laid three mines in the Haugesund channel (S.W. Norway).(7) Bomber Command spread their operations along the North German coast and into the Western Baltic and waters leading into the Kattegat laying a total of 68 mines. Two Bomber and five Coastal Command aircraft failed to return.(8)

(c) Mine Developments

C.C. File
S.15171
Encl. 119a

On 31 August Coastal Command informed the Groups concerned of the policy laid down by the Admiralty for the use of mines with period delay mechanism. Mines issued for a sortie

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- (1) The code name for the area was Scallops. Mines were laid in a wide area in the Rade de La Carosse covering the navigable channel. The area was bounded as follows:-
 - On the North by latitude 49° 32'N
 - On the West by longitude 00° 05'W
 - On the South by latitude 49° 26'N
 - On the East by the coast.
 - (2) The code name for the general area was Nectarines. This area had been enlarged in May 1941 and was divided into three sections.
 - No. 1 - Inside the 10 fathom line between longitudes 0500 and 0600 E.
 - No. 2 - Inside the 10 fathom line between longitudes 0600 and 0700 E.
 - No. 3 - All water south of latitude 54°00N between 0700 and 0800 E.
 Later in 1941, the area was again extended to cover all water south of latitude 54°05N between longitude 0500E and 0800E.
 - (3) Code names for areas laid - Eglantines, Rosemary and Yams.
 - (4) Code names for areas laid - Foreget-me-nots, Quinces and Radishes.
 - (5) The code name for the area was Dewberry. Mines were to be laid between the breakwaters in the approximate position:- 50° 44' 36"N, 01° 34' 12"E.
 - (6) The code name for the area was Oysters. There were two areas to be mined.
 1. A semicircular area with radius $\frac{3}{4}$ mile to seaward of the position:- 50° 59' 06"N, 04° 04' 30"E.
 2. Along the Neue Waterweg.
 - (7) The code name for the area was Bottle. The area to be planted was in the Karmøysund, south of the port of Haugesund round position:- 59° 21' 42"N, 5° 18' 12"E.
 - (8) In Appendix XXVII is given the monthly minelaying by Coastal and Bomber Commands together with an index of the code names. Map XXIV shows the location of all the gardens.

were to be in a fixed proportion⁽¹⁾ unless orders were sent to the contrary. If, however, the Admiralty requested that only mines without period delay mechanism should be laid in any particular "garden", its code name was to be prefixed by the word "fresh".

ibid
Encl. 121a

ibid
Min. 132
Ibid
Encl. 131a

A signal was received from the Admiralty (Admiralty Telegram No. 653) on 29 August stating that a mine with a new firing mechanism was shortly to be issued. This mine, assembly No. 22, had no period-delay mechanism, and was so devised that it could not be fired by an artificially created magnetic field, that is by sweeping devices, but only by the passage of a large ship. The Groups concerned were informed of this (by A.P. 173) on 16 September and instructed that the mine was to be used in equal quantities with the older types, which were still to be issued in their fixed proportions.

(d) Responsibility for minelaying

A.M.
S. 1636/II

Encls. 20a
and 35a

When the decision was made in March 1941 on what was to be the part played by Bomber Command in minelaying, it was laid down that mining should be incidental to training and when weather conditions precluded normal bombing operations. Coastal Command H.Q. was to continue to be responsible for co-ordinating the available air effort and to pass the details of the proposed targets to H.Q. Bomber Command. It was stated also that the position would be reviewed later.

C.C.
S. 15171
Min. 105

The question of review was raised within Coastal Command at the end of July when it was pointed out that, because of the short range of the Beaufort, it had been the practice of Bomber Command to mine the Elbe and the "gardens" further eastwards, and the southern "gardens" in the Bay of Biscay. On special occasions Coastal Command, at the request of the Admiralty, also laid mines in the Elbe for as Bomber Command had no fixed programme, operations being to a large extent dependent on the weather, there was no question of regular planting in any one "garden" or of steady planting in the whole range of "gardens". It was therefore suggested that if Coastal Command were given two Hampden Squadrons they could undertake the whole of the minelaying programme, whereas in view of their anti-shipping commitments it was not now possible to lay more than a maximum of 12 mines a night.⁽²⁾ To meet any intensification of effort it was considered essential that either two squadrons should be allocated to Coastal Command for minelaying, or that a programme should be given to Bomber Command defining their responsibilities.

On July 29 the A.O.C.-in-C., wrote to the Air Ministry stating the position and pointing out that when the Admiralty required the minelaying programme to be intensified they applied to Coastal Command; under the prevailing circumstances Coastal Command were unable to comply with the request unless the sharing of duties with Bomber Command could be

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- (1) The proportion in which mines Mark I to IV were to be laid was:-
 - 50% No period delay
 - 25% One period delay
 - 12½% Two periods delay
 - 12½% Three periods delay
 - (2) It was estimated that four aircraft of No. 217 Squadron could be spared from Anti-shipping operations each night, and a maximum of eight aircraft from No. 22 Squadron, if crews were to have one night off in three.

planned, and he requested that the position should be reviewed.

A.M.
S.1636/II
Min. 81

The question was discussed at the Air Ministry. The Director of Naval Co-operation explained that the Admiralty held Coastal Command responsible for minelaying in all areas, and when Bomber Command were unable to fulfil requirements for the more distant areas Coastal Command was held responsible for the lack of planned effort. Of the two alternatives put forward by Coastal Command he said that the allocation of squadrons was more a long term measure and that for immediate and practical purposes it would be best to define areas of responsibility. The question, he said, had been discussed informally between members of his staff, the Admiralty and Bomber Command. It had been suggested that Coastal Command should be responsible for mining areas between the Elbe and St. Nazaire and that Bomber Command should be responsible for areas outside this. At the same time Bomber Command could lay in Coastal Command areas for special operations, training, or in other circumstances, having consulted Coastal Command before undertaking the operations. Furthermore, it had been suggested that the Admiralty should continue to issue periodical priority lists with the necessary directives addressed to both Commands, and each Command was to consider itself responsible for its own sphere.

ibid
Min. 83

ibid
Encl. 82a

The Director of Bomber Operations stated that Bomber Command was maintaining their scale of effort⁽¹⁾ and had laid 125 mines in the previous four weeks. He stressed the necessity of keeping minelaying in perspective within the strategical picture as a whole, as Bomber Command were also attacking Hamburg, Brest and other naval objectives. The points raised were, however, put to Bomber Command for agreement on 14 August as a measure to improve co-ordination and distribution of effort in minelaying, without altering the principles laid down in the directive of 25 January 1941 for Bomber Command's participation in operations.

ibid
Encl. 89a

In their reply on 26 August Bomber Command agreed to the proposals and suggested that in view of the range of Coastal Command aircraft, which normally precluded extensive sea mining east of Terschelling, Coastal Command should be responsible for the area Terschelling - St. Nazaire, not the Elbe - St. Nazaire. Further, the area between the Elbe and Terschelling constituted a very valuable training ground for new Hampden crews. This modification was approved by the Air Ministry, and on the 1 September a letter was sent to both Commands stating that the arrangement whereby Coastal Command was responsible for controlling all sea-mining aircraft was to be replaced by two spheres of responsibility; Coastal Command was to be responsible for the areas lying between Terschelling and St. Nazaire, and Bomber Command for all areas outside this. Each command could lay in the "gardens" of the other command as required for special operations, training, or other circumstances, having previously consulted the other command.

(1) Following August 1940, when 148 mines were laid, Bomber Command's scale of effect had dropped considerably until April 1941 when it again increased though the total fluctuated considerably. Their monthly totals for 1941 were as follows:-

January - 46	April - 128	July - 125
February - 67	May - 49	August - 68
March - 71	June - 76	

(iii) Minelaying Operations - September to December 1941 (incl.)

During this period there were no major changes in policy and no new developments of the mine were introduced. Owing to bad weather, the despatch of one of Coastal Command's Beaufort Squadrons to the Mediterranean and the pre-occupation of the other three with measures to deal with the probable departure of the enemy naval units from Brest, the number of mines laid by Coastal Command decreased sharply and all regular laying ceased at the end of December. Bomber Command maintained an average of 84 mines per month and laid in gardens along the North German coast, in the Western Baltic, in the waters leading to the Kattegat and in the Oslo fiord. The decreasing effort of Coastal Command was directed almost entirely to the Biscay ports in which task they were assisted in December by Bomber Command.

Poor weather restricted September laying in the Bay. In No. 19 Group, operations were planned for 15 nights but could only take place on five occasions and on two of these the aircraft were unsuccessful because of bad visibility. Similar weather conditions hampered No. 16 Group and their programme was further upset by the temporary withdrawal of No. 86 Squadron and the detachment of half No. 22 Squadron to Leuchars for special anti-shipping torpedo operations. Better results were obtained in October but weather again interfered in November causing the cancellation of many sorties. Owing to the rising tension over the probability of departure from Brest of the three enemy naval units and the necessity for constant readiness with the torpedo weapon only four mining sorties were completed in December. These were the last Beaufort minelaying operations in Home waters. Casualties among aircraft for this final four month period of 1941 were six from Coastal and 17 from Bomber Command.

(iv) Statistics - July to December 1941 inclusive

During the six months ending 31 December 1941, a total of 677 mines had been laid between La Pallice in the southwest and the Oslo fiord in the northeast by aircraft of the two Commands. There were certain areas where one or other of the Commands was the sole originator of mines laid and can claim individual credit for the resulting enemy casualties. There was, however, a broad band at the junction of their mining spheres where it is impossible to arbitrate. Moreover Bomber Command laid about $3\frac{1}{2}$ times as many mines as Coastal Command so that enemy mining casualties are best credited to Aerial Minelaying with the qualification that, in this period, at least 90% were caused by Bomber Command. Footnote(1) gives the number of mines laid in the different

(1)

NUMBER OF MINES LAID - JULY TO DEC. 1941 INCL.

	No. 1 Area West Baltic, Belts, Sound and Kattegat	No. 2 Area Haugesund and Oslo fiord	No. 3 Area N. Sea coasts of Germany and the Low Countries	No. 4 Area North coast of France	No. 5 Area Biscay Ports	Aircraft Lost
Bomber C.	189	36	236	Nil	67	23
Coastal C.	Nil	9	18	16	106	13
TOTALS	189	45	254	16	173	36

RESULTS

	SUNK	DAMAGED
No. 1 Area	19 = 14,464 tons	5 = 10,723 tons
No. 2 Area	1 = 37 "	1 = 902 "
No. 3 Area	10 = 12,661 "	-
No. 4 Area	4 = 866 "	-
No. 5 Area	5 = 1,315 "	-
TOTAL	39 = 30,343	6 = 11,625

Ref: Post war records of Lloyds Shipping Branch, Admiralty Intelligence and German ship owners Association.

areas and the resulting enemy shipping casualties.

The Admiralty Assessment Committee, in their second report on Aerial Minelaying (sent to the Air Ministry in June 1942) gave slightly higher figures. Taking the year 1941 as a whole, they estimated that eleven ships had been sunk off Biscay ports whereas in fact only five small craft were lost. Over the whole stretch of coast from Cherbourg to the Elbe, 23 ships were assessed as sunk whereas 24 was the actual loss. The most successful area was thought to be the western Baltic and the waters leading into the Kattegat. This was correct, the total for the whole year being 25 sunk and eight damaged.

In the Report the lack of success off Brest and the Biscay ports was explained by the fact that water too deep for ground minelaying extended almost up to the ports themselves, and those channels that were sufficiently shallow for ground mines were comparatively narrow and easily swept. It was considered difficult to assess the value of the Biscay areas as laying grounds, as by the end of 1941 comparatively few mines had been laid there. Of the 173 mines so laid in the last six months of the year, 75 were planted off Brest but in water so deep that only the passage of a large ship could actuate the firing device. They were designed to hinder the sailing of the three major naval units rather than against the general shipping using the port. In assessing the value of these operations the Report stated that the chance of damaging these units was fairly remote as the enemy chose the time of sailing and could ensure a swept channel before leaving. This, in fact, was the case and no damage by mines was inflicted on the ships while leaving Brest. (1)

(v) Minelaying - January to June 1942 inclusive

(a) The escape of the Brest Group

Now that Coastal Command Beaufort squadrons were committed entirely to the torpedo role, the onus of minelaying devolved on Bomber Command although the organisation of mine stocks and the promulgation of gardening operations was still done by Coastal Command Headquarters acting on directions by the Admiralty Mining Department. During January 1942 only 61 mines were laid, distributed between the Biscay area and the coastline between Terschelling Island and the Weser estuary.

In the first ten days of February, just prior to the escape of the Brest Group, this latter stretch of coast was more heavily sown, 98 miles being laid in the Nectarine area. After the enemy ships had disappeared in the gathering darkness up the Dutch coast on the 12th, a sortie of Bomber Command Hampdens and Manchesters succeeded in laying 13 mines at 2300 hours in the approaches to the Weser and Elbe rivers but the ships did not encounter any mines in this area. Earlier in the day, however, both the battlecruisers had been damaged by this agency. The Scharnhorst was first mined in afternoon in a position 19 miles north of Ostend. This was actually nine miles from the nearest garden and it is difficult to account for the presence of ground mines. All the gardens in the neighbourhood were close to the shore or up the various inlets of the rivers Scheldt and Maas. All had been planted exclusively by Coastal Command aircraft though a year

Scharnhorst's
Log

(1) Appendix XV gives a detailed list of all mines laid off Brest between 29 March 1941 and 10 January 1942.

had elapsed since sowing.⁽¹⁾ The explosion caused only slight damage to the Scharnhorst and she continued on her way but later slowly dropped astern of the other two ships.

At 2000 hours the enemy ships were passing 10 or 12 miles north of Terschelling Island and here the Gneisenau exploded a mine. Her speed was not affected and she completed her journey to Kiel without further incident. An hour and a half later, the Scharnhorst, some 40 miles astern, exploded another mine 10 miles further to the eastward. These two mines lay in the western part of the area of Nectarines I and had almost certainly been laid, at some time, by Bomber Command aircraft. Contrary to the first two explosions, this one seriously damaged the Scharnhorst and brought her to a standstill for nearly an hour. At 2223 hours she once more got underway with the port engine out of action and having shipped 1000 tons of water. With speed limited to 12 knots she limped into Wilhelmshaven where she arrived at 0900 hours on the 13 February.

(b) Transfer of responsibility for Minelaying to Bomber Command

During the remainder of February, Bomber Command continued to lay along the coast from Terschelling up to Jutland in Denmark. The increasing number of Manchester ~~four~~ engined bombers in No. 5 Group made it possible to step up the laying programme and, following a letter from Bomber Command forecasting increased requirements of mines, the Admiralty wrote to the Air Ministry on the 13 March saying that they understood that there was to be considerable increase in the number of aircraft available for minelaying, and that with the greater carrying capacity of the new bombers, up to 300 mines a week could be laid. The present production rate it was stated, was 200 mines per week, but arrangements were being made to step this up to 300. In order to avoid congestion at naval depots, resulting from increased production, it would be necessary for R.A.F. Maintenance Units to hold a maximum number possible of assembled mines, and in view of this the Admiralty requested that confirmation be given that the R.A.F. could lay 300 mines, Marks I-IV, a week, and that Maintenance Units could hold sufficient stocks to meet the fluctuating demand caused by variations in the rate of laying. Copies of their letter had been sent to both Bomber and Coastal Commands.

On 20 March Bomber Command informed the Air Ministry that, when the necessary modifications were made, it was hoped that all types of bomber aircraft could be used for minelaying. Not only was it an excellent form of training, it was stated, but there had been numerous occasions on which it had not been possible to bomb, but conditions had been suitable for minelaying. Hitherto only aircraft in No. 5 Group had been engaged on mining under these conditions, but it was hoped to extend operations to other Groups as the heavy and medium bombers were adapted, and to lay large numbers of mines without prejudice to the normal bombing effect. Commenting on this letter, the Director of Bomber Operations agreed with the extension of the minelaying effort, and said that in

- (1) Unless this mine had been laid at some previous date by naval craft, the only explanation seems to be that some earlier Coastal Command sorties had mistaken local buoys and laid nine miles north of Barnacles II in error. Before May 1941 no sterilisers were fitted to mines and they would all have been active years after being put down.

AM/S.1636/II
Min.108

ibid
encl.104A

ibid
encl.106A

ibid
Min.107

future the number of mines laid would be six or eight times greater than the best Hampden lay. With the concurrence of the Chief of Air Staff it was agreed that these proposals should be implemented.

CC/S.15171
Min.153

The Admiralty letter had meanwhile been under discussion at Coastal Command. It had been pointed out that a torpedo bomber squadron could average about 55 sorties a month on minelaying while continuing its torpedo training, and thus if allocated to minelaying could lay about 14 mines a week. If one squadron was allocated to minelaying exclusively they would, on average, lay 30 mines a week. The effort expected of a Bomber Command squadron of heavy aircraft was 88 sorties a month, and as Manchesters carried four mines, they would be able to lay 88 mines a week. To meet the Admiralty programme of 300 mines a week either four Manchester squadrons or ten torpedo bomber squadrons would have to be allocated for minelaying operations only. It was suggested, therefore, that minelaying should cease to be a routine task for Coastal Command's torpedo bombers. A letter on these lines was sent to Air Ministry on 20 March suggesting that the use of heavy bombers would be more economical, and that if torpedo bombers were required for the task they would lose their identity as much.

ibid
encl.157A

AM/S.1636/II
Min.112

The Director of Naval Co-operation supported the view of Coastal Command and said that as long as Coastal Command only had torpedo bomber aircraft it was uneconomical to use them for minelaying. He suggested, therefore, that it should cease to be a routine task for this command but that they should undertake special operations when necessary. The Deputy Chief of Air Staff agreed to the proposal and a new directive was accordingly sent to both Commands. The directive to Bomber Command, dated 25 March, stated that they were to be responsible for all minelaying in home waters. Such operations should be done, as part of their training, by inexperienced crews and by veterans in as far as it did not prejudice the Command's normal bombing effort. It was further stated that the Admiralty were being informed that, in view of the revised policy, a laying rate of 300 mines a week was being anticipated, and that measures were being taken for the modification of aircraft, the provision of equipment and in arranging for storage at Maintenance Units and Stations.

ibid
Min.116

ibid
encl.115A

ibid
encl.118A

The directive to Coastal Command, dated 26 March, stated that in future Bomber Command was to be responsible for minelaying in home waters. It was, it was stated, more economical to use heavy aircraft, and in order to maintain the efficiency of torpedo bomber squadrons it had been decided to relieve them of their mining commitments.

ibid
encl.127A

This decision did not preclude minelaying by Coastal Command as incidental to night flying training or for special operations. The Command was, however, to consult with Bomber Command before undertaking any minelaying operations. The Admiralty were informed of the new arrangement on 30 April.

C.C. File
S.15171
Min.167

In view of the fact that Bomber Command had been made responsible for minelaying in enemy waters it was considered at Coastal Command that they should also be given the responsibility for 'Operation Thrower' (the laying of mines in British ports, in case of invasion, to deny their use to the enemy) as torpedo bombers under the circumstances would be required to attack enemy shipping. A letter was sent to Air Ministry on 12 April indicating that, though it was appreciated that the Admiralty plan was only tentative and

would depend upon the circumstances of the time, in order not to jeopardise the scheme at a time when communications would be disrupted it was requested that the Command should be relieved of the responsibility for the operation. This would also avoid the necessity of holding large stocks of mines at Coastal Command stations in case such an operation should be called for. The Air Ministry decided that Bomber Command should be responsible for the operation and a directive to that effect was sent on 6 May.

(c) Use of aircraft over minefields

A memorandum on "Air Activity over British Minefields", was sent by the Admiralty to the Air Ministry on 3 April outlining the two principal ways in which aircraft could make minefields more effective. Minefields, it was stated, were effective either if the enemy was unaware of their presence, or believed he could pass through safely when in fact he could not, or was forced on to them, and it was thought that aircraft and surface craft should co-operate to create such conditions. In the case of anti-submarine minefields the presence of aircraft would force U-boats to dive on to the mines. "Slips" patrols were already being flown, by Hudsons operating with No. 18 Group, over the mine barrage between North Scotland and the Faroes, but, the Admiralty stated, they would welcome any extension of these patrols. To further this end Coastal Command would be informed of the exact location of barrages. In the cases of minefields laid in enemy waters, aircraft could help by attacking enemy minesweepers. The enemy, it was stated, had developed an extensive sweeping organisation and though from time to time their minesweepers had been attacked these attacks were fortuitous, whereas minefields in enemy waters were definite areas in which minesweepers would almost certainly be found soon after the area had been planted. With close co-ordination, attacks could be made which would not only inflict damage to the vessels, but would lower the morale of crews. The Admiralty suggested therefore that code messages, to the effect that minesweepers were expected to be found at some given position shortly, should be telephoned to Fighter and Coastal Commands.

A copy of this letter was sent to Coastal Command for comments on 25 April. Replying on 27 April the A.O.C.-in-C. agreed that it would be of considerable value in anti-U-boat operations if the location and extent of barrages were known, and also agreed to co-operate in the plan for attacking minesweepers when aircraft resources permitted.

(d) Operations from March to June 1942 inclusive

On the 5 March, the Admiralty informed the Air Ministry of a new adjustment to the firing mechanism of the Marks I to IV mines designed to defeat sweepers of the mine-destroyer type (Sperrbrecher). Hitherto, it was stated, the mine had only been laid by surface craft but it was thought desirable that laying should be extended to aircraft. These mines, called Assembly No. 42, were only to be laid in small numbers as they were unlikely to be effective against any but the Sperrbrecher type of ship. The information was passed to Coastal and Bomber Commands on the 13 March and it was stated that the Admiralty would issue directions as to when the mine was to be laid.

During March, while the discussions ending in the transfer of minelaying responsibility were going on, the mining commitment in Bomber Command was extended from aircraft

AM/S.1636/II
Encl.131A

ibid
Encl.121A

ibid
Encl.124A
ibid.
Encl.132A

ibid
Encl.99A

ibid
Encl.101A

of No. 5 Group to those in No. 3 Group on the 9 March and to No. 1 Group on the 24 March. Stirlings of No. 3 Group started their first mining operations on the 23/24 March and Wellingtons of No. 1 Group on the 1/2 April. A total of 355 mines were laid during the month and planting was recommenced in the Biscay area as well as the continuation along the Terschelling/Elbe coastline. In the Biscay, the gardens planted were off Lorient and the mouth of the River Gironde, the objectives being U-boats off the former and blockade runners off the latter.

In April under the new policy, laying was stepped up sharply to 550 mines. Additional ports in the Biscay area were mined and mining outside Kiel and in the Belts was recommenced. In May another sharp increase took place, 1,021 mines being laid and operations were extended into the Western Baltic.⁽¹⁾ This high rate of laying was maintained in June though the majority of the 1,160 mines were sown in the three Nectarines areas.

(e) Statistics - January to June 1942 inclusive

In the first six months of 1942, 3,468 mines had been laid, all except six by Bomber Command aircraft. Gardens had been visited from the mouth of the River Gironde to Danzig Bay at a cost of 69 aircraft. The summary of results is given below.⁽²⁾ In No. 3 Area, besides damaging the two battle-cruisers, air laid mines had sunk one Sperrbrecher and two minesweepers and had severely damaged two more Sperrbrechers. A destroyer was sunk in No. 4 Area. As might be expected the increased mining effort accounted for more ships than the previous periods. The results were more than double those obtained by all forms of direct air attack and were achieved at a fraction of the cost in sorties and aircraft losses.

(vi) Minelaying - July to December 1942 inclusive

(a) Stocks and supplies of Mines

C.C. File
S.15171
Min.180

When Coastal Command learnt that they were not to be responsible for operation "Thrower", the question of holding stocks of mines at Coastal Command stations was reviewed. It was suggested that a stock of twelve mines should be kept

- (1) By June 1942, all Coastal Command's Beaufort squadrons had gone overseas. They were in the course of being replaced by Hampden torpedo squadrons. During May, one minelaying operation was undertaken by the Hampdens of No. 455 Squadron working from Leuchars. Six mines were laid in Bottle - the garden off Haugesund in S.W. Norway.

(2) NUMBER OF MINES LAID

	No. 1 Area	No. 2 Area	No. 3 Area	No. 4 Area	No. 5 Area	
	Western Baltic Belts, Sound and South Kattegat	Haugesund and Oslo fiord	N. Sea coasts of Germany and the Low Countries	North Coast of France	Biscay Ports	Aircraft Lost
Bomber	717	8	1,965	nil	772	69
Coastal	nil	6	nil	nil	nil	nil
Totals	717	14	1,965	nil	772	69

RESULTS

	SUNK	DAMAGED
No. 1 Area	27 - 18,561	5 - 10,952
No. 2 Area	nil	nil
No. 3 Area	24 - 57,533	5 - 85,353
No. 4 Area	6 - 5,101	nil
No. 5 Area	5 - 469	nil
Totals	62 - 81,664	10 - 96,305

at each of the five stations⁽¹⁾ from which limited minelaying operations were likely to take place in the future. It was considered uneconomical to keep larger stocks of mines at a station because they became time expired after a period of six months, and had to be returned to naval depots to be refitted. The question of replacement of stocks, should Coastal Command be called upon to lay a larger number of mines at any one time, was discussed, and it was stated that three to four days notice would be required, also the sanction of Bomber Command for the diversion of supplies. This was the minimum delay to be expected but past experience had shown that the delay was usually longer. A further suggestion was that arrangements should be made with neighbouring Bomber Command stations to exchange stocks of mines, as they became almost time-expired, for newer stocks so as to avoid the formality of returning the mines to naval depots and having new stocks issued. It was finally laid down that a stock of twelve mines should be held at the stations in question, six with period delay mechanism, to be set at the station and not at the depot, and six of Assembly No. 22. The Armament officers were instructed to make the necessary arrangements.

ibid
Min.182

C.C. File
No. 7303/4/3
Enc.12A

C.C. File
S.15171
Min. 185

AM/S.1636/II
Enc.145A

ibid
Enc.149A

A meeting was held on 2 July between Naval, Air Ministry and Bomber Command staffs to discuss mine supplies. It was stated that the maximum number of mines available for Bomber Command in July would be 1,300, in August, 1,300 and in September 1,600. As the average laying rate of Bomber Command was 1,000 a month this would allow for stocks to be built up for larger scale laying operations. Following the meeting, the Air Ministry wrote to the Admiralty confirming that, for the present, Bomber Command would restrict their laying to 1,000 a month, but in view of their increasing aircraft availability, they hoped the supply of mines would improve in the near future. The Admiralty, replying on 3 September, stated that it was hoped that by June 1943 the production of all types of magnetic mines would be at a rate of 4,000 a month⁽²⁾ though the introduction of new types, or modifications to components, might slow up production temporarily.

(b) Introduction of Acoustic Mines and height of release instructions

ibid
Enc.136A

By an Admiralty letter, dated the 13 June, the Air Ministry was informed of another new firing device for the standard mine which was scheduled to come into operation during July. The firing unit of this new type (Assembly 32) was acoustic and to achieve technical surprise the Admiralty decided to wait until sufficient stocks were available for large scale laying by both aircraft and surface craft. Bomber Command were to take part in the operation, but

- (1) If minelaying operations were undertaken it would be from Wick, Leuchars, Bircham Newton, Thorney Island or St. Eval.
(2) The target figures for the production of 'A' mines were as follows:-

	Mines 'A' Marks I-IV or replace types	Mines 'A' Mark V or replace types	Total
December 1942	2,000 per month	500 per month	2,500 per month
March 1943	2,500 " "	700 " "	3,200 " "
June 1943	3,000 " "	1,000 " "	4,000 " "

Coastal Command in accordance with the prevailing policy were not to be called upon for any large scale mining operations.⁽¹⁾

ibid
Enc.159A

On 17 July the Admiralty wrote to the Air Ministry stating that there were then no technical objections to laying Marks I-IV mines from heights up to 3,000 ft. provided that the speed was not in excess of 200 m.p.h., with the exception of mines with the Assembly No. 32, the limiting height for which was 1,000 ft.

(c) U-boats and mines in the Bay of Biscay

B.d.U.
War Diary

During July, the lay decreased slightly to 898 mines, again mostly sown along the Dutch and German North Sea coasts though the steady average of 180 per month off the Biscay U-boat bases was maintained. Although no U-boats had yet succumbed in this area to this weapon, B.d.U. was much concerned about the minelaying being carried out. The inshore operations by aircraft were being augmented by moored-mine laying by our own submarines and surface craft in the deeper water out to the 100 fathom line. This had necessitated fixed routes for U-boats out to this distance from the coast. The task of keeping these routes swept as well as the harbour approaches was proving too much for the available enemy sweepers and Sperrbrechers. While managing to keep the inshore channels comparatively clear, the U-boats were instructed on the 16 July to proceed on the surface when inside the 100 fathom line to lessen the risk of being mined and to time themselves to daylight hours for this portion of their passage so as to avoid being surprised on the surface at night by the Leigh Light aircraft of Coastal Command. Mine casualties among sweeping and patrol craft both inshore and on the seaward routes caused frequent changes in route with many hold-ups and delays in U-boat traffic.

ibid

Success against U-boats started in September 1942 when U.600 outward bound was mined and seriously damaged off La Pallice on the 22nd,⁽¹⁾ followed on the 28th by the sinking of U.165 inward bound off Lorient. Off the same port, U.171 was mined and sunk on the 9 October. Instructions were then given by B.d.U. that U-boats were not to proceed inside the 25 fathom line without a ground mine sweeping escort and the rendez-vous for incoming boats to meet their escorts was transferred out to depths of over 25 fathoms.

(d) Coastal Command recommences limited minelaying

Nos. 16 and 19
Group forms
540 July to
December

Aircraft under the operational control of Coastal Command started minelaying operations again in August. Fleet Air Arm Swordfish squadrons were loaned to the Command for short periods for this purpose, and also to assist in anti-shipping strikes. On 19 July No. 819 Squadron was reported to be operational from Langham, and moved to Bircham Newton for minelaying operations in August. No. 811 Squadron also arrived at Bircham Newton in July.

On the 9 August, Swordfish of Nos. 811 and 819 Squadrons laid the first mines of Coastal Command's renewed operations,

- (1) *The mass laying of the Acoustic mines did not take place until the nights of 19/20, 21/22 and 23/24 September 1942 when a total of 457 were laid in various gardens under the code name of Operation Bolberry.*
- (2) *In point of fact this mine was laid by a British submarine but subsequent casualties to U-boats by mines off the Biscay Ports were R.A.F. laid.*

No. 16 Group
O.R.B.
Appendices

seven being planted between the Texel and IJmuiden.(1)
No. 819 Squadron then moved to Thorney Island and laid 14 mines off Cherbourg(2) it having been established by reconnaissance that the whale oil ship Ole Wegger - 12,201 tons - was present in the harbour. In September, another large ship - the Solglint 12,246 tons - was discovered and attacked in Cherbourg harbour. Meanwhile the Ole Wegger had moved to Le Havre(3) and mining off both ports was carried out during September.

CC./MS.15172
Encl.2A

In October, two more Swordfish squadrons were loaned to Coastal Command - No. 812 going to Bircham Newton and No. 816 to Thorney Island. The increased laying capacity made it possible to start an organised programme. On the 17 October, Bomber Command sent Coastal Command a directive giving the broad outlines of instructions to be issued to Swordfish aircraft operating with No. 16 Group. The boundaries of the gardens suitable for the aircraft to plant were listed(4) together with the types of mines(5) that were to be used, and the proportions in which they were to be laid.(6) The Commander-in-Chief, the Nore, was to be kept informed of all operations and the results of each operation with the number of mines, including the number of Assembly No. 42 laid in each area, were to be sent to the Naval Liaison Officer at Bomber Command, and to the Admiralty. Following the receipt of this letter Coastal Command drew up a new directive on minelaying, which was sent to Nos. 16, 18 and 19 Groups on 24 October, outlining the policy for mine-laying by Coastal Command aircraft incidental to night flying training, and by Naval aircraft operating with the Command. All minelaying, it was stated, must have prior consent of H.Q. Coastal Command, and procedure for briefing crews, reporting results and action to be taken when jettisoning mines was laid down. On the same day a supplementary directive was issued to No. 16 Group, under which the Fleet Air Arm squadrons were operating, listing the gardens to be planted, and the types and proportions of mines to be used, as had been laid down in the Bomber Command directive.

CC. File
S.15171
Encl.203A

ibid
Encl.204A

During the month, 28 mines were laid close off the Dutch and Belgian Coasts by the Bircham Newton squadrons against particular convoys reported by reconnaissance and a further 19 mines off Cherbourg and Le Havre by the Thorney Island squadrons. In November, two of the Swordfish squadrons (Nos. 812 and 819) reverted to the R.N.A.S. while No. 811 moved to Thorney Island and the laying of 35 mines took place from Thorney Island only, against the two large ships which

-
- (1) Code name Trefoil. The area was bounded by the latitudes of 5252N and 5238N between longitude 0429E and the five fathom line.
 - (2) Code name Greengage.
 - (3) Code name Scallops.
 - (4) Gardens suitable for planting by Swordfish aircraft were:- Cherbourg, Le Havre, Zeebrugge, Flushing in the West Scheldt, four areas in the East Scheldt and along the Dutch coast south of the Texel.
 - (5) Mines to be used were 'A' Marks I-IV. Assembly 13 (Period-delay Mechanism) and Assembly 42 (against mine-destroyer ships).
 - (6) Each lay of mines was to contain about 25% of mines of Assembly No. 42. The complete range of period delay settings (1-12) was not to be used on any one lay, but should be used with settings 1-8 on one lay and 8-12 on another.

were expected to sail from Cherbourg and Le Havre.(1) During December, 17 more mines were laid off Le Havre.

ibid
Encl.213A

ibid
Encl.214A

ibid
Encl.217A

On 23 December Bomber Command sent amendments to their directive of 17 October, stating that every care should be taken only to lay mines of Assembly No. 42 in swept channels otherwise the chance of inflicting any damage with them were remote, as mine destructor ships were the only vessels against which the mine was effective. They also requested that more attention should be given to the southern half of the garden in the mouth of the Seine. These instructions were passed on to No. 16 Group on 24 December. On 4 January 1943, following a request from the Admiralty in which Bomber Command concurred, a new Form Orange, for reporting the results of minelaying, was introduced, on which the exact position of each mine, and the time and height of dropping were recorded, as well as the type and period delay mechanism setting.

During the five months of renewed operations by Coastal Command, a total of 141 mines were laid in gardens between the Texel and Cherbourg, mainly as tactical measures against specific ship objectives. The Coastal Command figure naturally pales into insignificance beside that of Bomber Command. In the same period they maintained a monthly laying average of 1,040 mines,(2) the majority being placed along the North German and Dutch coasts and off the Biscay ports(3) though the respectable number of 1,222 were planted in the Western Baltic(4) and Kattegat areas.

(e) Statistics - July to December 1942 inclusive

This six month period was, up to date, the most successful for aerial mining results. A total of 6,243 mines were laid for the loss of 105 aircraft. Enemy casualties were 125 vessels sunk totalling 115,941 tons with a further 21 of 49,056 tons damaged.(5) Coming at a stage in the war when

- (1) Early in December, No. 811 Sqdn. was replaced by No. 825 Sqn. and at the end of the month No. 816 was replaced by No. 836.
- (2) The minelaying commitment was extended in October 1942 to No. 4 Group and Halifaxes from this Group flew their first mining sorties on the night of the 8/9 October.
- (3) In support of Operation Torch, minelaying was intensified off the Biscay ports during the last three months of 1942, a total of 1,346 being laid.
- (4) Among other casualties in this area, U.446 was mined and sunk off Danzig on the 9 September.
- (5)

Number of Mines Laid

	No. 1 Area	No. 2 Area	No. 3 Area	No. 4 Area	No. 5 Area	
	Western Baltic, Belts, Sound and Kattegat	Haugesund and Oslo fjord	N. Sea Coasts of Germany and the Low countries	North Coast of France	Off the Biscay Ports	Air-craft Lost
Bomber	1,223	28	2,953	Nil	1,898	97
Coastal	Nil	Nil	35	106	Nil	8
Totals	1,223	28	2,988	106	1,898	105

Results

	Sunk No. Tons	Damaged No. Tons
No. 1 Area	65 - 45,107	17 - 40,822
No. 2 Area	3 - 9,200	nil
No. 3 Area	43 - 58,624	4 - 8,234
No. 4 Area	3 - 314	nil
No. 5 Area	11 - 2,696	nil
Totals	125 - 115,941	21 - 49,056

the enemy might have been expected to possess an efficient and rapid mine clearance organisation, it speaks volumes for the skilful use of ingenious firing and anti-sweeping devices incorporated from time to time in the laying programme. Amongst these casualties were numbered no less than 9 Sperrbrechers sunk.

These figures for aerial minelaying are in startling contrast to those obtained by all other methods of direct air attack on enemy shipping at sea and in port which for this period amounted to only 28 ships totalling 38,825 tons sunk and 11 of 53,720 tons damaged at a cost of 310 aircraft lost.

See Appendix
XXIX

(vii) Minelaying - January to March 1943

(a) The final three months of operations by Coastal Command

January 1943 saw the same two Swordfish squadrons - Nos. 825 and 836 - still operating from Thorney Island. During the month, ten mines were laid off Le Havre. Early in February, No. 825 Squadron were replaced by No. 833 Squadron. Bad weather prevented successful lays and in the course of efforts to do so, one Swordfish was lost. In March, nine mines were laid off Cherbourg and eight more off Le Havre. Three aircraft were lost.

During March, No. 833 Squadron was moved to St. Eval for anti-shipping operations and early in April, No. 836 Squadron returned to the R.N.A.S. No further squadrons were detailed for minelaying. Thus ended the part played by Coastal Command in Aerial Minelaying. The work had fallen into two phases. The first, in the early stages of the joint mine-laying campaign, using mainly Coastal aircraft and the second, after Bomber Command had assumed sole responsibility, using Fleet Air Arm Swordfish. A total of 936 mines had been successfully laid since April 1940 for the loss of 42 aircraft. In the light of Bomber Command's minelaying figures this was not a large number but, within the limitation of suitable aircraft, it represented a notable effort moreover the mines were planted in gardens which required considerable navigational skill as they were mostly situated in narrow waters and in heavily defended areas.(1)

(b) Bomber Command Minelaying and Statistics for January/March 1943

The majority of Bomber Command's mines were laid along the Dutch and North German coast. During these three months the total planted was 3,575 thus slightly raising their previous monthly average. The loss rate at 57 aircraft remained much the same.

On the 23 February, Bomber Command informed the Air Ministry that with the new blind bombing and navigational

A.M.
S.1636/II
Encl.182A

(1) Comparative figures between April 1940 and March 1943 inclusive:-

Coastal Command laid 936 mines and lost 42 aircraft
(22 mines per A/C lost)

Bomber Command laid 14,939 mines and lost 287 aircraft
(52 mines per A/C lost)

aid(1) being introduced, they could now bomb in weather conditions hitherto only allocated to minelaying. They estimated, therefore, that contrary to previous expectations their average monthly lay would not exceed 1,000 mines. The reserve of mines was rising to 2,400 and would shortly reach 3,500. In view of this they requested that steps be taken to correlate future supplies with expenditure. This fresh outlook was reported at a meeting held in the Air Ministry on the 5 March at which attended representatives from the Admiralty. The latter expressed disappointment that the laying rate was only to be 1,000 per month when it had confidently been expected to reach 1,000 per week. It was, however, decided to allow the reserve to build up for the time being and the Admiralty hoped that the new mine-bomb for high altitude laying would be ready by August.

The enemy casualty results for the first quarter of 1943 were not so good as for the previous three quarters but were still far superior to those obtained by direct air attack at sea or by air raids on ports. The summary of mines laid and enemy shipping casualties is given below.(2) At Appendix XXIX are given the tabulated results in quarterly periods since April 1940 for comparison with the anti-shipping campaign and the bombing operations against enemy ports.(3) Appendix XXX illustrates graphically the contrast between the effort devoted to minelaying and that expended on attacking shipping at sea with the respective results in casualties. The figures for air raids on ports do not lend themselves for inclusion in this graph because the vast effort during these three years accounted for only **fifty six** ships destroyed and thirty four damaged.

(viii) Summary

In the light of more post war certainty(4) as to what enemy ships were sunk by air laid mines, there seems no doubt

- (1) In February, Bomber Command aircraft were being fitted with H2S (10 cm radar) as a navigational and blind bombing aid. See Chapter IX Section (viii).
(2) Number of Mines Laid

	No. 1 Area	No. 2 Area	No. 3 Area	No. 4 Area	No. 5 Area	
	Western Baltic, Belts, Sound and Kattegat	Haugesund and Oslo fjord	N. Sea Coasts of Germany and the Low Countries	North Coast of France	Off the Biscay Ports	Aircraft Lost
Bomber	397	12	2,157	N11	1,009	57
Coastal	N11	N11	N11	27	N11	3
Totals	397	12	2,157	27	1,009	60

Results

	Sunk No. Tons	Damaged No. Tons
No. 1 Area	21 - 9,841	3 - 3,206
No. 2 Area		N11
No. 3 Area	16 - 16,749	1 - 5,103
No. 4 Area	1 - 80	N11
No. 5 Area	2 - 606	N11
Totals	40 - 27,286	4 - 8,309

- (3) Aerial minelaying and air attack on enemy shipping at sea can both be said to have started in April 1940. Air raids on enemy ports commenced in May 1940.
(4) All figures relating to enemy merchant and warship casualties are compiled from German documents held in the Admiralty, the German Shipowner's records and Lloyd's Shipping Branch statistics.

three years of active

that this contribution to the Sea War by the R.A.F. was very much more effective during the first ~~four years of the war~~ than direct air attack either at sea or in port. A straight comparison of the results given in Appendix XXIX is itself convincing but when the enormous number of sorties and high aircraft casualties expended on attacks at sea or in port are considered in relation to the economy and comparative safety of minelaying, the superiority of minelaying tactics is most marked. Nor did this form of sea warfare require much diversion from the strategic bombing of Germany. Minelaying was not only used as a final training for inexperienced crews but, on the many occasions when weather conditions precluded normal bombing raids, it could be carried out by the operational bombers without prejudicing their primary commitment.

From the enemy's angle, apart from losses, damage and interruptions in sea communications, the mining campaign forced on him the creation and maintenance of an ever growing mine clearance force. By the 1 April 1943, the enemy mine sweeping organisation had expanded from 22 naval craft in 1939 to over 400 naval sweepers, 40 Sperrbrechers and numerous auxiliary craft.

Admty.
N.I.D. 24/T.85/45
Appendix C.

CHAPTER XI

THE ANTI-SHIPING WAR IN NORTH WEST EUROPEAN WATERS
JULY 1942 TO FEBRUARY 1943

(i) Introduction

From the concluding paragraphs of Chapter VI it will be remembered that by the end of June 1942 the gradual increase in the number of escort vessels per enemy convoy and the addition of improved flak defences on all surface craft, had forced Coastal Command into the use of bombing from higher levels in order to avoid a high casualty rate.

While this move on the part of Coastal Command unquestionably reduced the losses among the aircraft engaged, it also gave a respite to the enemy in terms of fewer ships sunk and damaged at the very moment when difficulty was being experienced in meeting simultaneously military and economic requirements in sea transport.

It was clear right from the start of this period, i.e. July 1942, that, if in spite of the strengthened enemy defences the Allies were going to continue the offensive against enemy shipping in North West Europe effectively, it would be necessary to develop a form of attack which would saturate the defences and thus allow the main attacking force comparative immunity from interference.

Low level bombing had been proved too costly under existing conditions, and medium level bombing, while an adequate bombsight was not available, was so relatively ineffectual that it was equally costly in comparison with the results achieved. As yet comparatively untried in North West Europe, owing to the shortage of weapons and a suitably designed aircraft, the torpedo attack gave the best promise of successful development, provided that the necessary equipment could be secured.

A torpedo bomber force consisting of four squadrons of Hampden aircraft in various states of formation was already in existence within Coastal Command, but they were unsuitable for employment in the form of strike warfare now planned. The aircraft selected for use in the development of the strike force envisaged was the Beaufighter, and the factors leading up to its adoption for this role have already been dealt with in Chapter I, Section (v).

Throughout the period covered by this Chapter, i.e., July 1942 to February 1943, tactical and technical development of the torpedo as a weapon of air attack took place, while steps were also taken to procure the requisite equipment in the face of undiminished demands from the Mediterranean theatre.

Facilities for training were provided at Tain and Leuchars, although a shortage of practice torpedoes with blowing heads (called runners) and target ships were a handicap. Technical considerations included the provision of air tails for torpedoes, torpedo sights, the use of V.H.F. for R/T communication and the carriage of 2 x 250 lb. bombs on anti-flak aircraft.

An Aircraft Torpedo Attack Committee, a joint high level Admiralty/Air Ministry body, was set-up specially for the purpose of applying all possible pressure for increasing the

efficiency of torpedo aircraft and crews.

In spite of the disappointments and technical difficulties encountered, the first Beaufighter Strike Wing, composed of one incomplete squadron of Torpedo Beaufighters and two squadrons of anti-flak Beaufighters, was assembled at North Coates for operations against enemy convoys off the Dutch coast and Frisian Isles, and made its first strike on 20 November 1942. The operation was costly and unsuccessful. Bad weather and inexperience resulted in lack of cohesion and co-ordination with the Fighter escort. There were also certain technical difficulties. Nevertheless it was considered by the A.O.C.-in-C., that this form of attack would produce the correct solution to his tactical problem, although it was clear that success would always depend upon a state of efficiency which could only be achieved by intensive training. The squadrons were withdrawn from the line for that purpose and did not reappear as a Strike Wing until April 1943.

Meantime the weight of Coastal Command's offensive against enemy shipping in North West European waters was borne by the out-moded Hampdens with torpedoes off the Norwegian coast, the Hudson squadrons by bombing from medium levels off the Dutch and North German coasts, while four-engined and medium type bombers, many of whom were engaged on Anti-U-boat duties, struggled against heavy odds in tackling the well armed Far Eastern Blockade Runners in the Bay of Biscay, with little success.

To complete the picture, aircraft of Fighter Command with the aid of the Fleet Air Arm maintained the 'Channel Stop' but nothing spectacular in terms of ships sunk or damaged was achieved. Bomber Command's contribution to the offensive against the enemy at sea was almost negligible during this period.

(ii) Factors leading to an operational shortage of German Shipping

Within the span of two years, i.e. from July 1940 to July 1942, Germany's merchant shipping position changed from one of security to one of such stringency that by the end of this period she was finding it difficult to meet simultaneously her military and economic requirements in sea transport.

On the outbreak of war the total tonnage of shipping available in the German merchant marine was 4,196,995 gross tons. By the end of June 1942, losses in N.W. Europe, from all causes including marine casualties amounted to 1,276,445 gross tons.

These losses alone were by no means the only cause of the enemy's difficulties, for there were several other reasons from within the Reich, whose cumulative effect contributed to the growing shortage of merchant tonnage.

A large proportion of the merchant shipping available at the outbreak of war was requisitioned by the German Naval High Command (Oberkommando der Marine, O.K.M.) for the Port Naval Offices (Kriegsmarinedienststelle, K.M.D.) who were responsible for providing and operating the necessary transports for the Wehrmacht. Having regard to the continuing commitment of routine replacement and supply the original requisitions were more than ample for the needs of the Armed

Corporation of Lloyds;
German Shipowners
Association,
German Admiralty

M.E.W.
ES/92/97/Z

forces, yet O.K.M. continued to retain an inordinately large pool of merchant vessels. With little or no representation in the higher German war administration, the controlling authority of the Mercantile Marine (Seeschiffahrtsamt) being also one of the smallest departments in the German Ministry of Transport, was unable to protest with any weight against this retention of useful tonnage.

M.E.W.
SIX MONTHLY
REPORT. No.45

In the meantime, the shipping that was available for commercial purposes was operated by a Committee of Shipowners (Tonnage Einsatz) who received its instructions regarding cargo to be carried from Seeschiffahrtsamt. Although the owners managed their vessels efficiently they were prone to be influenced by commercial motives which were not always consistent with wartime needs. Apart from this the Committee did not control auxiliary coastal vessels and other small craft which were controlled by similar trade associations.

B.B.S.U.-
Sea Communica-
tions Report

In the occupied territories shipping matters were administered by the Armed forces, who, as a rule, not only over-estimated their own individual requirements, but also made little or no attempt to co-ordinate their several needs. As a result unnecessarily large blocks of tonnage were requisitioned and withheld from the commercial pool, and commercial services to the territories were also extravagantly administered.

This same lack of central planning, which must be attributed to the low priority then accorded to merchant shipping was evident in the fact that, although her tonnage strength was being progressively whittled away, no attempt was made either to lay down a replacement programme or speed up the return to service of damaged tonnage.

Between July 1940 and July 1942, only 308,000 gross tons of new shipping had been completed in the yards under German control and of this amount 251,000 gross tons had been withdrawn for conversion as naval auxiliaries in an endeavour to curtail the losses being sustained by the Allied offensive.

Kaufmann's
Report to the
Fuhrer
(B.B.S.U.)

The merchant tonnage under repair had also rapidly increased during this same period. During the last six months of 1941, the average monthly tonnage was 72,000 gross tons or six per cent of the total German flag tonnage available for economic traffic, which grew into a monthly average of 173,000 gross tons or 15.5% for the first six months of 1942. Thus in the course of one year the amount of serviceable tonnage allowing for replacements had declined from 1,050,000 gross tons available in July 1941 to 946,000 gross tons in June 1942. One of the chief reasons for such an appreciable amount of idle tonnage was contained in the fact that up to the latter date, repairs of German merchant ships were extremely slow in view of the instructions by O.K.M. that German shipyards were only to employ a quota of one per cent of their labour for the repair of merchant ships, in consequence of which, ships had to wait weeks and sometimes months for the opportunity for repair.

B.B.S.U. Report
Sea Communica-
tions Panel

In view of this increased idle tonnage and other contributory causes and consequent cargo space it represented, it is not surprising to find a substantial decline of 15% in the total amount of overseas and coastwise cargo carried, during this period of twelve months. Imports of Swedish iron ore - the most important commodity in the German/Scandinavian trade were 8.6 million tons or 14% below programme.

In point of fact it was only with Sweden, in the comparative security of the Baltic that Germany was able to maintain anything approaching normal sea-borne trade. In 1941 Germany's imports from that country totalled 11 million tons (9,500,000 tons of iron ore) and her exports to Sweden 5 million tons (4,900,000 tons of coal and coke). Until Germany's tonnage position became a problem, German and Swedish owners competed freely for this trade which, with the exception of the Swedish coasting trade, was virtually the only employment open to 640,000 gross tons of Swedish shipping remaining within the blockade area. By the early summer of 1942, however, when the operational strength of the German mercantile marine was at low ebb, 500,000 gross tons of Swedish shipping was engaged in trade with German ports and no less than 50% of Germany's imports of Swedish iron ore was being carried in Swedish bottoms. The dominating factor in Sweden's shipping relations with Germany was her almost complete dependence on that country for supplies of coal and coke, a situation which the Germans were quick to exploit as their own shipping position deteriorated and the Swedes showed increasing reluctance to face the hazards inherent in trade with German North Sea ports.⁽¹⁾

(iii) Reorganisation in the German merchant shipping service

M.E.W. ES/71/2
Six Monthly
Report

By July 1942, the adverse factors described in the preceding paragraphs had so reduced Germany's merchant shipping potential in N.W. Europe that her imports of priority supplies from Scandinavian countries had, in the aggregate, declined by as much as 15% within twelve months. Even with the assistance of Sweden the operational strength of the tonnage controlled by Germany was decreasing, and, under the weight of the Allied anti-shipping offensive, operating conditions were becoming progressively more hazardous.

To remedy the situation by large scale merchantship building was quite impracticable at this stage, when German heavy industry was experiencing considerable difficulty in meeting the requirements of the front-line services and steel was in short supply. The only hope lay in a drastic rationalisation of existing resources. Since the consequent economies would have to be borne by the German fighting services as well as the civilian organisations, very special powers were needed to put such a scheme into effect. Recourse was had to the expedient, often repeated in the German war administration of appointing a Commissioner with extra-departmental powers.

In May 1942, Karl Kaufmann, Gauleiter of Hamburg, was appointed Reichskommissar for Schiffahrt (R.K.S.). Responsible only to Hitler, he was given the widest power over both merchant shipping administration and shipbuilding. His choice was singularly appropriate, since, in addition to being a reliable and senior Party Official, an invaluable attribute in counterbalancing the influence of the service departments, he was well connected with, and respected in, German merchant shipping circles.

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- (1) The Swedish/German Shipping agreement concluded in June 1942 was ingeniously designed by the Germans to secure the employment of as much Swedish shipping as possible in the trade between the two countries, and to a lesser degree to force Swedish tonnage into coastwise traffic between German ports, thereby reducing still further the strain on inland transport.

Fuehrer
Conferences
1942

This appointment was not entirely in keeping with the views held by the German Naval High Command, for in this situation they saw the opportunity of bringing the whole of the merchant service under Admiralty control. At a conference held in Berlin on 16 May 1942 between Hitler and the C.-in-C., Navy, the latter recommended for approval an order which authorised the Shipping and Transport Branch of the Naval High Command to make all decisions concerning the use of the merchant marine since the Shipping Department of the Ministry of Transport had proved itself unfit for the task. Hitler disapproved of this order and instead decided that he would determine the necessary organisation and appoint the personnel from among the representatives of the shipping firms.

Kaufmann's Report
to the Fuehrer
(B.B.S.U. Report)
Appendices

At the time of the Reichkommissar's appointment the merchant shipping tonnage which was in service in N.W. Europe on the tasks for which R.K.S. was responsible, amounted to 504 ships of 946,598 gross tons.⁽¹⁾

Devoting himself first to problems inside Germany, Kaufmann introduced a number of decrees designed to secure the support of German shipping interests, and to raise the status of the Mercantile Marine. Freights were improved, as were the pay and conditions of service of crews. To these were coupled stringent measures to secure the more rational employment of tonnage. These included complete utilisation of space in each ship, shorter turn-round times by quicker despatch from individual ports; expansion or rationalisation of port facilities including transport services; provision of more port labour and the speeding up of voyage times by reducing the number of ports of call. The small hitherto untouched reserves of deep sea shipping were combed to provide additional tonnage for overseas services.

Danish owners, who by reason of the lenient German policy towards their country, had formerly been able to lay up, or to trade their vessels as suited their interests best, were forced to accept trade on German terms, often to the detriment of Denmark's meagre import programme.

The requisitions of the O.K.M. were reviewed and some 300,000 tons of merchant vessels were returned to the pool for economic purposes.

In an endeavour to achieve the more rapid working of deep sea tonnage, small craft of all kinds, including large

(1) The overall position of the German Mercantile Marine at this time i.e. 1 June 1942 was:-	
German tonnage including prize ships	3,593,231
German shipping disposed in Mediterranean	285,189
	<hr/>
Requisitioned by O.K.M.	3,308,042
	2,100,457
	<hr/>
Laid-Up for repair (not available for service)	1,207,585
	<hr/>
	150,000
	<hr/>
	1,057,585
Held in ports overseas	198,692
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	858,893
New construction, salvaged ships etc.	87,705
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	946,598
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numbers from Holland, were pressed into coastwise and distributive services, particularly on the Norwegian coast.

After a lapse of two years, when no new cargo vessels were laid down, hulls of this type began to appear on the slips in Germany. Kaufmann introduced an ambitious scheme, subsequently to be known as the Hansa programme, for the construction of vessels of standard design in the yards of Germany and the Occupied Territories, principally Holland and Belgium. Three quarters of a million tons of these emergency vessels were to be completed by the end of 1945. This block of tonnage would, according to an R.K.S. estimate, be sufficient to offset losses in the intervening period.

Next, Kaufmann turned his attention to Norway, which for strategic and supply reasons was making the largest drain on Germany's existing tonnage resources. Here no less than five separate establishments were competing for tonnage for their several needs. His first step towards the establishment of centralised control was to take over K.M.D. (Kriegs-Marine-Dienststelle) which had hitherto been maintained by the German Admiralty for the transport of maintenance stores for the German Armed Forces. Complete control was achieved in this area by the setting-up of a Norwegian Division of the Reichs-Kommissariat for Schifffahrt, whose representatives were installed in all the main ports, and were made responsible for the handling of all cargo vessels, including those operating for the Wehrmacht.

The question of manning was causing R.K.S. the greatest anxiety and representations were made to the German Naval Command to accelerate the return of seamen who were still being employed in shore-based establishments.

Through the various measures of rationalisation mentioned in the previous paragraphs, there is evidence to confirm that Kaufmann did increase Germany's trade prospects during the period under review, i.e. July 1942 to February 1943. For instance, imports of Swedish iron ore, always a reliable index to the German shipping potential, were the largest for two years and the level of shipping activity on the Norwegian coast was the highest since the German occupation. From this, however, it must not be deduced that all was well for the German Sea Transport programme. To secure the improved services mentioned, considerable sacrifices had been made in other directions, so that other less vital though nevertheless important, trades, had to suffer in consequence. Moreover, Germany still remained dependent on Sweden for the carriage of some fifty per cent of her imports of iron ore - a feature that reacted very unfavourably, later on. Furthermore there was still no replacements and the Allied offensive against her merchant shipping continued to take toll along the whole of the shipping routes in N.W. European waters.

(iv) A decrease in the effectiveness of our offensive

At the commencement of the period under consideration in this chapter, Coastal Command's position in regard to a torpedo striking force for the attack on enemy surface vessels was again woefully weak.

There was no Beaufort Torpedo Squadron left in the Command ⁽¹⁾

(1) The last Beaufort squadron - No.86 - was absorbed into the Middle East Command during August 1942.

and no trained Beaufighter squadron yet available for torpedo operations.⁽¹⁾

The torpedo bomber force in existence within the Command at this time i.e. July 1942, was made up of four Hampden squadrons, two of which had been formed in the Command earlier in the year⁽²⁾ and two had been recently transferred from Bomber Command.⁽³⁾ The whole movement was intended as a stop gap measure to compensate for the despatch overseas of the Beauforts. Though making good progress with their training, the Hampdens could not, on account of their slow speed and unmanoeuvrability, be operated successfully in daylight within any area which was likely to be defended by enemy single seater fighters, unless accompanied by a very strong escort of long range fighters trained to a high standard of efficiency. Such escort could, at this time, only be given by one squadron of Beaufighters⁽⁴⁾ which themselves were already outclassed by enemy single seater fighter types, and as it was beyond the endurance of Fighter Command's aircraft to give escort to the Norwegian coast, the Hampden torpedo force was more or less immobilised before it became fully operational. Therefore, there was little or no possibility of Coastal Command operating an efficient torpedo striking force against escorted enemy convoys except under certain conditions of weather or at night, let alone tackle a major enemy naval force if the Germans decided to move any of their big ships at this time.

The long range fighter strength of Coastal Command was also of a negligible quantity largely owing to the steady drain of aircraft and aircrews imposed by the same demands from the Mediterranean theatre. Apart from the one squadron of Beaufighters mentioned above, another squadron of Beaufighters was employed in the south western approaches on interception duties against enemy aircraft;⁽⁵⁾ a third squadron was out of the line while supplying and training further crews for backing up Beaufighter squadrons already in the Middle East,⁽⁶⁾ and a fourth was rearming and training for the role of torpedo attack.⁽⁷⁾ Two more fighter

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- (1) On 1 June 1942, the provision of Beaufighter torpedo aircraft was made an Air Ministry requirement and on 27 June 1942, No.254 Squadron was selected to receive the first semi-modified Beaufighters for carrying torpedoes. The factors leading up to the adoption of the Beaufighter as a torpedo aircraft are fully explained in Chapter I, section (v).
 - (2) No.415 (R.C.A.F.) Squadron stationed at North Coates had become operational in May 1942, and No.489 (R.N.Z.A.F.) stationed at Thorney Island was still forming.
 - (3) Nos.144 and 455 (R.A.A.F.) Squadrons, under training at Leuchars.
 - (4) Only one squadron of Beaufighter IIs - No.248 - was available to support the Hampdens in the North Sea area; but even this was withdrawn when a large detachment of the squadron was sent to the Middle East on loan for a period of two months, commencing the end of July 1942.
 - (5) No.235 Squadron at Chivenor.
 - (6) No.236 Squadron at Oulton.
 - (7) No.254 Squadron at Dyce.

squadrons were still on Blenheims but very slowly converting to Beaufighters.⁽¹⁾

While this state of affairs applied in particular to the Norwegian coast where the enemy's major naval units were concentrated, conditions in the southern part of the North Sea were not very much different in many respects. In the areas off the Dutch and North German coasts where low level bombing had been recently withdrawn in order to avoid a high casualty rate, the resultant change in bombing tactics, while an adequate bombsight was not available, had proved so relatively ineffectual that it was fast becoming equally costly in comparison with the results achieved. Furthermore the Command's commitments as regards the provision of the aircraft employed in this bombing role i.e. Hudsons, in relation to the available stock, made the continuance of the existing number of squadrons impossible. In stating the case to the Air Ministry on 7 November 1942, the A.O.C.-in-C. pointed out that unless drastic action was taken immediately to rectify the situation a complete breakdown of supply was inevitable by the end of the year. To alleviate the position the A.O.C.-in-C. made some short term policy recommendations by way of the re-equipment of certain squadrons with other types of aircraft, such as Wellingtons, so that the Hudsons thus thrown-up could be used for backing-up the remainder.

CC/S.15090
Encl. 27A

Enemy fighters were also very active in this area and the recent loss of two Beaufighters out of three during one encounter made daylight reconnaissance a rather precarious undertaking.

CC/S.15090
Encl. 1A

The Air Ministry was kept fully informed of the position by the A.O.C.-in-C. from time to time, but while the need for higher performance aircraft for visual reconnaissance and strike purposes was fully recognised, such aircraft were not available for Coastal Command squadrons at this particular time.

Ibid
Encl. 2A

For visual reconnaissance, however, when the information required was considered vital, the A.O.C.-in-C., Coastal Command could use the Mosquitoes of P.R.U., but at other times and until higher performance aircraft were available for Coastal Command squadron, the consequent lower efficiency in visual reconnaissance had to be accepted unless high casualties were to be suffered. In the meantime preparations were made for building-up an efficient strike force as and when the right type of aircraft became available.

(v) The conception of a Strike Wing

Since the introduction of the twin-engined torpedo bomber early in 1940, it had been considered that a composite strike force could be formed which would be capable of operating profitably in daylight against heavily defended convoys so long as it was composed of:-

- (a) Torpedo carrying aircraft of good speed and manoeuvrability.

(1) No.404 Squadron at Dyce and No.143 Squadron at North Coates. An accumulation of A.I. Beaufighters Mk.II made the re-equipment of these two squadrons possible, but only on the understanding that they were not to be employed on operations near or over enemy territory, for fear of their special equipment falling into enemy hands.

CC/S.7001/6/
Plans

(b) Aircraft of similar performance in speed and endurance, adequately armed to provide covering fire during the attack. (This would entail saturation of the enemy's flak defences with cannon fire).⁽¹⁾

To ensure the high degree of synchronisation essential for this type of operation it would be necessary for the crews of this force to be trained and briefed to strike together. This, and the similarity in aircraft performance would provide every chance of the object being achieved. The entire force would also be capable of sufficient speed to enable the single seater fighter of Fighter Command to operate with it in order to afford protection against enemy fighters. As mentioned previously, the aircraft intended for use in the development of the strike force envisaged was the Beaufighter.

CC/S.15090
Encl. 18A

Fully alive to Coastal Command's need for such a striking force, the Air Ministry informed the A.O.C.-in-C. on 24 September 1942 that the suggested re-equipment programme for Torpedo Squadrons based on the aircraft supply prospects, provided for the building-up of a squadron strength of four Hampden and three Beaufighter units by the end of 1942.

It was proposed that the existing Hampden squadrons should be re-equipped with the Torpedo Beaufighter and to form new squadrons with the Hampdens thrown-up.

When a minimum force of three operational Beaufighter Squadrons was in being, it was proposed that the Hampdens should be mainly reserved for night torpedo operations. They could also be used to follow up day attacks by the Beaufighters when attacks in strength were required, and to maintain a high standard of night navigation training it was suggested that the Hampden squadrons might be employed to supplement the mine-laying effort.

After March 1943, it was hoped to build up a Beaufighter Torpedo/Fighter force of five squadrons, and in addition, it might also come within the realms of possibility to build up five pure fighter squadrons.

HQCC/ORB
10.9.42

In view of the urgency in building-up a torpedo striking force, it was intended to introduce the Torpedo Beaufighter in two stages.

During the first stage, only a strictly limited number of semi-modified fighter types would be involved, and these would be delivered to the Command less A.S.V., Radio Altimeters and other small modifications. This stage was already embarked upon and aircraft of this type were now with No.254 Squadron. Sufficient aircraft to equip and maintain three squadrons would come under this heading. Stage two called for a completely revised Torpedo Beaufighter with all the necessary modifications embodied, but this fully modified aircraft could not be expected until the Spring of 1943.

CC/S.15090
Encl. 23A

On 7 October 1942, the A.O.C.-in-C., agreed that the programme proposed would meet the Command's requirements.

(1) Experience in the Mediterranean had confirmed the value of such a composite force. The fact not to be overlooked, however, was that weather conditions in this area made it possible to manoeuvre such a force with ease.

Progress towards even partial operational fitness in No.254 Squadron was very slow, but training continued throughout the summer months with eight aircraft and several runner torpedoes were dropped with promising results.

CC/S.7010/2

Although the original intention was to deploy this squadron in No.18 Group in view of the presence of so many of the enemy's major naval units in Norwegian waters, it was decided by the A.O.C.-in-C. on 10 September, 1942, that the attack of enemy convoys off the Dutch and German coasts had become of cardinal importance. Information from intelligence sources had indicated that the enemy was endeavouring to increase the movement of goods by sea in order to relieve the strain on his land transport system. As the convoys in this area were so heavily defended, low level bombing was out of the question and therefore, torpedo attacks by a composite strike force seemed more likely to be effective than medium or high level bombing. Hence the need to curtail the training of No.254 Squadron in order to put them in the line under No.16 Group as soon as possible, where their training would continue under active operations.

Although the Torpedo Beaufighter squadron was incomplete and not as yet fully trained, and only one diversionary squadron was available, the premiere of the Beaufighter Strike Wing took place off the Hague on 20 November 1942, with the result that the operation turned out to be costly and unsuccessful. Bad weather and inexperience took their respective tolls; (1) three aircraft were lost for only one tug of 449 tons sunk.

CC/S.7010/3/6/1

A complete report of this operation was sent to the Air Ministry by 3 December 1942, and after careful study and analysis the Air Staff stated on 31 December 1942 that although the attack was well conceived it lacked co-ordination and there were several points of procedure that called for remedial action if further operations of this type were going to supply the desired result.

Before the Air Staff comments were known it was appreciated at Coastal Command that the operation had left much to be desired; nevertheless, valuable lessons had been learned and it was considered by the A.O.C.-in-C., that this form of attack would provide the answer to the heavily defended convoy.

It was realised that co-ordination in attack had to be considered in terms of seconds in time. Careful briefing, good leadership, a very high standard of air discipline and skill in attack, close liaison with the fighter escort, were all essential qualities to be acquired before the composite force could hope for success.

The squadrons concerned i.e. No.254 Squadron and No.236 Squadron were duly withdrawn from the line to embark upon an intensive period of training. During their absence from the line of five months No.254 Squadron received new aircraft i.e. Beaufighter X, and No.143 Squadron joined the Wing after

(1) The vessel concerned was Indus (tug) - Dutch - 449 gross tons.

re-equipping with Beaufighter XI.(1) Emerging from the training period as the North Coates Wing in April 1943, they quickly proved to the satisfaction of all concerned that their training had not been in vain.

(vi) Beaufighter re-equipment position - December 1942/
February 1943

Meanwhile progress towards the target figure of four Hampden squadrons and three Torpedo Beaufighter squadrons, mentioned in the planned re-equipment programme for the torpedo strike force, was proceeding very slowly. The four Hampden squadrons were formed and operating but only under certain favourable conditions; the Torpedo/Beaufighter contingent, however, was far from complete.

D.O.N.C.
AHB/IHK/
67/520

On 31 December 1942, No.254 Squadron was still down on aircraft. Twenty new Torpedo/Fighter Beaufighters were available and were in process of delivery. Bad weather had been holding up supplies. The eight or so aircraft of their original equipment had been sent to Castle Kennedy as initial equipment for the Beaufighter Torpedo Training Unit.

A further twenty Beaufighter Torpedo/Fighter aircraft were shortly becoming available but it would be at least the third week in January before they could be passed through the Maintenance Unit for fitting of equipment and be delivered to a Unit.

Action was already in hand at the Air Ministry to form a second Beaufighter Torpedo Squadron. It was intended to form this squadron from a Hampden squadron in order to get it operational as soon as possible.(2) Since one Beaufighter squadron would undoubtedly be required to proceed overseas as soon as the second was operational, it was proposed to reform the Hampden squadron in order to maintain the strength of Coastal Command's Torpedo Force.

Sufficient Beaufighter Torpedo/Fighter aircraft to equip a third squadron were not now expected to be available until April 1943.

The position in regard to the re-equipment of the long range fighter squadrons with Beaufighters was a little more

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- (1) To clarify the position of Beaufighter nomenclature, which was becoming rather complicated at this time the Air Ministry issued the following information:-
- (a) The existing Beaufighter VIc aircraft with Hercules VI engines modified retrospectively for torpedo operations would continue to be known as VIc until Hercules XVII engines were fitted when they would become Beaufighter T/F Mark X.
 - (b) The Beaufighter aircraft equipped on the production line for torpedo operations and fitted with Hercules VI engines would also be known as Beaufighter VIc until Hercules XVII engines were fitted retrospectively when they would become Beaufighter T/F Mark X.
 - (c) The Beaufighter VIc aircraft equipped for the long range fighter role would become Beaufighter Mark XIc when Hercules XVII engines were fitted.
- (2) No.144 Squadron was selected for re-equipment with Beaufighter T/Fs. The A.O.C.-in-C. estimated that it would take three months to equip and convert a Hampden T.B. Squadron to Beaufighter Torpedo Fighters.

SECRET

404

satisfactory for there were five squadrons already in existence by the end of January 1943, but some of the squadrons were in need of a more up-to-date version of the Beaufighter.

CC/S.15090
Encl. 67A

On 17 February 1943, the A.O.C.-in-C. requested the Air Ministry to urgently consider the re-equipment of two squadrons i.e. Nos. 143 and 404 Squadrons both of which were armed with Beaufighter Mk.IIF, a type of aircraft which had unquestionably proved itself too slow for the role of co-operating with the Mks. VIc and X in attacks upon enemy shipping in the North Sea and the Bay of Biscay areas. Moreover, as the Beaufighter II was not wired for W/T it could not be employed to the full extent of its range. It was requested, therefore, that approval be given for the two squadrons in question to be re-equipped with Beaufighter Mk.XIc, immediately sufficient aircraft were available. By 26 February 1943, the Air Ministry had given their approval for the re-equipment of the two squadrons in question, but it was pointed out that this could only be achieved at the expense of the other long range Fighter squadrons in Coastal Command that were awaiting the installation of the Hercules XVII engines.

Tbid
Encl. 69A

(vii) A combined Bombing and Torpedo Force for the Bay of Biscay

Although the expansion programme in respect of a torpedo force for the North Sea was behind schedule it was clear that the foundations for the development of an efficient striking force for this area had been well laid and would bear fruit in due course, but the question of a long range torpedo bomber to tackle the well-armed enemy blockade runner in the Bay of Biscay area was as yet unsolved.

The activities of these blockade runners during the late summer of 1942, had focussed attention on the need for a long range torpedo strike, especially as there was no suitable aircraft in existence with the necessary endurance capable of carrying out this role efficiently.

CC/S.15090
Encl. 17b

It was the intention of the Air Ministry at some future date to replace the Hampden in part by Wellington Torpedo Bombers as well as the Beaufighter Torpedo Fighter. The supply position of the Wellington was not so favourable at this time, i.e. September 1942, so its distribution for the torpedo role had been deferred for a subsequent expansion scheme in the Spring of 1943. However, the urgency of finding a suitable long range type to tackle the blockade runner prompted the Air Ministry to decide on 26 October 1942 to prematurely form No.547 Squadron in Coastal Command for this role. The initial establishment was to be 6 + 2 Wellington VIII/A.S.V./T.B. The personnel required to man the squadron were to be found at the expense, half from Coastal Command and half from overseas.

CC/S.15090
Encl. 41A

In view of the requirement that the squadron was to provide a striking force of eight aircraft the A.O.C.-in-C. applied to the Air Ministry on 10 January 1943 for the transference of six G.R./T.B. Wellingtons from another squadron which was in the process of being re-equipped with Leigh Light Wellingtons, in order to permit No.547 Squadron to meet the above commitment and also as a step in building up this squadron to full strength from one flight. This proposal also involved an increase in the existing maintenance personnel, crews, etc. The Air Ministry's approval to the consequent amendments to the establishment was requested.

From the Air Ministry's reply on 23 January 1943, it appeared that the Wellington supply position was acute. The formation of No.547 Squadron prematurely, and the necessity for re-equipping No.407 Squadron (ex Hudsons) had severely dislocated the balance of distribution between operations and training. Consequently the six G.R./T.B. Wellingtons made available through the re-equipment of another squadron with Leigh Light Wellingtons would be absorbed in O.T.U.s. It would not, therefore, be possible to increase the establishment of No.547 Squadron in any respect.

A.H.B./IIK/
67/841
Encl. 5A

This decision was in the nature of a mortal blow to the A.O.C.-in-C's. scheme for the employment of a Combined Bombing and Torpedo Force for the Bay of Biscay. The suggested method was for No.547 Squadron to be brought up to full strength so as to be capable of operating by day and night. To operate by day with a bombing force provided by No.311 (Czech) with Mark XIV bomb sights, accompanied by Nos.235 and 248 long range Beaufighter Squadrons; to operate by night with a special A.S.V. shadowing force provided by No.502 Squadron (Whitleys) or No.59 Squadron (Liberators).

No.547 Sqdn.
O.R.B. Dec.1942
to May 1943

Although No.547 Squadron became operational on 30 December 1942, it was not in the role intended; only one sortie was made by a single aircraft in search of an enemy tanker in the Bay of Biscay without result. Soon after the squadron moved to Tain for training exercises, and carried out Torpedo dropping during February and March. However, it was not destined for the torpedo role for long, because after several desultory operational attempts, torpedo dropping was abandoned in view of the urgent call for more aircraft for anti-U-boat duties during the summer of 1943.

(viii) The Aircraft Torpedo Attack Committee

D.O.N.O.
A.H.B./IIK/
67/511

As a result of discussions between C.N.S. and C.A.S. it was decided on 11 June 1942, to set up, under the chairmanship of the A.O.C.-in-C., Coastal Command, a joint Admiralty/Air Ministry Committee⁽¹⁾ with terms of reference⁽²⁾ extending to all problems of aircraft torpedo attack both in the R.A.F. and the F.A.A.

(1) The composition of the Committee was as follows:-

<u>Air Ministry</u>	<u>Admiralty</u>
Assistant Chief of Air Staff (Operations)	Assistant Chief of Naval Staff (Weapons)
Assistant Chief of Air Staff (Training)	Rear Admiral Naval Air Services
Director of Bomber Operations	Director of Naval Air Division
Director of Naval Co-operation	Director of Air Co-operation Division
Deputy Director of Naval Co-operation (Torpedoes)	Director of Training and Staff Duties
Deputy Director of Air Tactics	

M.A.P.
Sir Henry Tizard

(2) The terms of reference were:-

- (1) To recommend matters for research and development in the technique of torpedo attacks by aircraft against ships.
- (ii) To review all developments in the technique of torpedo attack, including enemy developments.
- (iii) To make recommendations regarding the adoption for operational use of new developments.
- (iv) To consider special equipment required for torpedo attacks and to make recommendations as to its adoption.
- (v) To consider and make recommendations for the future type of aircraft suitable for torpedo attack, both in the R.A.F. and F.A.A.
- (vi) To consider and make recommendations on the principles to be adopted in the training of aircrews of torpedo aircraft.
- (vii) To consider and make recommendations on the tactics to be employed in torpedo attacks, including their relation to other diversionary attacks.

D.B.Ops.
S.3712 Minute

D.O.N.C.
A.H.B./IHK/
67/511
1st Mtg.

Hitherto the problems relating to torpedo attack had been excluded from the studies of the Bombing and Air Fighting Committee, but had been introduced intermittently into discussions at the Air/Sea Interception Committee meetings to the detriment of that committee's functions, as the subject of torpedo attack was outside its terms of reference. To fill the gap and to apply all possible pressure for increasing the efficiency of torpedo aircraft and crews, the Aircraft Torpedo Attack Committee was formed. At its first meeting, held on 30 July 1942, the terms of reference were discussed and it was agreed that this Committee should confine itself to torpedo attacks and its various manifestations. At the same time it was appreciated that it could not ignore other related forms of attack, and as some members already attended the other committees dealing with those methods of attack it would not be difficult to establish a link between the various committees dealing with the technique of ship attack.

The provision of torpedo training facilities was next considered and it was learned that a limited amount of training for shore based aircraft had been carried out at Tain,⁽¹⁾ but lack of certain items of equipment had held-up matters. For carrier-borne aircraft Fearn was to be the training establishment although actual training had not yet started. The lack of a target ship was stressed at this stage and an Admiralty representative promised to investigate this matter further and report at the next meeting.

The equipment necessary for successful torpedo attack was discussed next and it was agreed that:-

- (i) A.S.V. was essential.
- (ii) A sight of some kind was necessary.
- (iii) A radio altimeter was desirable, but any hold up of the Beaufighter effort for torpedo work by attempts to fit radio altimeters was unjustified.
- (iv) Either dive brakes or tail parachutes were required for making attacks from the greater heights expected in the future.

A technical sub-committee consisting of D.O.R., D.N.A.D., and a representative of Coastal Command was appointed to examine equipment problems in more detail.

Before the meeting was concluded various members laid particular stress on the importance of improving arrangements for the collection and co-ordination of information regarding the technique, equipment and tactical employment of torpedo aircraft, both in our own and in other Air Forces⁽²⁾ and a standing Sub-Committee on this subject was set up under the chairmanship of D.O.N.C.

Ibid
6th Mtg.

This inaugural meeting of the Aircraft Torpedo Attack Committee was followed by five others at monthly intervals but

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- (1) The purpose of Tain was defined as a station where first line Squadrons would be sent to receive higher education in Torpedo work.
 - (2) The incompleteness of existing information on the United States methods of torpedo attack and the Japanese torpedo operations against U.S. forces, came in for particular criticism.

A.H.B./IHK/
67/512

at the sixth meeting on 19 January 1943, the Admiralty submitted a paper recommending the formation of a small ad hoc committee to link up the work of the existing main committees on questions affecting attacks on warships and merchant ships. It was suggested that representatives of the United States Air Services should be invited to attend from time to time. After discussion it was agreed that A.C.N.S.(W)., A.C.A.S.(Ops.) and A.C.A.S.(TR) should carry out an examination of all existing bodies which dealt with attacks on ships with a view to co-ordinating their activities. The outcome of this enquiry was that the Aircraft Torpedo Attack Committee was absorbed into the Aircraft Anti-ship Committee, and therefore, held no further meetings after the sixth.

A.H.B./IHK/
67/511
Minutes of 1st -
6th Mtg.

Throughout its seven months existence the Aircraft Torpedo Attack Committee conscientiously examined all matters relating to the provision of equipment necessary for torpedo attack and the training of aircraft, and many recommendations for development in technical and tactical matters were made to the Torpedo Development and Coastal Command Development Units. In addition some forty memoranda on tactical matters were issued during the Committee's lifetime of which A.T.A.C. No.14, 'Tactics of Aircraft Torpedo Attacks' became the acknowledged authority on the subject throughout the R.A.F. A copy of this paper will be found at AppendixXXXI.

(a) Torpedo training facilities

Ibid
1st - 6th Mtgs.

On the subject of torpedo training facilities, the committee kept a very watchful eye and everything possible was done to expedite the provision of requirements to bring about a standard of full training. The Committee, however, did not last long enough to witness the fruits of their labours in this direction, for delays in the erection of buildings to house the training equipment and the personnel to man it, and the lack of certain items of equipment, including the provision of target and recovery ships in sufficient numbers at the right time, made progress very slow.⁽¹⁾ Although it was apparent that the action taken would ultimately bring about satisfactory results, a status of full training facilities at Tain had not been achieved by February 1943.

(b) Torpedo sights

Ibid
1st - 3rd Mtgs.

Another matter to which the Committee directed special attention was the provision of a torpedo sight.

In August 1942 there were three techniques which could be employed for torpedo sighting:-

- (i) Straight running - in which the torpedo runs straight through the water in the same direction as that in which it was dropped. A sight has to be used to solve the velocity triangle.
- (ii) Gyro Angling - which involves dropping the torpedo aimed straight at the middle of the target, but as soon as the torpedo enters the water a mechanism comes into play which turns it through a predetermined angle,

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- (1) On the provision of target ships strong representations were made to the Air Ministry on 23 January 1943, for the needs to be met, failing which it would be impossible to bring the squadrons to the required standard of efficiency.

to effect interception. A computer is required to determine the angular setting on the torpedo.

- (iii) Constant bearing - which caused the torpedo, after release, to maintain a constant bearing relative to the target, both during the flight in air and run in water. This requires both aim-off and gyro angling devices.

Of these techniques the only one in use by the R.A.F. at this time was the straight running method.

Experience so far, especially in the Mediterranean, had proved that aircraft fitted with sights obtained better results than when no sights were used. This was the case in spite of the fact that the type of sight fitted to Swordfish aircraft, for instance, was a somewhat crude affair.

The Admiralty had already done a considerable amount of experimental work on sights and had developed the Type F Director, which was as yet untried in operations. In August 1942, it was being fitted to Barracuda aircraft for tactical trials and it was estimated that these would take at least two months.

For the purpose of discussing future torpedo sighting policy a special meeting was held at the Air Ministry on 31 July 1942 under the chairmanship of D.D.O.R.(II), at which the Admiralty was represented by D.N.A.D.

From the minutes of this meeting the existing position with regard to torpedo sights for the R.A.F. appeared to be that a travelling lamp and mirror device known as the R.A.E./R sight had been satisfactorily fitted to a number of Hampdens, Beaufighters and Wellingtons; and a moving mirror sight, designed specially for aircraft which had sloping wind screens, had been installed in some Wellingtons and was considered satisfactory, although not as good as the R.A.E./R sight. There was also a very simple form of aim-off sight which had been recently conceived by the R.A.E., but no trials had as yet been held. The virtues of the sight were that it was inexpensive, easily produced and practically free of parallax errors due to the movement of the pilots head, also the design lent itself more readily to installation in aircraft with awkward shaped windscreens. An offer by a representative of R.A.E. at this meeting to make up some of the sights quickly for trial was readily accepted, and in point of fact the subsequent trials gave promising results.

No attempt had been made so far to instal the Type F Director in R.A.F. aircraft although there was an operational requirement for its installation in the successor to the Beaufort.

The conclusions of this meeting were that future torpedo sighting equipment was dependent on:-

- (i) Results of Naval trials with the Type F Director, and
- (ii) the ability to produce an interim computer to satisfy the straight running and gyro angling techniques.

In the meantime since the simplest form of sight was better than no sight at all, it was recommended that existing aircraft should continue to be equipped with the sight most suitable for installation in each particular type although

they committed the aircraft to straight running technique. The urgency of providing each torpedo aircraft with the most appropriate sight at the earliest possible moment, was heavily stressed.

(ix) Bomb v Torpedo

Ever watchful for the opportunity of gaining a tactical advantage, all forms of attack were under consideration at this time, in the quest of a possible solution to the problem of combatting, economically, the heavily escorted convoy.

A.H.B./IHK/67/511
A.T.A.C. Mtg.
No. 5.

A controversy was started by the Aircraft Torpedo Attack Committee on the subject of the comparative effectiveness of bombs and torpedoes, in which the help of Coastal Command Operational Research Section was sought.

CC/S.16534
O.R.S. Report
No. 212

In due course a report was issued by O.R.S. on 'Air Attack on Merchant Vessels' and the conclusions reached were:-

- (a) That bombing attacks on merchant vessels were, on the whole, more effective than torpedo attacks and could be made more so in certain areas by the use of the Mark XIV bomb sight.
- (b) Medium level attacks (4,000 feet) against merchant vessels with light flak were economical in casualties and would be more effective if the Mark XIV sight was used.
- (c) 500 lb. M/C bombs appeared satisfactory in use.

Generally speaking, the Report did not take into account, sufficiently, the effectiveness of enemy air patrols in the neighbourhood of his convoys, for example, the reference to the dislocation of convoys on the Dutch coast must be conditioned by the ability on our part to provide the bombers with Fighter escort in daylight attacks. Night attacks would always suffer from the difficulty of illuminating the target on dark nights to an extent which would permit the use of a sight. It was interesting to note that there was little difference in the effectiveness of torpedo attacks at home and abroad but the casualty rate at home was appreciably higher.

CC/S.16534
Encl. 87A

The A.O.C.-in-C., Coastal Command agreed with these conclusions and informed the Air Ministry on 29 December, 1942, when forwarding a copy of this report, that steps were being taken in his Command to develop the types of attack recommended, but it was considered that a panel of O.R.S. representatives should examine the report in detail with a view to making recommendations both to Coastal Command and the Commands abroad.

ibid.
Encl. 95A

After studying the Report, the Air Ministry replied on 29 January 1943, and suggested that it was rather premature to accept the conclusions reached in this report as forming the basis of guidance to Commands generally.

It had clearly been established in the investigations by the Torpedo Attack Committee that, in the period under review i.e. March 1941 to September 1942, the torpedo had been inexpertly employed, the standard of training was not high and many squadrons had no efficient sighting equipment. More recent results had suggested that, with higher standards of tactical and technical efficiency, great improvements could be made. It was considered to be too early to say, on the

basis of information contained in the report, that bombing attacks on merchant vessels were necessarily more effective than Torpedo attacks.

As regards bombing attacks, the Bombing Committee had reviewed the experience gained in the low level attacks during 1941 at their 26th and 27th Meetings. Both the future use of the Mark XIV bombsight and the 500 lb. M.C. bomb were referred to at the latter meeting and it was agreed that experience with their employment would be needed before any firm conclusions could be reached on the extent to which they would enable earlier tactics or results to be modified or improved upon. Service trials with the Mk. XIV sight were being undertaken by the Bomber Development Unit against moving targets, but it was still too early to say what degree of success would be obtained. It was noted by the Air Ministry that the A.O.C.-in-C., proposed to develop the types of attack recommended in the report, but it was accordingly felt that, until some practical operational experience in the attack of merchant vessels with the sight in Coastal Command was gained, no firm conclusions should be drawn as to its value in making medium level attacks (4,000 feet) more effective and economical.

In conclusion it was pointed out by the Air Ministry that the tactical and technical aspects of these matters were continuously under review by the Air Staff, and the effectiveness of different weapons and methods of attack were constantly being studied in the fortnightly meetings of the Anti-Shipping Assessment Committee. The proper authority to consider and make recommendations on these issues was the Bombing Committee. As soon as sufficient information was available to justify the reconsideration of current doctrine and the possible issue of fresh guidance to the Service, a meeting of the Bombing Committee would be convened for the purpose.

(x) The "B" Bomb

A lesser known weapon still in the development stage which had always been regarded hopefully as an anti-ship device was the "Buoyant" Bomb.

It was now thought likely that the change in tactics recently forced on us, by the casualties sustained in low level attacks, would react in favour of the tactical limitations⁽¹⁾ of the "B" bomb, and thus permit its use against enemy merchant vessels.

The development of the "Buoyant" Bomb has been dealt with in detail in the Armament Monograph Vol. I, Chapter II.

Its conception began to take practical shape in 1923, but after some sixteen years of experiment and labour, the original design was completely abandoned and work began afresh on an entirely new model.

The primary object of the "B" Bomb was to attack the bottom of a ship, which had been regarded up to now as generally immune from bombing attacks.

The device was a self contained and truly buoyant component

(1) The limitations of the Mk. III "B" Bomb issued in June 1942 were that the height of release was to be 1,000 to 4,000 feet and freezing conditions were to be avoided.

fitted with sensitive horns, rather like a mine, which it was intended to drop at a certain distance ahead of a ship so that it would come up, after an interval, and strike the bottom. It was never intended that the bomb should hit the ship directly from the air as in the case of all other bomb types. The principle of detonation after a fixed delay was abandoned early in the development stage; the bomb was to explode on contact with the ship.

H.Q.C.C./ORB
23 June 1942

During the early summer of 1942, approval was received from the Air Ministry for operational trials to be undertaken and instructions to that effect were issued to the Air Officers' Commanding Nos. 16 and 18 Groups. Three hundred and fifty bombs were available and it was proposed by Coastal Command that six Hampden crews should be trained in the tactics to be adopted.(1)

A.T.A.C.
No. 40

The first interim Tactical Instruction on "B" Bombs was issued by H.Q.C.C. on 9 July 1942. Various trials were carried out and on 4 August 1942, Coastal Command Tactical Memorandum No. 37 was issued; this memorandum gave suggested tactics for the use of "B" Bombs.

After intensive "B" Bomb training, six crews of No. 415 Squadron in Hampdens carried out some operations against shipping off the Dutch coast,(2) from medium levels (4,000 feet) and shallow dives, releasing the bombs from 7,000 feet. Observation of the actual results was very difficult, but from postwar records it is now known that no damage or sinkings resulted from any of the attacks made.

A.T.A.C.
No. 40

Owing to operational commitments, no further developments continued throughout September; however, in October further trials were requested by the Air Ministry, for level pattern bombing in formation and for dive bombing attacks from 7,000 to 3,000 feet. These were to be carried out by Beauforts at R.A.F. Station, Tain. However, owing to unserviceability and the slowness of fitting dive brakes, no such trials were carried out.

On 29 October 1942, a report was received at H.Q.C.C. from No. 18 Group on the medium level bombing trials which had been carried out by the Hampdens of No. 489 (R.N.Z.A.F.) Squadron. These trials had shown very good results, thirty-six bombs having been dropped from an average height of 4,000 feet, the distance from the target of each stick of four was constant. When operational commitments allowed this squadron would carry out further trials.

Owing to the closing down of C.C.D.U. at Tain, the Beaufort dive bombing trials were transferred to Turnberry and were completed early in December.

Results of these trials were as follows:- Six dive bombing attacks were carried out, which gave an average error of up to 250 yards from the point of aim. Medium level practices were also carried out by the same crews from 4,000 feet using the Mark IX C.S.B.S., which gave an average error of up to sixty yards.

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- (1) No. 415 (R.C.A.F.) Squadron was selected for this role.
 - (2) During July 1942; 28 x 250 lb. Mk.III "B" Bombs were released in operations, representing seven attacks.

No definite conclusion seems to have been reached as to whether or not dive bombing was a good thing. It was concluded that reasonable accuracy could be obtained under 1,000 feet, but above this and even with exceedingly steep dives of, say, seventy to eighty degrees, accuracy was poor, except with exceptional crews. These remarks only bore out what was already known through extensive trials carried out some years earlier with dive bombing tactics.

The trials resulted in an operational requirement being put up for a dive bomb sight, which, however, has never been satisfactorily completed.

A.H.B./IHK/67/511
6th Mtg.

The Aircraft Torpedo Attack Committee gave a fair proportion of their time to furthering the development of the "B" Bomb, and at their final meeting on 19 January 1943, agreed that until the Mk. XIV sight, with its increased accuracy was available, the "B" Bomb would be of no use.

(xi) The "Channel Stop"

In an Air Ministry directive dated 22 April 1942, it was clearly laid down that Fighter Command would be responsible for the attack of enemy shipping by day and night in the area Ostend-Manston-Beachy Head-Dieppe, but the unsuitability of the Hurricane Bomber for night work, except on moonlight nights, made it necessary to introduce other forces into the area which could operate on dark nights, especially in view of the fact that hostile shipping in the Dover Straits invariably moved during the hours of darkness.

CC/S.15213
Encl. 117A

It was the threat of a resumption of enemy E-boat activity in the Channel area at the beginning of July 1942, ⁽¹⁾ which prompted the Admiralty to place on trial in the Channel area some Albacores of the Fleet Air Arm to supplement, on dark nights in particular, the effort of the Hurricane Bombers. The Albacores were armed with 100 lb. bombs for E-boat strafing and by virtue of the fact that they were fitted with V.H.F. made them eminently suitable for vectoring on to a target. As Fighter Command was the controlling authority of the G.C.I. stations in this area, it followed automatically that they were placed under their control via No. 11 Group.

ibid
Encl. 129A

Due to the fact that the E-boat menace faded out ⁽²⁾ the Admiralty gave permission on 31 August 1942, for the Albacores to be used in the secondary role of shipping strikes, and some three weeks later provided additional forces in the way of twelve more Albacores for this role.

ibid
132A
ibid
131A and 135A

In addition to this force of Hurricane Bombers and Albacores under the control of No. 11 Group, light surface vessels of the Royal Navy also operated in conjunction with aircraft of Coastal Command; the latter in the role of flare dropping to illuminate the target. For this purpose of co-operating with Naval forces as well as the Hurricane Bombers, Coastal Command had two Hudsons fitted with V.H.F. equipment and proposed on 19 September 1942, that they should be controlled by the C.H.L.s at Black Gang and Swingate. ⁽³⁾ In this respect, however, Fighter Command could not see their way clear to accept this additional commitment in view of the striking forces already made available.

- (1) On 28.6.42, the 2nd and 4th Flotillas of the German E-boat arm arrived at Cherbourg, preparatory to operations in the Channel area. It was intended to make torpedo attacks on the PW and WP convoys with Luftwaffe support. This plan was not carried out until 6.7.42, but failed at the first attempt as there was no communication between the flotilla leader and the aircraft. Two nights later the plan was repeated and was regarded by the Germans as highly successful. Six ships totalling 12,356 tons were sunk by E-boats in Lyme Bay. No further torpedo attacks were made in the Channel area during July, but 180 mines were laid by E-boats on the convoy routes. (Ref: Admiralty NID/FDS.X.237/48).
- (2) On the 4th August, 1942 the Senior Officer E-boats reported to the naval command Group West that a repetition of the torpedo attacks on the West Channel convoys no longer promised success as the element of surprise was now lost. "The goal of E-boat policy must be the thrustful re-entry of strong E-boat units in the Hoofden (the Southern North Sea area)." Proposals for the redistribution of E-boat flotillas so that this policy could be implemented were suggested but were not wholly approved by Group West. However, the first torpedo attack of a new offensive against the East Coast convoys took place on the 17th August 1942. Ref: Admiralty NID/FDS.X.237/48.
- (3) Black gang is just west of St. Catherine's Point (I.O.W.) and Swingate is just west of S. Foreland - Kent.

ibid
142A

ibid
147A

The control of this heterogeneous force for the destruction of enemy shipping in the Channel area, appears to have got out of hand by the early Autumn, and in order to straighten matters out it was necessary to call a meeting on 19 October 1942, which was attended by representatives of the C.-in-C., Portsmouth, R.A.N.A.S., Fighter and Coastal Commands. It was stated at the commencement that it was desirable for the C.-in-C. Portsmouth to deal with only one authority when requesting air attacks on enemy shipping.

The outcome of this meeting was a temporary agreement on the following lines:-

(a) The Albacores were only suitable for attacks on light surface craft in mid-channel and near the English coast and the C.-in-C., Portsmouth would request No. 11 Group (F.C.) for attacks on this type of craft only. (Informing No. 16 Group (C.C.) of the action taken.)

(b) All requests for attacks on enemy important units and shipping other than that at (a) would be made to Coastal Command.

(c) If both contingencies arose at the same time C. in C. Portsmouth, would decide in consultation with H.Q., C.C. which was to have priority.

ibid
149A

The A.O.C.-in-C., Coastal Command, whose views on divided control in maritime operations were almost universally known, was not very happy about the position and in conjunction with the A.O.C.-in-C. Fighter Command held a further meeting on the subject at H.Q., C.C. on 30 October 1942. After much discussion, it was made clear that it would be very difficult to introduce Coastal Command control in the particular type of anti-shipping applicable to the Dover Straits area as in the first place Coastal Command had no facilities by way of a G.C.I. Station; secondly, a suitable torpedo striking force was still lacking, and thirdly, in such a congested area the risk of Fighter Command intercepting their own aircraft would be very considerable if they were not all under the same control. Furthermore, Fighter Command was closely connected with other activities within this area.

The A.O.C.-in-C., Coastal Command stated that dual control in these narrow waters was most undesirable and suggested the alternative would be for Fighter Command to assume the entire direction of anti-shipping work in this area. The A.O.C.-in-C., Fighter did not think this was necessary; all that was required was for Coastal Command to make use of Fighter Command facilities. The organisation worked quite well as far as it went, but the arrangements needed completing to meet all requirements. It was recalled that the Shipping Interception Unit had achieved this co-ordination of effort until the Beauforts had been sent overseas.

It was finally agreed that a concerted drive should be made to obtain an anti-shipping strike force as it was essential that we should be in a position to meet any enemy force which might break through the channel by day or by night.

The controversy over the control of aircraft in the Channel area did not, however, obscure the value of the Albacore detachment. It was in fact agreed by the two Commanders-in-Chief that the Admiralty should be approached to allow these aircraft to remain in the area on a permanent

basis as a striking force against the smaller type of enemy vessel, and for locating and shadowing only the larger vessels which might, from time to time, attempt the passage of the Dover Straits by night.

ibid
Encl. 159A

A letter to this effect was despatched to the Under Secretary of State for Air on 5 November 1942, who in turn communicated this request to the Admiralty. The Air Ministry in their letter dated 16 November 1942, referred to the good work done by the two squadrons of Albacores located at Manston and Tangmere, and in conclusion pressed for their retention until such time as the need for this special arrangement no longer existed.

ibid
Encl. 181A

In a reply dated 3 December 1942, their Lordships expressed regretfully that the Albacores with Fighter Command must continue to be regarded as a temporary loan and pointed out that these aircraft became temporarily available for their present duty only because of the re-adjustment of the Fleet Air Arm Squadrons in the ~~Torch~~ ^{French} North Africa operations.

In an effort to mitigate the impending loss of these two squadrons the Air Ministry suggested that in view of the importance of the duties on which these aircraft had been employed, the possibility of utilising Swordfish aircraft instead might be examined.

The Admiralty agreed to this suggestion and informed the Air Ministry on 13 January 1943 that R.A.N.A.S. had been requested to investigate in conjunction with No. 11 Group the possibility of fitting Swordfish aircraft with V.H.F.

In the meantime the Albacores remained under Fighter Command control and continued to participate in controlled interceptions at night, against E-boats and other enemy shipping, particularly in connection with the "Channel Stop", until their withdrawal in mid-summer 1943.

(a) Operations - July 1942 to February 1943

FC/S.22179
Encl. 58A and
FC/ORB
July 1942

In respect of enemy movements generally in the Dover Straits area, no large vessels made the passage in either direction during the month of July, which was the quietest for some time.

There was, however, some escorted coastal traffic, as usual by night, and this was variously attacked.

The best target was a 270 foot coaster with escort, west-bound from Dunkirk to Boulogne on the night 7th/8th. Weather suited the enemy; possibly by design, in that British coastal craft were unable to operate. Coastal artillery, however, fired thirty-three rounds from the South Foreland 9.2 inch batteries, without result. On the following night when the vessel continued "down channel" a Boston aircraft of No. 418 Squadron attacked her with 4 x 250 lb. bombs, and claimed near misses. (1)

Four Hurricane bombers of No. 174 Squadron successfully found a target during moonlight on the night 25th/26th, despite the handicap of Swingate C.H.L. suffering enemy interference.

(1) There is no confirmation of damage to any enemy shipping in the Channel area on this date, in postwar records.

All aircraft dropped their bombs from low level and claimed that the target was left on fire.(1)

Four enemy torpedo boats went through from Dunkirk to Le Havre at 30 knots on the night 15th/16th, but proved too difficult a target on a dark night and low visibility, owing to their speed. Light naval forces were unable to sight the enemy though at one stage our forces appeared well placed.

The ~~final encounter~~ of the month in the "Dover Straits" area was ~~again~~ by a force of four Hurricane bombers of No. 174 Squadron which attacked shipping N.W. of Calais on 29 July 1942 and claimed to have seriously damaged a vessel of 300 tons. The Assessment Committee ~~confirmed~~ this claim.(2)

allowed/

In the area Ostend - Dover - Beachy Head - Dieppe, a total of 411 sorties were flown by aircraft under the control of Fighter Command during the month, and wastage among the aircraft concerned was two.

ibid
Encl. 62A and
FC/ORB
Aug. 1942

During August enemy shipping movements showed a tendency to increase and four ships of varying importance made the eastward passage, all during the moonless nights. In addition to minesweeping and patrol activity, there were also a number of night passages by tugs and barges.

The enemy vessels were as strongly escorted as ever and, despite the attacks of our light naval forces being made with the greatest determination and being varied in form to include an approach under the enemy coast, the M.T.Bs. were seldom able to reach an attacking position. The sinking of one escort vessel by torpedo, was all that could be claimed by the light naval forces throughout the month,(3) for the loss of three M.T.B's. Casualties to naval personnel were numerous and included two experienced Commanding Officers.

Air attacks on the larger vessels making the eastward passage were not made for lack of suitable aircraft to operate during the dark nights.

Hurricane bombers of No. 174 Squadron under Swingate control made attacks on coasters and trawlers and other light surface craft on three nights of the moon period. Results were difficult to observe. From postwar records, however, there is no evidence of any damage having been sustained by enemy shipping during these attacks.

The two successes credited to Fighter Command during the month were achieved by a force of eighteen Spitfires of No. 91 Squadron which attacked some trawlers S.W. of Boulogne on 19 August 1942 and claimed to have left one vessel hidden by smoke. For this attack the Assessment Committee made an award of damage.(4)

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- (1) There is no confirmation in postwar records to substantiate this claim.
 - (2) Postwar records do not confirm this.
 - (3) This claim is confirmed by postwar records. The vessel concerned was a German R - boat No. 184 of 90 tons sunk off Calais on 16 August 1942.
 - (4) Postwar records reveal the loss of two small ships between Boulogne and Dieppe on this day. The ships concerned were Franken (Trawler) - German - 435 gross tons.
Franz - German - 159 gross tons.

A total of 351 sorties were flown on behalf of the "Channel Stop" commitment during August, and once again the casualties among the aircraft involved, numbered two.

ibid
69A and
FC/ORB
Sept. 1942.

The early part of September saw four sizeable enemy ships make the eastward passage of the Dover Straits. The adoption by the enemy, in August, of an entirely new plan of laying shallow contact minefields in mid-channel led to the belief that an increase in traffic was to be expected. After 10 September, however, the traffic consisted only of mine-sweepers, small warships or groups of tugs and barges. The cessation of larger traffic coincided with the waxing of the moon as well as a period of rough weather. The tendency to avoid moonlight periods when aircraft attacks were the more dangerous had been previously observed.

Placing some reliance, no doubt, on this defensive minefield, the enemy's escorting forces were observed to be less powerful than of late.

Of the four ships mentioned above, two passed through in convoy on the night of 4th/5th and the third of the night of 6th/7th. In both cases strike forces of Hudsons and Swordfish aircraft from No. 16 Group, Coastal Command⁽¹⁾ made various attacks with bombs and torpedoes, but the enemy ships escaped damage.

Several reconnaissances and attacks were carried out by Albacore aircraft of No. 841 Squadron, Fleet Air Arm, whose original anti-E/R-boat role had now been extended to cover all enemy shipping especially during the dark periods when the Hurricane bombers were restricted in their operations. Their activity was mainly to the southwestward of Boulogne where the shipping route diverges from the protection of the coastal anti-aircraft batteries. One attack was made on two westbound torpedo boats, accompanied by an E-boat, and another later the same night (15th/16th), on two coasters off Le Treport. Although damage claims were entered for both attacks there is no record in postwar documents of any ships sustaining damage in the Channel area on this night.

On another occasion Albacore aircraft successfully located, reported, and finally laid flame floats to illuminate an escorted coaster for the benefit of a force of light naval craft which were lying in wait at the Berke buoy. This was the only offensive sortie of the month by coastal craft and, disappointingly, the target proved smaller than was anticipated. Though surprise was achieved in the initial attack, none of five torpedoes found a mark.

Hurricane bombers were much hampered by bad weather during the moonlight period, but on the night 25th/26th bombed a westbound coaster and claimed damage.⁽²⁾

The enemy's daylight movements were as few as usual.

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- (1) On the night 4th/5th, eight Hudsons of No. 407 Squadron, five Hudsons of No. 320 Squadron and four Swordfish of No. 819 Squadron (F.A.A.) comprised the strike force, and on the night 6th/7th, the force consisted of eight Hudsons of No. 320 Squadron, nine Hudsons of No. 407 Squadron, and five Swordfish of No. 819 Squadron (F.A.A.).
 - (2) There is no confirmation in postwar records of any ship receiving damage through air attack on this night.

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Spitfires of Nos. 331 and 121 Squadrons, however, seized an opportunity on 18 September to attack a small vessel off Ostend which it was claimed was left in a sinking condition.⁽¹⁾ Only 175 sorties were flown in the "Channel Stop" area during September but the wastage rate remained the same i.e. two.

ibid
Encl. 72A
FC/ORB
Oct. 1942 and
No. 16 Group O.R.B.
Oct. 1942

Only three vessels of importance attempted the passage of the Dover Straits during October, two of them eastbound on the nights of 5th/6th and 16th/17th, and one westbound on the night of 11th/12th.

Of these ships, the second of the eastbound was mined, beached and abandoned northeast of Calais;⁽²⁾ the westbound vessel was sunk as she continued passage "down" Channel by forces from Plymouth Command.⁽³⁾ This vessel had previously been attacked by Albacores of No. 841 Squadron (F.A.A.), and during this unsuccessful encounter had lost one aircraft containing the Commanding Officer. A Hudson of No. 320 (Dutch) Squadron also attacked, and claimed one hit.

Movements of small craft showed an even more marked decrease particularly during the latter part of the month and there were no less than fourteen nights when there was no movement, only a small proportion of which can be ascribed as due to bad weather conditions. The successful execution of seven minelaying operations off the enemy coast by surface craft was considered to have caused the reduction in enemy movements during the latter part of the month.

Hurri-bombers of No. 174 Squadron had no opportunities, and during the course of several moonlight sweeps no targets were found. Other aircraft of No. 11 Group by day managed to find three targets to shoot-up with cannon fire, one of which, described as a coaster, was assessed as damaged.⁽⁴⁾ Dawn anti-shipping sweeps carried out by Whirlwind bombers of No. 137 Squadron were uneventful. A total of 208 sorties were flown during the month of October for the loss of one aircraft.

ibid
75A
FC/ORB
Nov. 1942 and
H.Q. No. 16 Grp.
ORB/Nov. 1942.

Two ships of importance made the passage of the Strait during November 1942, both eastwards. One on the night of 9th/10th was a 4,000 ton merchant vessel and the other, on the next night, was the ^{ex}armed merchant raider ~~Orion~~ Orion. Two torpedo boats made the westward passage on the night of 17th/18th and a large coaster eastwards during the night of 19th/20th, on which night there was a good deal of small craft activity, presumably mine-sweepers. Otherwise small craft movements were on as small a scale as last month and on the last five nights no movements were detected.

There was a resumption of enemy minelaying in mid-channel by R-boats, which further restricted our offensive with coastal forces craft.

The 4,000 ton merchant vessel left Boulogne at 1840 hours

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- (1) Confirmed as a small motor boat.
(2) The ship concerned was a German vessel - Holtenau, of 4,102 gross tons.
(3) This vessel was the armed raider Komet. Also sunk was the Eme (Spec. 12) (Ge.) 3287 tons. Position 30 miles E.S.E. of Barfleur on 13 October 1942.
(4) This was the German tug Elbe of 150 gross tons, which was sunk by this attack off Boulogne on 6 October 1942.
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on 9 November and was engaged between Gris Nez and Calais by Coastal Artillery with 139 rounds of 9.2 inch and 24 rounds of 15 inch. An attack with Albacores of No. 841 Squadron (F.A.A.) which was intended off Gravelines could not take place owing to the weather conditions.

In the case of the ^{ex-}raider ~~Orion~~ ^{Orion}, reconnaissance by P.R.U. had detected her arrival at Boulogne so that her departure eastwards at 2200 hours on 10 November with half a dozen escorting craft as reported by R.D.F. was expected, although an earlier sailing at dusk was thought more likely.

Calm weather with low visibility to cover their operations had permitted two mark boats to complete their reconnaissance of a gap in the enemy minefield southeast from Dover and to take up their stations before dark. A force of three M.T.Bs was despatched to wait in the gap and later, in failing visibility, they proceeded to intercept the enemy off Cap Blanc Nez, using their R.D.F. and being guided fortuitously by the enemy ship's fog syren. The latter indicated that their presence was unsuspected and it was ill luck that this, the first M.T.B. sortie for some time, was thwarted by fog, so that the enemy was not actually sighted.

Coastal artillery engaged the target with 34 rounds of 9.2 inch and 25 rounds of 15 inch, pausing whilst the M.T.Bs closed, but the enemy's luck held, and after taking an unusual course along the West Dyck shoal immediately between two recently laid minefields, she escaped attack. Hudsons of Coastal Command and Albacores of the Fleet Air Arm⁽¹⁾ were despatched to intercept, but only one Albacore was able to sight and attack on account of the low visibility. No results were observed.

Some twenty-four R-boats concentrated at Dunkirk during the moonless first half of the month, and the suspicion that they would extend the mid-channel minefields, was proved to be well founded. At least three minefields were laid and on a fourth sortie the R-boats were detected by the Albacore patrol. Four aircraft attacked with bombs about 10 miles northwest of Dunkirk. Results were unobserved but the operation was interrupted and possibly abandoned.

The month on the whole had been disappointing and made none the less so, by the withdrawal of some of the Albacores for service elsewhere. Although opportunities for these and other aircraft had so frequently been frustrated by bad weather a total of 203 sorties were flown in the area with a wastage of three aircraft.

On only one night of December 1942, that of 10th/11th, were there any movements of importance through Dover Straits. One in a westerly direction consisted of two Sperrbrechers which entered Boulogne about 2245 hours, and this was followed by the passage of a 350 feet vessel which left Boulogne eastwards about 2330 hours.

Otherwise, apart from two torpedo boats westbound on 7 December, and a coaster from Calais to Boulogne on the night

(1) The air forces employed were three Hudsons of No. 320 Squadron, one Hudson of No. 407 Squadron, and two Albacores of No. 841 Squadron. The latter under the control of Fighter Command.

of 23rd, the month was quiet and movements of small craft were less than formerly, there being as many as fifteen nights when no vessels were detected by R.D.F.

The westbound enemy convoy on the night of 10th/11th, was reported by R.D.F. as one large merchant vessel with several escorts and it was confidently expected that it would proceed through to Le Havre. However, the enemy force entered Boulogne and a force of six destroyers and two Albacores proceeding to intercept, were recalled. The following night, when R.D.F. reported the enemy continuing the westward passage, three destroyers of Portsmouth Command intercepted the force off Dieppe and sank two vessels, (1) after an Albacore had attacked the enemy as they came out of Boulogne.

The eastbound convoy consisting of the 350 feet vessel (2) and several escorts left Boulogne at 2330 hours on the night of 10th/11th, shortly after the westbound convoy had arrived there. Strong southerly winds would have effectively prevented attack by coastal craft even had the enemy mid-channel minefields permitted their operation, but an attack with bombs was carried out off Gravelines by two Albacores of No. 841 Squadron, but results were unobserved.

Both convoys were heavily engaged by Coast Artillery batteries, the accuracy of which was vouchsafed by a master of one of the sunken Sperrbrechers. He remarked that he had been an Artillery Officer and that the accurate shooting at his vessel had been a pleasure to watch although there had been no hits other than with splinters.

Other aircraft activity at night against enemy shipping consisted of a moonlight attack by a Whirlwind bomber of the newly arrived No. 137 Squadron, resulting in near misses on a coaster. Several night reconnaissances were also flown by Albacores and, Whirlwind bombers, without any sightings being made.

Unfavourable weather conditions and the decrease in enemy activity resulted in only 75 sorties being flown in the "Channel Stop" area during December, while the wastage among the aircraft engaged was three.

ibid
Encl. 3A

Generally speaking, from an enemy shipping point of view, the month of January 1943, was one of the quietest on record. Although there was some activity of minor importance there were no movements of vessels over 1,000 tons through the Straits. The coastal traffic showed a slight increase on that of last month, but there were no less than fifteen nights when no shipping at all was detected.

The only vessel of any size detected in the Straits during the month was a coaster which left Calais eastbound in the early hours of 27 January. Two Whirlwind bombers of No. 137 Squadron were despatched to attack, and, in spite of heavy

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- (1) The vessels concerned were the Bijerland (Sperrbrecher) - Dutch, of 387 gross tons and the Gauss (Sperrbrecher) - German of 1,236 gross tons.
 - (2) Known to be the German ship Leesee of 2,624 gross tons, formerly engaged in the iron ore trade in the Bay of Biscay.

flak, dropped 3 x 250 lb. bombs near the vessel when 5 miles west of Dunkirk. No claims were made. Another air attack on enemy shipping took place on the evening of 11 January. At 1750 hours three small coasters left Boulogne eastbound, and, as they kept further off shore than usual, were attacked by an Albacore of No. 841 Squadron just before they entered Calais at 1937 hours, but results were not observed. A total of 244 sorties were flown by aircraft in the "Channel Stop" area during January 1943, and for the first time in this period there was no wastage.

ibid
Encl. 4A

Increased sweeping activity on the part of the enemy during January was taken to foreshadow the passage through the Straits of some important enemy vessels, and during February the 415 feet Raider K passed through the Channel westbound, and our counter measures appeared to have proved effective to some extent, for this armed merchant vessel returned to a North German port by the same route after a short stay in Dunkirk.

At 1920 hours on the night of 10 February, the Raider K, with an escort of a Sperrbrecher and eight "M" Class mine-sweepers, was detected by R.D.F. four miles west of Gravelines on a westerly course at a speed of ten to twelve knots. This ship was heavily engaged by Coastal Artillery between Calais and Cap Gris Nez, but she continued southbound apparently untouched.

The vessels passed Boulogne, but when six miles southwards, the Raider K, was attacked by one of a party of three Whirlwind bombers, sent out to intercept.⁽¹⁾ After this attack the vessel remained stationary for about one and a half hours before proceeding slowly back to Boulogne, entering at 0715 hours on 11 February. Meanwhile, Albacores of No. 841 Squadron were despatched to continue the attack, but owing to unfavourable weather conditions the aircraft failed to locate the target.

The raider remained in Boulogne until the night of 13th/14th and although aircraft of Bomber Command⁽²⁾ attacked the port during daylight on the 13th, she escaped damage. During the night mentioned above she left port with the Sperrbrecher and ten escorts and proceeded northwards. Coastal Artillery again engaged this target, but without any apparent results, and the convoy succeeded in entering Dunkirk. Bad weather unfortunately prevented a striking force of light naval craft from attacking the enemy, though in view of the Raider K's heavy escort such an attack might have been somewhat costly. The weather was also unsuitable for any air attacks. The raider was given little respite in Dunkirk, and after the port had been subjected to heavy air attacks by aircraft of Bomber

H.Q.B.C./O.R.S.
Reports
Vols. I and II.

(1) *Raider K was the British designation of the German raider Togo (Schiff 14). She was considerably damaged by this attack.*

(2) *A formation of 11 Bostons, with fighter cover, attacked the Raider in dock, with 11 tons of bombs, but no hits were scored. Ten Venturas, also escorted by fighters set out later on the same task, but found the target obscured by cloud and returned without bombing.*

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Command and the United States Eighth Air Force, (1) the raider sailed eastbound from the port on the 27th, and was last seen off Cuxhaven.

Although the primary object of the destruction of this raider was not achieved, she was at least deterred from passing through the "Channel ^{Stop}", completely and ^{so} getting out into the Atlantic to wreak havoc among Allied shipping.

A.D.G.B./S.31523
Encl. 5A

The beginning of the month saw a continuation of the enemy's sweeping operations, and in all during February there was twice as much enemy coastal shipping as for January.

The only other important enemy shipping movement occurred on the night 27th/28th when two vessels passed eastbound from northwest of Le Treport at a speed of 20/25 knots. Later, P.R.U. identified these vessels as Torpedo Boats probably from Le Havre, and one, if not both of them entered Dunkirk.

In addition to the air attacks on enemy shipping already noted, a large coaster from Dunkirk was attacked on the night of 18th/19th by a Whirlwind bomber north-east of Calais. On account of the poor weather conditions no results were observed. A number of other attacks were made during the same night by Whirlwinds of the same squadron i.e. No. 137 Squadron which dropped altogether 18 x 250 lb. bombs. On the previous night i.e. 17th/18th, two Albacores of No. 823 Squadron (F.A.A.) had attacked a number of E or R-boats northbound from Boulogne, and claimed one or two boats possibly destroyed. (2)

Total number of sorties flown on behalf of the "Channel Stop" during February 1943, totalled 202, with no casualties to the aircraft engaged.

In addition to the 2,630 sorties flown within the area Dover - Ostend - Dieppe - Beachy Head, aircraft of Fighter

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- (1) Two small formations, one of 12 and the other of 11 Bostons, each escorted by fighters, set out on 16 February to attack the raider in port. The first was abortive as the target was obscured by cloud, but the second formation attacked with 9.8 tons of bombs. No hits were scored on the raider. The next day a formation of 12 Venturas, with fighter cover, took off for Dunkirk, but turned back owing to 10/10 cloud. Part of the escort was attacked by enemy aircraft and four Spitfires were lost. Another abortive operation by 12 Venturas occurred the next day, but no enemy fighters were seen on this occasion. The next attempt to attack the raider did not take place until 26 February, when five formations, each of 12 Venturas, escorted by fighters of the United States Air Force and Fighter Command were despatched. The first two formations returned without attacking owing to 10/10 cloud over the target area. Several hours later, the cloud had cleared and the remaining three formations completed their mission. No direct hits were scored out of a total of 36.8 tons of bombs dropped. No enemy aircraft were encountered but flak accounted for damage to 18 Venturas. Total losses were one bomber and two fighters. On the following day a formation of 24 Venturas was despatched to Dunkirk, but the ship had, by then, moved from the port. Nevertheless, the formation dropped bombs on the port.
- (2) These claim's are not confirmed in Postwar records.

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Command participated in shipping strikes in both easterly and westerly directions as far as the endurance of their aircraft would allow, to the tune of a further 761 sorties and accounted for four ships of 2,456 gross tons for the loss of eleven aircraft.

(b) Summary

Throughout the period under review, ~~from~~ (July 1942 to February 1943) enemy shipping movement in the Dover Straits area was very much in accord with the previous six months, i.e. very little movement during daylight or the light moon periods, but under cover of darkness a certain amount of important movements took place with powerful escorting screens and good weather forecasting.

From an air operational point of view the period cannot be regarded as a highly successful one, in view of the fact that it cost 13 aircraft to sink five ships of 929 gross tons.

The naval forces employed fared a little better by sinking three ships of 4,910 gross tons and one R-boat for the loss of four light surface craft.

The laying of defensive minefields by the enemy during the period prejudiced the operations of M.T.Bs against enemy shipping between Boulogne and Dunkirk, in which area the enemy's assistance from shore batteries in addition to the powerful escorting screens provided, had already much reduced the chances of success in this area.

Minelaying remained practicable both by air and surface forces. The surface vessels concerned avoided action with the enemy and consequently, unlike the M.T.Bs, were able to keep an accurate navigational plot and to make use of the gaps in the enemy's minefields.

FC/S.22179
Encl. 62A

It was the opinion of V.A. Dover that aircraft now formed the best means for attacking enemy shipping in this area, and it was evident from the experiences in this period that two types were required, one for daylight or light nights, such as the Hurricane or Whirlwind bomber, and another type for dark nights similar to the Albacore type of aircraft.

However, if the enemy was not to be allowed to pass blockade runners, raiders on passage to and from home ports, and the like through Dover Straits with impunity despite our advantage of being able to follow his movements by R.D.F. and air reconnaissance, attention would have to be directed to the need for allocation of more suitable strike aircraft and fast minelayers.

(xii) Operations - Coastal Command - July 1942 to February 1943(1)

July and August 1942

A general reduction in the activities of Coastal Command against enemy merchant shipping occurred during the months of July and August, due to other commitments necessitating a slackening of effort and also a change in tactics. The results obtained were similarly affected.

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- (1) For enemy shipping sunk and damaged at sea by R.A.F. attack during this period see Appendix XXXIII.

H.Q.C.C.
ORB - July and
Aug. 1942

A total of 666 sorties were flown on anti-shipping reconnaissance and strikes, and 92 attacks were made. Aircraft wastage amounted to nine, for which no enemy shipping was either sunk or damaged.

CC/S.20127

Traffic in the Bay of Biscay did not show much change from previous months. The small vessels engaged in the iron ore trade between Bilbao and Bayonne, recently reinforced with more Dutch coaster types, carried out their trips with regularity. The larger vessels also continued to make comparatively regular voyages from Bilbao unloading their cargoes at Bordeaux. Some of the original vessels engaged in this trade had dropped out and at least one was known to have foundered after striking a rock. Two, or possibly three, were traced up the Channel and found in Rotterdam. However, at least five of these larger vessels of tonnages ranging from about 2,700 to 6,200 remained in the Bilbao to Bordeaux trade. One of this number was seen and attacked north of San Sebastian on 26 July by a Sunderland (A/461) of No. 19 Group. From the photographs taken she was identified as the Drepanum, a vessel of 2,700 tons. She was escorted by five armed trawlers, all of which opened fire. Unfortunately the depth charges undershot, and the ship appeared to have escaped damage.

There was a considerable movement of merchant vessels and tankers between ports on the French west coast during these two months, but only a few definite arrivals or departures.

H.Q. No. 19 Grp.
ORB/AUG/1942

An attempt to send out a blockade runner to Japan⁽¹⁾ on 19 August coincided with the departure of a supply tanker. The tanker, one of two that had long been in French west coast ports, was eventually located and attacked off the north coast of Spain by a mixed force of Lancasters of No. 61 Squadron, Whitleys of No. 51 Squadron (on loan from Bomber Command), Whitleys of No. 58 Squadron and a Sunderland of No. 10 Squadron (R.A.A.F.). One of the Lancasters claimed one hit with a 500 lb. G.P. bomb on the fo'c'sle and the Sunderland also claimed a hit with a 250 lb. S.A.P. bomb near the bridge. These two attacks appeared to have caused the tanker to alter plan, for she was last seen on an easterly course and a few days later was identified in La Pallice with camouflage over bow and stern. Here, on the night of 25/26 August, the ship was the target for a bombing raid. Of the twelve aircraft involved, at least seven bombed the harbour, but no results were observed on account of cloud, flak and searchlights.

H.Q.C.C./
S.7010/42/AIR

The escape of this tanker was the subject of a report called for by the Air Ministry, and rendered on 26 August.

A.H.B/IIC/24/181

From a study of the chronological narrative of events it was clear that every effort was made to locate and attack this ship. In retrospect, it appeared that at short notice the best use was made of the available long range aircraft for reconnaissance and of P.R.U. aircraft in searching the French ports in the event of the tanker returning. Although the ship was not sunk, she was diverted from her intended break-out with probably some superficial damage.⁽²⁾

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- (1) The activities of the blockade runners to and from the Far East have been dealt with in a subsequent section.
 - (2) There is no evidence in post-war records that she was damaged to any appreciable extent.

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The casualties during these operations were heavy, amounting to four Lancasters, a further Lancaster being damaged by flak.

This class of enemy shipping was well known to be heavily protected and it was, therefore, almost certain that the missing aircraft must have been shot down in carrying out their attacks. These casualties were to be expected when individual long range G.R. and heavy bomber aircraft made lone attacks on these well armed and important ships, but it was considered, by the Air Ministry, that these odds would have to be faced, until a striking force of long range torpedo aircraft were available in Coastal Command.

It was also apparent from the report that general errors and omissions in signalling and in the use of G.R. procedure occurred during the operations. This could be attributed to the fact that many Bomber Command aircraft took part and were of necessity unfamiliar with the methods of reporting sightings and of shadowing. A state of affairs which undoubtedly added considerably to the difficulties of the directing staff.

H.Q. No. 19 Grp.
ORB - July and
Aug. 1942

There were altogether some 84 sorties on anti-shipping operations during July and August in the Bay of Biscay area which resulted in 28 sightings of large ships and 17 attacks, with a wastage figure of five aircraft.

MEW/AS/206/1/Z

Activity along the west coast of Denmark remained small and limited to coastal traffic. There was little likelihood of any marked increase until freezing in Baltic waters again forced enemy convoys to use the outer route.

The port of Rotterdam reached its annual time of maximum activity during these two summer months, with a considerable shipping turnover, and much barge transshipment. Delfzijl also remained very active, the timber trade and the export of chemicals accounted for this. Shipping had frequently been seen at anchor off IJmuiden, as though convoys were being formed, but reconnaissance had produced no evidence of extensive use of the North Sea canal to Amsterdam.

There seemed to have been little, if any, change in convoy formations, and no further increases in the number of escort vessels.

In the area Hook - Channel there were a number of movements, chiefly eastbound, and the custom of making short stages from port to port was continued.

Local traffic between the Channel Islands and the French mainland had not diminished. The identification of further defences on the island gave a clue to the nature of its cargoes.

H.Q. No. 16 Grp.
ORB - July and
Aug. 1942

In No. 16 Group, the total number of sorties, excluding meteorological patrols, flown within the area Denmark to the Channel Islands was 313. Attacks were made by 70 aircraft and although the Assessment Committee awarded one vessel of 4,000 tons sunk and six totalling 20,000 tons damaged, there is no confirmation of these awards among postwar records.

MEW/AS.206/1/Z.

The primary concern of No. 18 Group continued to be the German major naval units disposed in Norwegian waters; but the aircraft of this Group during the course of reconnaissance patrols for this purpose, sighted some 30 ships of over 1,000 tons in convoy and 16 others sailing independently, besides many smaller craft.

DS 64294/1(436)

SECRET

H.Q. No. 18 Grp.
ORB - July and
Aug. 1942.

Of the 268 sorties flown, five aircraft made attacks on merchant vessels, but no awards were made in the sunk category. Only one ship of 100 tons was in the damaged class, which was not confirmed by post-war records.

There were still no signs of any fixed time tables for convoys along this coast. While some convoys proceeded by night, many certainly spent at least part of the hours of darkness at various anchorages along the route.

September 1942

Weather and tactical considerations again limited the anti-shipping effort in September; nevertheless pressure on enemy convoys was maintained with 70 aircraft making bombing attacks and 11 making torpedo attacks. None of the bombing attacks was successful but the torpedoes found their mark and accounted for two ships totalling 9,953 gross tons.⁽¹⁾ The Assessment Committee had awarded these two ships as seriously damaged.

CC/S.15205
Encl. 80A

The two torpedo successes followed very hard on the heels of a directive from Coastal Command dated 4 September 1942, in which it was stated that in order to improve the standard of individual torpedo training and to develop the tactics of squadron and massed attack, the Admiralty had agreed to the limited expenditure of torpedoes against enemy shipping provided suitable targets were found. For this purpose up to 15 torpedoes per month per Group could be expended against targets of 2,500 gross tons or 300 feet in length and over. Requests to expend a greater number of weapons were to be made to H.Q., Coastal Command, except where the importance of the target warranted a greater expenditure.

MEW/AS/206/1/Z

The prospects of implementing this directive to the full were most evident on the Norwegian coast, where it was anticipated enemy shipping would soon have greater importance. The amount of iron ore shipped from Narvik had increased to a spectacular extent in the past two months. Besides which, work had been consistently in progress on the iron ore quays at Narvik, an indication that the Germans had decided to make more use of the port. In addition, several vessels associated with the iron ore trade in the Bay of Biscay had lately been seen in North Sea and Norwegian ports. On the other hand, traffic along the North German and Dutch coasts although moving in the expected quantity and manner was not so vulnerable to torpedo attack in view of the depth of water in which the traffic sailed; a factor which limited the use of torpedoes.

Bombing attacks were, therefore, of more use in this area, but the relatively meagre results being obtained at this time was no recommendation for this type of attack. The lack of results were known well enough to be due to the substitution of the medium level attack for the low level and, for the purpose of rectifying this state of affairs, various tactical experiments were being carried out in connection with attacks on heavily defended convoys.

H.Q. No. 16 Grp.
ORB - Sept. 1942

In No. 16 Group area, 221 sorties were made on behalf of the anti-shipping commitment during September, leading to 64 attacks which resulted in assessments of seven ships of

(1) The two ships concerned were:-
Karpfanger - German - 4,974 gross tons.
Utlandshorn - German - 4,979 gross tons.

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21,000 gross tons damaged, for the loss of three aircraft. Post-war records, however, do not confirm these assessments.

Off the Norwegian coast, aircraft of No. 18 Group only managed to fly 65 sorties but the three attacks resulted in the two successes already mentioned.

Aircraft of No. 19 Group were kept in the limelight during September, when the movements of blockade runners gave the meagre anti-shipping force, and many of the anti-U-boat aircraft, almost full employment. Fifty-five sorties were flown on this account and fourteen attacks were made which resulted in damage to one ship of 8,998 tons.⁽¹⁾

October and November 1942 - The first Wing Strike

CC/S.20127

During these two months the activity in the Bay of Biscay was a feature of the anti-shipping operations in North West Europe. In particular, blockade running inwards and outwards, increased in both volume and importance, and a considerable effort was diverted from anti-U-boat activities to cope with the situation. Attack at 350-480 miles range, generally on information lacking in the necessary precision, presented a very difficult problem of time and space.

Apart from blockade running, the iron ore trade between Spain and occupied France was maintained to an increasing extent by the small coaster type vessels plying between Bilbao and Bayonne, as most of the larger vessels had now been withdrawn and passed "Up Channel" into the North Sea. As a result only two of the larger vessels were left in this trade, the German Scharlachberger of 2,844 tons, and the Spanish Kauldi of 3,157 tons. A south bound vessel attacked on 26 November by M/59 a few miles from Bayonne with unknown result was probably the former of these two ships returning to Bilbao to pick up another cargo. With this exception, nothing had been seen of the vessels engaged in this trade, which was not altogether unexpected as they invariably hugged the coast, and moved as far as possible by night.

H.Q. No. 19 Grp.
ORB - Oct/Nov.
1942.

During the two months October and November 1942, a record number of 217 sorties were flown on anti-shipping patrols in the Bay of Biscay and the same can be said for the number of attacks which totalled 60. No enemy ships were sunk in these encounters, but assessments for four ships of 18,000 gross tons damaged actually fell short of the verified results, i.e., 5 ships of 21,941 gross tons damaged. The aircraft wastage rate was seven.

H.Q. No. 16 Grp.
ORB - Oct/Nov.
1942

In the Hook - Elbe area, the weather during October and November 1941 was abnormally bad, and no doubt caused many delays to, and irregular running of, the convoys on this route.

Out of a number of attacks in this area, the most notable was that carried out on the 20 November by the newly formed striking force of Beaufighters - nine of No. 254 Squadron armed with torpedoes, and 13 of No. 236 Squadron armed with bombs, and two more as ordinary fighters. In addition an escort of 12 Spitfires of No. 12 Group, Fighter Command had been intended, but failed to make contact with the general formation in conditions of poor visibility.

(1) The vessel concerned was the German tanker Passat.

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The target was a southbound convoy, reported in the forenoon by a "Jim Crow" of Fighter Command as 16 M/Vs (one of 7,000 tons and several of 2,000 to 2,500 tons and less) in position 53.05N - 04.30E, but the Beaufighters appeared to have attacked a different convoy. It consisted of only one large merchant vessel very high out of the water, and probably incomplete, being towed by a tug and escorted by at least five armed trawlers - a weight of escort normally afforded to a complete convoy.

A hit by torpedo was claimed on the large vessel (which was almost certainly one of 8,000 tons that had been fitting out in the Minerva Haven at Amsterdam), another on a smaller vessel, and a hit or a very near miss with bombs on the tug. Those aircraft that did not carry bombs or torpedoes shot up the escort vessels with cannon fire.

The final assessment on this operation was one merchant vessel of 8,000 tons and one tug damaged, but post-war records confirm the sinking of only one tug.⁽¹⁾ Aircraft wastage was three, one Beaufighter of No. 254 Squadron and two of No. 236 Squadron.

16G/5044/1/Ops.
Encl. 1A

This operation, the first co-ordinated attack carried out by Beaufighters in North West European waters could not be regarded in terms of success; after careful examination of the reports submitted to Air Ministry, the Air Staff recommended certain remedial action which was acted upon by the two Commands concerned, i.e., Coastal and Fighter Commands. After many months of hard training, a well balanced striking force was produced which on its reappearance in operations in April 1943 vindicated this failure by the success of its first attack.

ibid
Encl. 5A

The action recommended by the Air Staff in a letter to the Air Officer Commanding-in-Chief, Coastal Command dated 31 December, 1942 was discussed at a conference held at Headquarters, Coastal Command on 22 February, 1943 between representatives of Fighter and Coastal Commands.

The failure to collect the fighter escort was the first item on the agenda and it was decided that the Beaufighter Wing should rendezvous with the single seater fighters at the Fighter aerodrome. The escort to be on the ground at readiness; the Beaufighters to orbit the Fighter aerodromes at not more than 1,000 feet.

In regard to first sighting reports by the "Jim Crows" it was agreed that the reconnaissance aircraft should be instructed to land at the strike force aerodrome, and that a final reconnaissance must be made to ascertain the exact position, course and speed of the enemy, before the Strike Wing took off. If possible this reconnaissance should be made by a G.R. aircraft other than those of the striking forces.

The escorting of a strike force was, of course, one of the normal functions of a fighter squadron, but the defence of such a force during deployment, attack and reforming, presented special problems, which it was decided, could best be solved by practice strikes against one of our own ships.

(1) The vessel concerned was the Dutch tug Indus of 449 gross tons.

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Other decisions affecting this particular problem were:-

- (a) That a minimum of two single seater fighter squadrons (24 aircraft) should be employed to escort the strike wing, one as close escort and one as cover; more aircraft being provided at the discretion of Headquarters, Fighter Command.
- (b) That Fighter escort and Torpedo Bomber leaders should be in V.H.F. communication with one another.
- (c) If cloud base was below 2,000 feet at target, not more than two squadrons of single seater fighters were to be employed, and these would act as close escort.
- (d) That close liaison between Strike Squadron Commanders and their proposed Fighter Escort Squadron Commanders should be arranged.

The existing limit of Fighter protection was just North of Texel; it was, therefore, not intended, save in exceptional circumstances, to operate the Wing outside single seater Fighter protection.

In the opinion of all present at the Conference, all Fighter and other diversionary aircraft should be directed at the escort vessels. The task of sinking the target ship was that of the torpedo bombers. If experience showed that target ships carried considerable flak, a proportion of the diversionary force would have to be directed to attack before the torpedo bombers went in.

Finally, it was decided that the minimum force to be employed on Wing operations was:-

- (a) 8 Torbeaus (ideal number 12).
- (b) 16 escorting Beaufighters (Cannon and R.P.)(1)
- (c) 1 Typhoon squadron (if and when available).

The need for good weather conditions at base and at the target was fully appreciated as well as the undesirability of the Wing staying long on the enemy coast.

The leader of the Wing was to be informed that he had the confidence of his superiors and full freedom of action to act as he thought best.

Although the withdrawal of any part of the striking power of Coastal Command could be ill afforded at this time, it was realised that, with such a lot to learn in matters of co-ordination in attack and precision in time keeping, only by complete concentration on training could such problems be solved. It was therefore with some reluctance that the newly formed Torpedo/Beaufighter force was taken out of the line for this purpose, immediately after this one operation.

Nos. 143, 236 and
254 Sqn. ORBs.

Many practices were carried out during the remainder of November as a Wing with aircraft of Nos. 236 and 143 Squadrons, but no operational strikes took place during December or January 1943. In February, however, up to three aircraft of No. 254 Squadron (Torpedo/Beaufighters) were allowed out on

(1) R.P. = Rocket Projectile.

Rover patrols, but only two torpedoes were dropped. Aircraft of Nos. 236 and 143 Squadrons, the former armed with 2 x 250 lb. bombs, were also used extensively on reconnaissance, but no co-ordinated attacks were undertaken until April 1943.

In the meantime the offensive against enemy merchant shipping in the North Sea was maintained by the dwindling force of Hudsons and the obsolescent Hampdens with but few successes, the majority of which were credited to the Hampdens.

H.Q. No. 16 Grp. In No. 16 Group area during October and November 1942,
 CRB - Oct. and 357 sorties were flown on anti-shipping patrols including
 Nov. 1942 16 against E-boats. Forty-three attacks were made but only
 two vessels of 880 tons were sunk. Nine aircraft were
 lost during this period.

MEW/AS.206/1/Z Little fresh information had been obtained about enemy shipping movements in the Norway area during October and November. The departure to the Mediterranean of a number of Luftwaffe units eased the enemy supply situation in the extreme north with a resultant reduction in the number of north bound voyages. Other evidence, however, suggested that commercial traffic from Narvik was likely to increase. This indication was derived from the figures of iron ore exports from Narvik during the past three months, and from the movement into the North Sea of the iron ore carriers referred to earlier, of which several had already been reported trading between Rotterdam and Norwegian ports.

The enemy's desire to increase his iron ore exports from Narvik was thought to be due to the slowing down of shipments from Sweden entailing a reduction of about 750,000 tons by the end of 1942, in consequence of attacks by Russian submarines and mining in the Baltic. Secondly, the season of the annual freeze up of the Swedish ports was approaching, and the tempo of Germany's war industries necessitated the maintenance, as far as possible, of her iron ore supplies, which increased exports from Narvik would help to ensure.

An interesting feature of the military supply fleet had been the tendency for smaller vessels to be used; whereas in March 1942 the average tonnage of the vessels employed was around 2,500, by September it had fallen to 1,600 tons.

H.Q. No. 18 Grp. In No. 18 Group area during October and November, 113 sor-
 CRB - Oct. and ties were flown on anti-shipping activities, but only five
 Nov. 1942 attacks had taken place and an unusually high percentage had
 been successful, i.e., 40%. In October, one vessel of 3,979
 gross tons was sunk by torpedo attack and in the following
 month another vessel of 3,347 gross tons was also accounted for
 by the same means. In both cases the Assessment Committee
 gave awards of "seriously damaged".(1) Aircraft wastage for
 the two months was three Hampdens.

CC/S.15094
 Encl. 65A

The opening up of a new front in North Africa during November had led to the attention of the enemy being focussed on this area and to an extension of his air, land and sea commitments. There were grounds for believing that this would result, to a greater or lesser extent, in a draining

(1) The vessels concerned were:

<u>Palatia</u>	- German - 3,979 gross tons - 21.10.1942.
<u>Erika Hendrik Fisser</u>	- German - 3,347 gross tons - 25.11.1942.

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away of his resources including a proportion of the more highly skilled and reliable personnel from fronts which had at least temporarily declined in importance.

This had already occurred where the Luftwaffe in Norway was concerned. It was known that the total long range Bomber force (93 aircraft) had been withdrawn by 21 November 1942, and it was not beyond the bounds of possibility that further reductions would be made.

From this situation it was concluded by the A.O.C.-in-C., Coastal Command that now was the time to exploit the enemy's pre-occupation in other areas and to develop an offensive against his shipping so far as our own resources and commitments would permit.

Every endeavour was, therefore, to be made by Group Commanders to bring the squadrons under their control to a state of operational serviceability and to take every opportunity to harass enemy shipping in transit along the coasts of France, the Low countries and Norway.

December 1942

H.Q.C.C./ORB
Dec. 1942

The weather conditions during the month of December 1942 were much less favourable for flying than during the previous month; however, in spite of this adversity some 340 sorties were flown by Coastal Command aircraft resulting in 38 attacks only two of which gained any successes. Both were by the torpedo aircraft of No. 18 Group who managed to sink one ship of 1,059 gross tons and damage another of 937 gross tons.⁽¹⁾ The Norwegian coast was, in fact, the only area to show an increase in activity over the previous month. The wastage rate for the whole Command was four aircraft.

January 1943

H.Q.C.C./ORB
Jan. 1943

It might have been expected that this month of winter, in particular, would have shown a reduction in operations against enemy shipping, but the reverse was the case; in point of fact it equalled November 1942 as the busiest of the whole period for some 461 anti-shipping sorties were flown by aircraft of Coastal Command, and 58 attacks were made which resulted in the sinking of two enemy merchant ships by direct attack.⁽²⁾

H.Q. No. 18 Grp.
ORB - Jan. 1943

Twice during the month, the Scharnhorst and Prinz Eugen were sighted north-west of the Skaw, steaming to the north-westward, but soon after being sighted they reversed their course and nothing came of the movements. The threat, however, remained, and on this account alone, 126 sorties were carried out by aircraft of No. 18 Group in addition to 122 sorties on reconnaissance and strikes against enemy merchant shipping.

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- (1) The two ships concerned were:

Theano - Dutch - 1,059 gross tons - sunk -
13.12.1942.

Deneb - Norwegian - 937 gross tons - damaged -
10.12.1942.

Both ships were assessed as "seriously damaged".

- (2) The two ships concerned were:

Algeria - Swedish - 1,619 gross tons - sunk -
18.1.1943.

Kaldnes - Norwegian - 3,549 gross tons - sunk -
29.1.1943.

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In searching for the enemy major naval units, five aircraft, including two Mosquitoes were lost, and a further three did not return from reconnaissances for merchant shipping targets. For the twenty attacks made on commercial traffic, two ships, totalling 4,500 gross tons, were assessed as sunk and one ship of 2,000 gross tons as damaged. Postwar records, however, only confirm one ship of 3,549 gross tons as sunk.

H.Q. No. 19 Grp.
ORB - Jan. 1943

In the Bay of Biscay, some excellent co-operation though of a somewhat unorthodox character, between air and surface craft, led to the destruction of an inward bound blockade runner from the Far East by gunfire and torpedo from H.M.S. Scylla (full details will be found in the appropriate section). A total of 51 sorties were flown by aircraft of No. 19 Group on anti-shipping operations but, although three attacks were made, there were no successes.

H.Q. No. 16 Grp.
ORB - Jan. 1943

In the Hook - Elbe area, No. 16 Group continued to send out strikes of up to 15 Hudsons against enemy convoys, and of 162 sorties despatched, 19 aircraft managed to get in an attack. Results from the medium levels, without an efficient bombsight, continued to give poor results for only one ship of 1,619 gross tons was sunk. The wastage rate among the aircraft engaged was two.

February 1943.

There was only a slight reduction in anti-shipping activities throughout North West Europe during February 1943, in comparison with the previous month. The effort against enemy merchant shipping was maintained so that the reduction was effected by fewer activities on the part of the enemy's major naval units in the Norwegian area.

MEW/AS.206/1/Z

As there had been no freezing of the approaches to the Baltic this year, traffic to and from Norway had not been forced to use the alternative route down the west coast of Denmark as in early 1942. It had continued to use the Kattegat, Belts and Kiel Canal throughout.

Commercial traffic in this area appeared to have been greater than a year before. Indeed it was expected to be, since the decline in iron ore imports from Swedish ports and the loss of those from North Africa forced the Germans to ship more from Narvik. A seasonal traffic, expected to continue until the end of March, was the transport of iced herrings from Norwegian to Danish and German ports. Ships normally engaged in other traffic were taken over for this work, the majority being between 800 to 1,500 gross tons with an occasional larger vessel. Since these cargoes were highly perishable, the vessels loaded day and night and rarely waited for convoys but proceeded alone as soon as they were ready. The 3,549 ton vessel sunk by Hampdens of Nos. 485 and 489 Squadrons on 29 January was thought to be engaged in this trade.

H.Q. No. 18 Grp.
ORB - Feb. 1943

Although 184 sorties were flown by aircraft of No. 18 Group on anti-shipping operations off the Norwegian coast during February 1943, and twelve attacks were made, there were no successes, but four aircraft (three Beaufighters and one Mosquito of P.R.U.) did not return.

MEW/AS.206/1/Z

The Hook - Elbe area was most affected by seasonal causes, since ninety per cent. of the westbound cargoes normally carried consisted of Swedish iron ore. The major part of this came from ports in the Gulf of Bothnia which became frozen

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annually from the end of December to May. Although the winter of 1942/43 had been milder by far than the preceding three, cargoes of Swedish ore had ceased for the time being except for those coming from the Norwegian port of Narvik and South Swedish ports.

In consequence there was a decline in the volume and frequency of the convoys operating in this area. Abnormally rough weather throughout part of the time had been a further limiting factor. The port of Rotterdam had on the whole remained comparatively active, but Emden, the next most important North Sea port, had relapsed into almost complete inactivity.

H.Q. No. 16 Grp.
ORB - Feb. 1943

Aircraft of No. 16 Group flew 148 sorties in the Hook - Elbe area during the month but only eight attacks were made, all without success. Two Beaufighters and two Hampdens failed to return from these operations.

CC/S.20127

In the Bay of Biscay area, the various types of traffic remained unchanged but there was some decline in activity which was not entirely due to seasonal causes.

For instance, in the iron ore trade, shipments by the numerous small vessels engaged between Bilbao and Bayonne were much restricted throughout the month, and averaged not more than one to two sailings per day as compared with five to seven when traffic was normal. Mining had been taking place in the Bayonne area and was in all probability a cause of this decline.

Of the larger ore carriers which sailed between Bilbao and Bayonne, the Spanish Kauldi and the German Scharlochberger, continued to operate, also at a reduced scale. The intention of the Germans to ship a greater volume of ore was indicated by the addition of three newcomers to the traffic.

Following the considerable activity in Far Eastern blockade running in November 1942, there was some diminution in the scale of effort in this direction during December 1942 to February 1943. Some internal movements among tankers in the Bay area also took place but none attempted to break out.

H.Q. No. 19 Grp.
ORB - Feb. 1943

Although 48 sorties were flown on behalf of the anti-shipping commitment in the Bay area, there were no attacks and no aircraft were lost.

(xiii) Special Duty Operations - Autumn 1941 to February 1943

History of
S.O.E. in
Europe

The maintenance of active resistance groups behind the enemy lines was a completely new problem for the R.A.F. to tackle in the Second World War. Known as "Special Duty Operations", this work was, in the early days of its existence, largely confined to specially trained squadrons of Bomber Command, but in locations where aircraft landing and parachute operations were quite impracticable, such as certain parts of Norway, flying-boats of No. 18 Group, Coastal Command achieved some spectacular successes.

By the autumn of 1941 contact had been established with the Resistance movement in Norway, but bad weather during that winter limited the number of successful operations. This was particularly unfortunate since this type of operation could not be pursued during the summer months owing to the lack of darkness in these high latitudes.

One of the last operations carried out in the spring of 1942 was the successful landing near Rorvik of a Catalina flying boat which delivered two couriers and special stores to the Norwegian Resistance Groups.

C.C/MS.15279
Encl. 17A

Up to this time it had been found possible to attach one Catalina flying-boat to Woodhaven for these duties but with the increasing scope of the work to be carried out during the autumn and winter of 1942/43, and the importance placed on these operations by the Admiralty and the Norwegian authorities, it was considered essential by the A.O.C.-in-C., Coastal Command that a unit with sufficient facilities should be established for the purpose. In a letter dated 19 August 1942, addressed to the Under Secretary of State, the A.O.C.-in-C. requested approval for the formation of a Flying Boat Unit comprising 3 + 1 Catalinas required for S.I.S. and S.O.E. operations off Norway. It was proposed to man the unit with mixed Norwegian and R.A.F. personnel.

ibid
Encl. 34A

In the meantime a detachment of No. 210 Squadron consisting of two aircraft was located at Woodhaven and on 24 September 1942, the Air Ministry decided to temporarily increase the establishment of the Squadron by one Catalina which was to be sent to Woodhaven for the specific purpose of carrying out special operations off Norway.

The Air Staff had also agreed that the following procedure was to be adhered to in the planning of S.I.S. and S.O.E. operations for the unit at Woodhaven.

Any S.I.S. or S.O.E. requirements which could not be met by the existing facilities in Bomber Command would be submitted to Coastal Command. Each requirement was given a priority and Coastal Command investigated the feasibility of each operation submitted. If approved, the A.O.C. No. 18 Group and the appropriate S.I.S. or S.O.E. representative was informed and the latter was given the authority to carry out the detailed planning in collaboration with the Officer Commanding No. 210 Squadron or the person to whom the responsibility for the operation was delegated.

ibid
Encl. 53A

On 31 October 1942, the Air Ministry informed the A.O.C.-in-C., Coastal Command that, after careful consideration of his proposal for the formation a Flying-boat Unit of 3 + 1 Catalinas for special operations, it had been decided that approval could not be given for this project but as an alternative, the detachment of No. 210 Squadron at Woodhaven consisting of three aircraft was to be maintained for this purpose.

Special Duty Operations had been resumed in September 1942, but the weather was far from favourable and the number of successes was small in consequence.

History of
S.O.E. in
Europe.

During 1942, twenty-two such operations were made in the Norway area of which eleven were successfully accomplished. Twenty-one personnel and six tons of supplies were landed. For the first three months of 1943, sixteen operations were attempted, six of which were successful in landing a total of fourteen men and five tons of materials.

No. 1477 Flt.
O.R.B.

On 17 February 1943, the detachment of No. 210 Squadron at Woodhaven was formed into No. 1477 Flight with an establishment of nineteen officers and one hundred and twenty-two airmen personnel. In addition to Special Duty Operations the Flight participated, to an increasing extent, in Anti-U-boat operations.

History of
S.O.E. in
Europe

One of the contributions of this Special Duty Detachment to the war effort is reflected in the success of an attack on the Norsk Hydro Heavy Water plant in the Spring of 1943, which could not have been achieved without material help from outside sources. The importance of this attack, which destroyed Germany's main source of heavy water, can be seen in its true perspective now that the story of atomic research is so well known.

(xiv) Enemy Surface Blockade Running between Japan and Europe

(a) Introduction

A shortage in certain essential raw materials made it necessary for Germany to maintain an import schedule with countries outside the occupied territories of Western Europe.

One of the most vital deficiencies was that of rubber which could only be obtained from sources in the Far East, notably French Indo China.

Admty. N.I.D.
24/T.60/45
27.8.45

The safest route for the transport of this commodity to Europe had been, up to the winter of 1940, via the Trans Siberian Railway, but with Hitler's mind already made up on the question of invading Russia, it was recognised by the German High Command that this means of conveyance would no longer be available immediately hostilities commenced.

In view of this contingency it was mutually arranged, between the Special Staff of the German High Command and the Naval War Staff (Operations Division), for German owned materials of importance to the war effort, then in the Far East, to be brought to Germany by sea instead of via the Trans Siberian Railway, should special circumstances render the latter route unuseable. Those Axis ships stationed in East Asia that were no longer required for supply duties, were to be employed to transport the merchandise to occupied French West coast ports.

In February 1941, it was announced that some 250,000 tons of natural rubber could be drawn by Germany from French Indo China via Dairen, during the year. Impending operations made it necessary for Germany to collect as much of this essential material as she could manage within the limited time at her disposal. As the Trans Siberian route was found to be inadequate to deal with this urgent consignment, sea routes from Japan to Europe were hastily arranged and several ships were prepared for sea.

The Japanese were asked to assist by arranging for cargo space to be made available in any of their shipping plying between the Far East and Europe, but they did not appear eager to agree to this request. In the first case, they were pre-occupied with their own sea transport problems in preparation for a declaration of war on the Allies later in the year, and secondly they did not intend to have any of their shipping available in Europe for seizure when the declaration was put into effect.

However, the Japanese were not averse to allowing their ships to bring the rubber from Indo China to Japan where it was transhipped into Axis vessels for the voyage to Europe via Cape Horn.

Under the new arrangements the first cargo of rubber to

leave the Far East (early in 1941) was contained in the German ship Ermland which arrived safely in European waters on 3 April 1941.

Thus commenced a supply line the maintenance of which became of vital importance to the Axis powers as the war developed and other routes were closed to enemy traffic. Equally, the cutting of this supply line became of great importance to the Allies.

M.E.W.
AS/201/4/Z

It was not until October 1941, however, after three shiploads of valuable war materials had arrived in European ports⁽¹⁾ that the subject of these shipments of raw rubber on German account from Indo China was examined by a Joint Admiralty/Ministry of Economic Warfare Committee and suggestions for its interruption were discussed.

It was agreed that good intelligence would be needed if there was to be any prospect of our being able to intercept any of this traffic. To this end M.E.W. said they would send messages to all applicable British Missions to report upon the movements of shipping likely to be engaged in this blockade running, and in addition, D.N.I.'s representative stated that the Admiralty would send a similar message to the naval authorities in the Far East. The possibility of the Americans assisting in the interception of these ships was also considered and it was recommended that an approach be made to the proper authorities for their views on this matter.

C.C./S.15095
Encl. 3A

As far as the European end of the route was concerned there was already in existence a series of standard air reconnaissance patrols⁽²⁾ designed to give information of an enemy "break-out" or "break-in" to French West coast ports, with particular reference to the three enemy battlecruisers at Brest. One or more of these patrols were flown on the occasions when photographic sorties failed to obtain confirmation of the continued presence in harbour of the enemy major naval units.

Any one or more could be initiated with the minimum of delay when the occasion arose, and in fact, were later utilised to locate some of the blockade runners.

In addition, the existing anti-submarine patrols in the Bay⁽³⁾ also provided a measure of security by day against any shipping movements of which no warning had been received.

To sum up, the existing system of air reconnaissance in the Inner and Outer Bay of Biscay could be adapted to meet the requirements occasioned by an incoming or outgoing blockade runner without too much diversion of effort from the main commitment.

Admty. N.I.D.
24/T.60/45

(b) First blockade running period - April 1941 to May 1942

The period of nearly three years during which the enemy surface blockade runners operated can be conveniently arranged into three distinct phases, i.e. April 1941 to May 1942, August 1942 to May 1943 and July 1943 to February 1944.

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- (1) Contained in the merchant vessels, Ermland, Regensburg and Anneliese Essberger.
 - (2) Biscay I to VIII. See Map XI for the position of the patrols.
 - (3) A.S.1-16. See Map II for position of the patrols.

The first, which covered a period of thirteen months, was the most successful as far as the Axis powers were concerned, for during that time the safe delivery of cargoes amounted to 80% of the total despatched on the East to West voyages and 100% for those in the reverse direction. The comparative immunity of this traffic from detection during this first phase can be accounted for by the fact that Allied naval and air forces were pre-occupied with more urgent tasks, and the scarcity of ships and aircraft prevented proper dispositions being made to interrupt this shipping. But it did not go entirely unmolested for of the sixteen ships which left East Asiatic ports, two were sunk, a third was captured after attempted scuttling, and a fourth turned back to Japan. (1)

Of the twelve ships that safely delivered their cargoes to French west coast ports, (2) three were sighted of which two

- (1) The Elbe (9,179 g.r.t.) was the first to be sunk. Disguised as the Norwegian Kristiania Fjord she was sighted by an aircraft from H.M.S. Eagle on anti-submarine patrol at 0700 hours on 6 June 1941 in about 23.30N, 36.09W. A striking force was sent against her in the afternoon and, as she disregarded signals to alter course, she was bombed and set on fire. A search for survivors was made at daylight next morning without result. The second ship to be lost was the Odenwald (5,098 g.r.t.). She had sailed from Yokohama on 19 July 1941 flying the Japanese flag and with Japanese markings. At 0845 hours on 6 November she was intercepted in 00.35N, 27.45W by a United States Naval Task Force engaged on a Neutrality Patrol in the Atlantic. When intercepted she was disguised as S.S. Willmoto of Philadelphia. She attempted scuttling by exploding a bomb in the after hold, but the flooding was got under control and the ship was escorted into Port of Spain on 11 November 1941. On her arrival, the Prize Court awarded her to the captors as salvage. The third ship, S.S. Spreewald (5,083 g.r.t) homeward bound on the German prize-ship route was torpedoed at 1500 hours on 31 January 1942 by one of their own U-boats (U-333) in 45.17N 24.50W. An S.O.S. was first sent out in English as coming from the British Steamer Brittany but forty minutes later this was changed to German and revealed her true identity. Several U-boats in the vicinity were ordered to go to her assistance, one of which, U-105 sighted three boats and three rafts containing twenty-four Germans and fifty-eight prisoners of war. One lifeboat containing the master of the Spreewald and twenty men was missing and although the search was continued for five days they were not located. A Do. 24 of the Brest Sea Rescue Unit was instructed to go out and relieve U-105 of the survivors but the attempt failed as the aircraft snapped off a wing when alighting on the sea; her crew were taken aboard the U-boat. A fourth ship S.S. Ramses (7,983 g.r.t.) turned back to Japan when only a few days out, presumably, for technical reasons.

(2)	<u>German</u>	<u>Arrived in</u> <u>Europe</u>	<u>Italian</u>	<u>Arrived in</u> <u>Europe</u>
	<u>Ermland</u>	3. 4.41	<u>Cortellazo</u>	27. 1.42
	<u>Regenburg</u>	27. 6.41	<u>Pietro Orseolo</u>	24. 2.42
	<u>Anneliese Essberger</u>	10. 9.41	<u>Fusiyama</u>	26. 4.42
	<u>Burgenland</u>	9.12.41		
	<u>Elsa Essberger</u>	11. 1.42		
	<u>Osorno</u>	19. 3.42		
	<u>Rio Grande</u>	10. 4.42		
	<u>Portland</u>	10. 5.42		
	<u>Munsterland</u>	17. 5.42		

were attacked by aircraft of Coastal Command and although damage was inflicted on both ships it was not sufficient to interrupt the delivery of their cargoes.

LV/G2/10/1/42
STE/03/12/1/42

The first ship sighted was the Elsa Essberger (6,103 g.r.t) Her arrival in European waters was not unexpected as information from intelligence sources had prepared the way. Consequently an aircraft was despatched to patrol an area off the north west coast of Spain where it was anticipated she would make a landfall.

On 11 January 1942 at 1520 hours, the patrolling aircraft - a Liberator of No. 120 Squadron - had a brief encounter with an He.115 in position 43.45N - 10.48W and some fifteen minutes later located a merchant vessel with a fully surfaced U-boat in company in position 43.45N - 10.15W, which was believed to be the quarry.

The U-boat, which was in the act of crash diving, was attacked first with 4 x 250 lb. D.C.s, and this was followed by the release of a further three depth charges on the merchant vessel which was by this time taking violent evasive action. During the course of the attack on the merchant vessel, an He.115 appeared dead ahead and interrupted the run-up, so that the attack was not as good as at first promised. An inconclusive combat ensued between the Liberator and the He.115, which the latter broke off and made away in a south westerly direction.

Further cannon attacks were made on the merchant ship, but when the Liberator reached P.L.E. at 1615 hours and set course for base, the ship was still taking evasive action in good style.(1)

In the meantime arrangements had been made by H.Q. No. 19 Group to continue the battle, but the weather precluded any further action that night.

At first light the next morning another Liberator (W/120) was out searching an area covering the enemy's possible route to Spanish territorial waters but without result. For the next two days, the watch on the three enemy battlecruisers at Brest kept the available aircraft of No. 19 Group fully occupied, but on 14 January, a Hudson aircraft of No. 224 Squadron was spared to make a photographic reconnaissance of the North West coast of Spain. This sortie revealed the whereabouts of the Elsa Essberger which had taken refuge in the Spanish port of El Ferrol. It was learned later from intelligence sources that she had arrived there in a damaged condition at midday on 12 January and was making every endeavour to discharge her cargo into small ships for transit to France (via Bayonne).

M.E.W.
S.201/4/Z

The possibilities of intercepting and destroying these small vessels en route were discussed at a special meeting of the Joint M.E.W./Admiralty Committee on 23 January 1942. The vital importance of doing all that was possible to prevent this cargo reaching the enemy was fully appreciated, but it

(1) From German records (B. d.U. War Log) it is clear that the Elsa Essberger was being escorted into port by a U-boat when sighted and attacked by Liberator D/120. This attack was confirmed by the U-boat in a message to base. Thereupon, orders were received for the surface ship to make for El Ferrol, and for the U-boat to wait outside territorial waters.

was decided, in view of the operational difficulties of successful interception within an area so well frequented by neutral shipping, that from every aspect it would be desirable if pressure could be brought to bear on the Spanish Government to deny the enemy transshipment facilities and thereby force the Elsa Essberger to sea. The Admiralty representative informed the meeting the N.I.D. would make the necessary arrangements for developments in Ferrol to be closely watched and that all relevant information would be passed to H.Q.C.C.

While photographic reconnaissance of Ferrol at this time would have been most desirable, the distance from St. Eval to the Spanish port was at the extreme limit of range of the Spitfire then employed by P.R.U., consequently any news concerning the blockade runner had to come from alternative sources of information.

H.Q.C.C.
Naval Log

Several times during the following six weeks intelligence reports made it clear that the Spanish authorities had not accepted the protest made concerning a breach of the War Trade Agreement, and that the Elsa Essberger's cargo was being off-loaded into smaller vessels for the remainder of its voyage to enemy occupied territory.

ibid

The mining of the French port of entry - Bayonne - was suggested by the C.-in-C. Coastal Command as a possible means of intercepting this traffic, but at the Admiralty's request, this idea was not carried out.

P.R.U.
Interpretation
Report No. d/d
5.4.42.

The ship remained in Ferrol for nearly two months and eventually broke out during the night 8/9 March.⁽¹⁾ From then onwards she disappeared and was not seen again until 5 April, when, from a P.R.U. photograph of Bordeaux, she was identified lying alongside the Customs House Quay.

FL/G1/20/4
POK/01/21/4
H.Q. No. 19 Grp.
O.R.B. April 1942

The sighting of a suspicious looking merchant vessel by a Liberator during an anti-shipping patrol off the north west corner of Spain on 20 April 1942, was believed to have been the second encounter with a homeward bound blockade runner.

At 1635 hours, P/120 sighted a flush-decked vessel of 4/5,000 tons outside the "sink-at-sight" area i.e. 42.57N - 0936W, on an easterly course. The ship, grey in colour with a squat funnel, showed many signs of a long voyage. No name or markings were visible at first but after a lapse of ten minutes a red ensign was run-up on the after mast and three hatch covers were uncovered to show similar markings.

Although there was no instruction to shadow such vessels, the pilot had been briefed to report to base by W/T all ships over 2,000 tons encountered during the patrol. This part of the instructions was carried out and contact with the ship was maintained until 1759 hours when the patrol was resumed.⁽²⁾ Three further sightings of merchant ships with Spanish markings were made and reported to base. From these reports it appeared that the pilot of P/120 had gone further south than

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- (1) An intelligence report gave the time of sailing as 2300 hours on 8 March 1942.
 - (2) From intelligence reports the vessel seen by P/120 was the blockade runner Fusijema which arrived in Bordeaux on 26 April 1942. A photographic reconnaissance of the port on 6 May confirmed the presence of this ship which was seen to be unloading at the Customs House Quay.

anticipated in his original patrol instructions, and it was this factor that decided No. 19 Group, once the identity of the suspicious vessel had been established as hostile, to instruct P/120 to attack his first sighting if encountered on the way home. This message did not reach the aircraft until 2135 hours, by which time the aircraft had nearly reached P.L.E. However, the target was not seen again.⁽¹⁾ Within two hours of the Liberator's return to base, a Whitley of No. 502 Squadron was airborne to continue the search but only fishing vessels and Spanish coasters were seen.

The third westbound ship encountered by aircraft was the Munsterland (6,334 g.r.t.) on 15 May 1942, and like the Elsa Essberger she was accompanied by a U-boat (U-437). A Sunderland of No. 10 (R.A.A.F.) Squadron en route for Gibraltar sighted a suspicious merchant vessel of about 6,000 tons in 43.35N, 0925W, at 1355 hours on a course of 100 degrees at 17 knots. There was no national flag flying but when challenged to identify herself a tricolour roundel was displayed on one of the after hatch covers.

This behaviour was reported to base and, as the ship was outside the "Free-for-all" area, instructions regarding subsequent procedure was requested. After consultation with Naval representatives, No. 19 Group decided the ship was "hostile" and despatched orders to the aircraft to attack. The Sunderland made seven attacks all told, expending 8 x 305 lb. Torpex D.Cs and 3,500 rounds of ammunition. Several near misses with D.Cs were claimed. The merchant ship opened fire and inflicted some damage on the aircraft. Prior to the attack the escorting U-boat had dived. An assessment of "damaged" was awarded for this attack.⁽²⁾ Having reached P.L.E. the aircraft left the scene and reported that all through the encounter the ship had maintained a steady course, but her speed had dropped to about five knots. Preparations were in hand at No. 19 Group for another Sunderland to take-off at 1730 hours to intercept and make further attacks on the blockade runner, but just before take-off, the sortie was cancelled owing to a sharp deterioration in the weather. An improvement during the early hours of 16 March, allowed a Sunderland to take off at dawn (0557 hours) with instructions to search the North Spanish coast, but engine trouble developed and the aircraft was compelled to return to base. In the meantime another Sunderland had been prepared as a replacement and was airborne at 1000 hours. Apart from an encounter with an Arado 196 and the sighting of many fishing vessels nothing resembling the Munsterland was seen. A photographic reconnaissance of Ferrol was suggested but the

- (1) The unmolested break-in to the French west coast by this ship led to a complete revision of the existing instructions for the attack of these blockade runners. (See the following section).
- (2) It has been confirmed from German sources (B. d U. War Log) that the Munsterland, using the call sign of the British steamer Arabistan (G.T.F.P), reported to base that she had been bombed. The escorting U-boat also reported the incident and the fact that she had lost contact with her charge. (Note:- As the S.S. Arabistan had left Cape Town only six days previous to go up the east coast of Africa and as no other British ship was believed to be in the vicinity it was now certain that the ship attacked was an incoming blockade runner). The assessment of "damaged" has been verified from post war records.

PL/G5/1/2/42
H.Q. No. 19
Group O.R.B.

H.Q. No. 19
Group O.R.B.
15.5.42

PL/G2/15/3

PL/G1/16/5

MB/Q4/16/5
H.Q. No. 19 Group
O.R.B.

weather in the area precluded its fulfilment. Three days later a P.R.U. sortie to Bordeaux brought back complete coverage of the port from which a ship resembling the Munsterland was identified at Bassens North Quay.

Eastbound blockade runners during this first phase, numbered six, (1) and all appeared to have broken-out from Biscay ports without being seen by air patrols.

(c) Review of the first phase

From intelligence reports and regular reconnaissance of the Biscay ports, it appeared that the arrival of the Munsterland on 16 May 1942, marked the close of the first blockade-running season. From mid-May onwards there was a lull while preparations were being made for the second campaign which was, according to current reports, due to commence sometime during the latter part of the summer.

At this stage, it seems appropriate to review the situation regarding the routes traversed, the strategy employed and the benefits bestowed upon the Axis partners.

The general Japan/Europe route taken by the blockade runners so far, appeared to be through the Pacific to Cape Horn thence into the South Atlantic, up through the Narrows into the North Atlantic to about 45.30N, then eastward along this latitude to the Gironde estuary. (2) The Europe/Japan route followed the same course in the reverse order. In March 1942, however, the Japanese Navy announced that they had opened the Malacca Straits to blockade-runners returning to Japan which meant this route could now be sailed by way of Cape Town and the Indian Ocean. (3)

The voyage to and from Europe was seldom completed without interruption as blockade-runners were liable, in this earliest period, to be allotted the task of supplying German U-boats and Auxiliary Cruisers, and relieving both of prisoners-of-war.

(1) <u>Rio Grande</u>	(6,095 g.t)	-	Sailed Europe	17. 9.41	Arrived F.E.
					6.12.41.
<u>Portland</u>	(7,132 g.t)	-	"	"	- .10.41 Arrived F.E.
					- . 1.42
<u>Doggerbank</u>	(5,154 g.t)	-	"	"	21. 1.42 Arrived F.E.
					19. 8.42
<u>Regensburg</u>	(8,068 g.t)	-	"	"	12. 2.42 Arrived F.E.
					7. 7.42
<u>Tannenfels</u>	(7,840 g.t)	-	"	"	16. 3.42 Arrived F.E.
					23. 6.42
<u>Dresden</u>	(5,567 g.t)	-	"	"	- , 3.42 Arrived F.E.
					23. 6.42

(2) The last few reference points on the route were generally:-

29.22S - 24.24W.
 25.35N - 40.11W.
 40.19N - 39.09W.
 45.29N - 20.42W.

(3) The last few reference points were:-

24.00S - 99.00E.
 Sunda Straits
 00.15N - 110.30E.
 20.50N - 120.00E.
 26.00N - 128.40E.
 34.00N - 139.50E.

From intercepts and sightings it had soon become apparent that U-boats were withdrawn from operations to escort these blockade runners in and out of port, (1) and that recognised lanes of entry and departure were closely followed. (2) Additional precautions were made to facilitate the entry and departure of blockade runners by imposing surface attack restrictions, as far as independently routed ships were concerned, on certain parts of the U-boats' operational areas adjacent to the routes taken by the surface vessels in both the North and South Atlantics. (3)

From the few encounters with this traffic it had also become apparent that camouflage in the form of ships names, call signs and national flags other than their own, was a piece of deception against which precautions would be necessary if the quarry was to be caught.

As far as the benefits to the Axis partners were concerned, the degree of success may be judged from the following facts. Germany had received in this season, a total of about 80,000 tons of cargo, (4) the chief items among which were some 35,000 tons of raw rubber and 30,000 tons of liquid edible fats and oil seeds, while Japan had received a total of 34,000 tons of merchandise, including machinery, machine engine parts, commercial goods and chemical products. (5)

To say the least, such results gave every encouragement to the participants to continue such a successful exchange of goods so vital to each others war potential.

(d) Measures to stop blockade running to and from French west coast ports

MEW./AS/201/
4/2

Now that the threat of blockade running between Japan and Germany had become an established fact, some very serious thought was given to the subject by the Joint M.E.W./Admiralty Committee. At a meeting held on 9 April 1942, the development in the exchange of vital war materials between the Axis

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- (1) The fact that U-boats detached for these escort duties were, in practice, out of operations for long periods, was not a popular measure with the Flag Officer U-boats. This part of the operation had not been, so far, a conspicuous success, as during this first season, only three out of twelve homeward bound blockade runners had been effectively encountered. There were numerous difficulties in effecting a rendezvous in mid-ocean, chief among which were:-
 1. Weather conditions were nearly always unfavourable.
 2. Ships were ordered not to search for their escort but to cross the rendezvous and proceed at once if they missed.
 3. It was forbidden to use beacon signals to facilitate a meeting. (Ref:- B. d U. War Log).
 - (2) The recognised route for homeward bound ships at this time was known to the Germans as "Way Anton" (Ref: B. d U War Log).
 - (3) The sinking of the Spreewald by U-333 had led to a general tightening-up of attack restrictions to obviate a repetition of such a costly error. (Ref: B. d U. War Log).
 - (4) Representing about 80 per cent. of the total amount despatched.
 - (5) Representing about 100 per cent. of the amount despatched.

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partners was made the principle item of discussion.

It was stated by M.E.W. that Germany had a quantity of finished articles ready for shipment which included various items of heavy equipment known to be required by the Japanese and which had been held up since the outbreak of the war with Russia. Japan on the other hand, had now available raw materials in abundance notably rubber and edible oils of which Germany was in dire need. Enquiries for new business in both directions had increased considerably during the past six months. There were also indications of insurances being effected and ships being loaded but no information regarding sailing dates or destinations was forthcoming.

Both Japan and Germany seemed suspicious of the others intentions. It was believed that Germany, whose immediate requirements of rubber were probably more important than Japan's for machinery, found that she could only deal on a barter basis, i.e., cargo against cargo. In any event it was known that Japan with a difficult shipping position was unwilling to release Axis vessels from Far Eastern ports before a corresponding tonnage had sailed from European waters.

Following from this, there appeared to be a strong likelihood of blockade runners from Europe as well as to Europe. Indeed the former proved to be an indication, in many cases, of the latter.

Once again the need for good intelligence was stressed, but M.E.W. pointed out that it was extremely difficult for them to provide any firm sailing dates of blockade runners, especially as little or nothing could be achieved to improve the intelligence from Japan. Steps were being taken, however, to improve the system in Bordeaux, which was undoubtedly to be the terminal point of this trade in Europe. It was hoped that the Admiralty would take similar steps. If the traffic could not be stopped it was, to say the least, vital for M.E.W. to know what merchandise was being carried.

After discussion it was agreed that:-

- (a) the possibility of trading between Germany and Japan was a matter of considerable importance, and that every step should be taken to prevent it.
- (b) The only area in which there was a reasonable chance under present conditions of intercepting these ships was the Bay of Biscay, and here we would have to rely primarily on the air to intercept.
- (c) Good reconnaissance of both the Bay of Biscay and the French west coast ports was essential.

CC/S.15211

At a further meeting of the joint committee on 5 May 1942, discussion of the details concerning the successful running of the blockade by the Fusiyama, showed that it had become necessary to devise some system of briefing pilots of aircraft with sufficient information to enable them to decide on the spot whether a ship was enemy or legitimate and subsequently whether to attack or not. If reference to base for instructions had to be made, it was almost certain that by the time the orders arrived back in the aircraft it would be too late to act.

To facilitate these decisions it was agreed that the

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following steps were necessary:-

- (a) the existing standing instructions to pilots on the attack of merchant vessels was in need of revision.
- (b) H.Q.C.C., should be provided with photographs and descriptions of as many as possible of the Spanish and Portuguese ships expected to be within the area on legitimate business. This also applied to the ships of any other nationalities involved.
- (c) An estimate of the movements of prospective blockade runners with descriptions of the vessels concerned, both eastbound and westbound, in relation to the periods of patrol to be spent in the "sink at sight" or adjacent areas.

It was recommended that M.E.W., the Admiralty and H.Q.C.C. should co-operate in the production of this information.

The question of whether the Spaniards and Portuguese would be likely to supply advanced information of sailings of all their vessels over 1,500 tons, was put to the Naval Attaché, Madrid, who was at this time in London. Subject to Foreign Office concurrence it was considered by the Naval Attaché that this could be arranged. On his return to Madrid, he would consult H.M. Ambassador.(1)

CC/S.15149
Encl. 14OA

In order that a clear picture of the requirements and intentions regarding the Biscay traffic could be given to Plymouth, from where operations would be directed, and at the same time give to the Committee members an insight as to how operations were controlled at an A.C.H.Q., it was suggested by the Admiralty that the Joint M.E.W./Admiralty Committee should next meet in this west country port.

This meeting was held at No. 19 Group, Headquarters on 19 May 1942 under the chairmanship of the C.-in-C., Plymouth. The conference was attended by the A.O.C., No. 19 Group, a representative from, M.E.W., the Admiralty, H.Q.C.C., and Staff officers, Naval and R.A.F.

After the representative from M.E.W. had explained the position, measures to stop this traffic were discussed at great length. Provision of photograph albums containing prospective blockade runners, Spanish and Portuguese ships and those of any other nationality expected in the area, was approved and welcomed. Likewise the information to be made available concerning the movements of the neutral and enemy ships.

In addition to these proposals several more were put forward by the local Naval and Air Commanders, chief among which were:-

- (a) The reinforcement of No. 19 Group with long range reconnaissance aircraft, and others capable of attacking with bomb or torpedo.
- (b) An extension to the "sink-at-sight" area in order

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- (1) In confirmation of this request, an Admiralty signal was sent to Madrid and Lisbon asking for the necessary information, i.e. sailing dates, ports of call and destinations of all ships moving north of Vigo.

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to give more "sea-room" to our forces for attack.

- (c) A submarine patrol in the Cap Ortegal area.
- (d) The provision of surface forces, if they could be made available to co-operate with aircraft.
- (e) A series of heavy air attacks on Bordeaux by Bomber Command.

All of these proposals were embodied in a written report which the C.-in-C., Plymouth submitted to the Admiralty on 21 May 1942.

The adoption of all these proposals was not feasible at this time, but a good proportion were brought into force before the opening of the second blockade running period.

(e) Movements of Neutral Shipping

H.Q.C.C./S.15211
Encl. 55A and 57A

In regard to the information required on the movements of neutral shipping, the Naval Attache, Madrid had an interview with the Spanish Under Secretary of the Ministry of Merchant Marine on 23 May 1942, and although the subject proved to be more complicated than at first believed, the difficulties were eventually smoothed out and agreement was finally reached. The Admiralty were to be notified 72 hours in advance of the movements of all ships over 2,500 gross tons, North of 42.15N.⁽¹⁾ The first signal was despatched from Madrid on 13 June 1942, and from this information a plot was maintained at Coastal Command.

In the meantime, albums containing photographs of the majority of neutral vessels likely to be seen trading within the area had been made-up into a convenient size and accompanied all aircraft engaged on patrols which covered the routes used by the blockade runners on passage in and out of Biscay ports. The album also contained photographs of the ships known and suspected of being engaged in Far Eastern blockade running.

(f) Revision of the "Sink at Sight" Area

As suggested by the conference at Plymouth on 19 May 1942, the instructions governing attack at sight by aircraft in Home Waters was examined by the Admiralty with the view to revising the section dealing with the Bay of Biscay, and after consulting with the Foreign Office, a revised schedule for this area

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- (1) Similar arrangements were made with the Portuguese and Eire authorities as follows:-

Portugal. All movements of ships over 1,000 tons North of 42.15N were to be notified 72 hours in advance.

Eire. All ships both outward and homeward bound were to keep west of 12 degrees West when between the parallels of 49 degrees North and 42.15N. Sailings from Eire and Lisbon to be notified 24 hours in advance.

was issued on 1 August 1942.(1) Greater freedom of attack for aircraft, provided by this amendment to the existing regulations, was extended equally to attack by surface ship and submarine.

ibid
Encl. 171A
C.C. Operational
Procedure
Instructions
No. 8 and 9

In consequence of this major amendment and other minor adjustments which had, from time to time, been made to the "Instructions Governing Attacks on Shipping by Aircraft in Home Waters", H.Q.C.C. took the opportunity to issue two entirely new Operational Procedure Instructions dealing with the action to be taken by aircraft on encountering hostile surface craft both inside and outside the "Sink-at-Sight" areas. A copy of these orders with a map showing the areas defined, will be found at Appendix XXXII.

(g) Reinforcement of No. 19 Group

As the nearest point in the area of operations against blockade runners was 410 sea miles from St. Eval aerodrome, the only aircraft capable of operating effectively at this range was a heavy long range type, of which sufficient numbers were not available within the Command at this time, i.e. early summer of 1942, to permit any diversion from the primary commitment of anti-U-boat operations.

The problem of reinforcing No. 19 Group with this type of aircraft was not, therefore, so easily solved. In view of the actual and pending despatch of aircraft both long and medium range to the Middle and Far Eastern theatres, and the difficulty of obtaining Liberators from the United States, there was a general shortage of aircraft throughout the Command.

Chapter 1
Section (iv)

The transference of one medium range squadron of Witleys and eight Liberators from Bomber Command to Coastal Command effected in the Spring of 1942, plus further assistance in the way of a temporary loan of four medium range squadrons of Wellingtons, did relieve the general situation, but a permanent solution of the long range problem remained as elusive as ever.(2)

H.Q.C.C.
S/7010/3/4
Part I
Encl. 67A to 76A
H.Q.C.C./S.7050/4
Encl. 56A - 62A
13

Further representations to the Air Ministry by the Admiralty and the A.O.C.-in-C. Coastal Command, during May, led to an agreement early in June between the Chiefs of the Air and Naval Staffs to divert Lancaster aircraft for long range work in the Bay of Biscay.(3) Later, direct negotiations between the Headquarters of the two Commands, produced a scheme whereby heavy and medium Bomber Command aircraft were made available for this same type of work provided no

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- (1) Previous instructions permitted attacks on all surface vessels whether at anchor, under way or alongside anywhere in the Bay of Biscay east of 12 degrees West and north of latitude 43 degrees North, provided it was not less than five miles from the Spanish Coast. The revised version extended the sink-at-night area to 14 degrees West and 42.15 North. Spanish territorial waters i.e. three miles from the coast, were to be carefully respected.
 - (2) For complete details of this reinforcement see Chapter I Section (iv).
 - (3) On 11.6.42, six Lancasters of No. 44 Squadron were temporarily placed under Coastal Command control, but during their stay were not called upon for anti-shipping duties. They returned to Bomber Command on 7 July 1942.

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large scale bombing operations were being carried out. Such reinforcements were to be provided under the code name of "Cakewalk".(1)

H.Q.C.C./S.7050
Encl. 23A and
H.Q.C.C/S.7050/4
(I)
Encls. 73-76A

In addition to these temporary detachments, a proposal by the Air Ministry to allocate aircraft and crews from a Bomber Command Operational Training Unit for work in the Bay was approved by the Chiefs of Staff on 13 July 1942. Although not directly employed on anti-blockade-running duties, aircraft of No. 10 O.T.U. sighted and shadowed enemy surface vessels during the course of their anti-U-boat patrols.

The fact that a clash of opinion between the Air and Naval Staffs was raging at this time, on the question of whether the bombing offensive against Germany or the safety of the main sea routes should have prior claim on the available aircraft, made a solution of the problem of reinforcing No. 19 Group with long range aircraft even more uncertain.

H.Q. No. 19
Group O.R.B.
July 1942 -
Feb. 1943

In the meantime medium range aircraft had to be utilised to the best advantage, with the long range work being done by aircraft in transit between the United Kingdom and Gibraltar and vice versa. These aircraft were armed and routed close-in to Cape Finisterre so that an anti-shipping patrol could be effected in this area. The actual time on patrol was very limited but it was better than nothing at all and did produce some results.

H.Q.C.C./S.7010/
57/1

The requirements for the first stage protection of the Torch convoys brought about a reinforcement of No. 19 Group with some long range aircraft from Bomber Command and the United States VIIIth Air Force, some of which were used for anti-blockade running duties; a role that was never intended when the aircraft were assigned to Coastal Command.

AM/S.6457
Encl. 133A
and 135A

By the autumn of 1942, sufficient American built Liberators and Fortresses were in sight to commence the re-equipment of three squadrons i.e., Nos. 224, 59 and 206, all of which were accordingly withdrawn from the line. The first two squadrons were allotted Liberators IIIA and the latter Fortresses IIA. Of these three squadrons, only No. 224 Squadron which became operational in October 1942 at Beaulieu, made any real contribution to the long range situation within No. 19 Group as far as blockade-running duties were concerned.

ibid
Encl. 146A

After a good start the deliveries of Liberators from the United States began to lag behind schedule, and in spite of all the subsequent plans and priorities allotted, (2) the re-equipment of Coastal Command with long range aircraft fell rather short of expectations by February 1943, although the general position was, however, more favourable. There was one Liberator and one Halifax squadron operational at Beaulieu; (3) one Fortress Squadron operational at Chivenor; (4) two United States Army Air Force Liberator squadrons under training at

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- (1) On 14 July 1942, No. 61 Squadron (Lancasters) arrived at St. Eval and operated under No. 19 Group in the Bay; in addition to their U-boat duties, they operated against an enemy supply tanker. They reverted to Bomber Command on 21 August 1942.
 - (2) For further details see Chapter XII, Section (xi).
 - (3) No. 224 Squadron and No. 405 Squadron. The latter on loan from Bomber Command.
 - (4) No. 59 Squadron.

St. Eval;(1) and one Halifax squadron working up at Holmsley South.(2) The primary duties of all these squadrons were of course anti-U-boat, but a limited number were made available and participated in anti-shipping operations as the occasion demanded.

(h) Air Attacks on Bordeaux and Minelaying

Although it had been suggested at the conference held at No. 19 Group on 19 May, that a series of heavy air attacks might be directed on Bordeaux with a view to disrupting the servicing and loading of blockade runners, it was not possible to adopt this suggestion at that time because Bomber Command could not spare the aircraft.

From the previous section it will be realised that Bomber Command was depleted through rendering aid to Coastal Command in the form of squadrons on temporary loan and actual transfers, in addition to which they also had to meet the call from overseas theatres for more aircraft and crews. Furthermore, the existing strategical bombing policy was directed against Germany with emphasis on enemy morale.

In the matter of minelaying, however, the policy had recently been reviewed and Bomber Command were stepping-up their effort with particular reference to that mine area off the Gironde Estuary known as "Deodar". From Appendix XXVII it will be seen how well the policy was implemented in this region, but strangely enough it had no effect on the enemy's Far Eastern blockade-running.

(i) Routine photographic reconnaissance of Biscay ports

H.Q.C.C./S.15211
Encl. 61A

Throughout the close season of June, July and early August, a very careful watch was maintained on the French West coast ports by P.R.U. whose aircraft visited the area, weather permitting, on the average about every fifth day. By this means a photographic record was built up, from which an analysis was made that revealed a certain sequence of events preceding the departure of a blockade runner.(3) The fact that most of vessels destined for this traffic had been inactive for a long time at Bordeaux and needed considerable attention in the repair yards before embarking on a long voyage, which was almost certainly made without any calls en route for refuelling, was a very good reason for supposing that the majority of ships would follow this programme very closely. In point of fact this theory was largely vindicated

(1) Nos. 1 and 2 A/S Squadrons, United States Army Air Force.

(2) No. 58 Squadron.

(3) From the state of inactivity or unloading to departure, the following sequence was followed by the majority of outward bound vessels up to mid-October, 1942:-

Stage 'A' - Inactivity at Bordeaux.

Stage 'B' - In dockyard hands for about two months.

Stage 'C' - In dry-dock for anything up to three weeks.

Stage 'D' - Back to dockyard hands for a further one to two weeks.

Stage 'E' - Appearance at the loading quay.

Stage 'F' - Departure.

Later an additional stage in the programme became evident, as after Stage 'E' the loaded vessels appeared to move up stream to the Custom House Quays where a few days were spent before final departure.

during the season as a whole, and it became possible to "tip" many of the departures virtually without error. During the season of blockade running this careful watch was maintained, which combined with information from intelligence sources, provided a reasonably accurate warning of forthcoming events.

(j) The provision of Naval Forces - Operation Busby

When the second season of blockade-running between Europe and the Far East commenced in August 1942, only air forces were available for the location and attack of this traffic within the Bay of Biscay area. No Naval forces either surface or submarine had been allocated for operations in this zone.

H.Q.C.C.
S.7010/42

As already mentioned the area of operations was some 410 sea miles from the nearest Coastal Command air base, and the only aircraft capable of operating effectively at this distance was the heavy type of aircraft which was singularly unsuited for the attack of shipping as heavily armed as the blockade runners and supply ships encountered. Furthermore a great part of the route followed by these ships was now under the direct protection of enemy fighters both short and long range and there was also reason to suppose that the Germans had established an effective aircraft reporting system either visual or electrical along the Spanish coast.

Attempts made to interfere with this traffic, up to September 1942, had not proved very effective and the cost to No. 19 Group had mounted-up to three Lancasters, one Catalina and one Sunderland in return for one supply ship of 8,998 gross tons damaged.

With this unsatisfactory exchange in mind, the A.O.C.-in-C. Coastal Command communicated with the First Sea Lord on 13 September 1942. He stated that it was his opinion that neither Bomber Command or his own Command could be expected effectively to deal with this class of shipping, and suggested that the proper procedure for dealing with these ships might well be found in the establishment of a Naval patrol either submarine or light surface craft in an area west of Finisterre.⁽¹⁾ If submarines were used there was the additional advantage that they could also engage German U-boats using the same traffic lanes. The task of reconnaissance to increase the effectiveness of these patrols could and would be done by aircraft of Coastal Command.

H.Q.C.C.
S.15310
Encl. 1A

By the end of September this suggestion had been adopted by the Admiralty and Flag Officer Submarines had announced that a continuous patrol of two submarines was about to be

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- (1) In this connection the A.O.C.-in-C., also saw the Minister of Economic Warfare on 14 September 1942, who expressed his anxiety on the number of blockade runners getting in and out of the German occupied ports. After a prolonged discussion on the existing difficulties from Coastal Command's point of view, the Minister agreed to approach the Chiefs of Staff on two lines:-
- (i) To endeavour immediately to obtain the help of either surface or submarine patrols in the Bay of Biscay.
 - (ii) To request all possible assistance for Coastal Command to get an adequate and suitable striking force to attack these blockade runners. (Ref:- H.Q.C.C./ORB/Sept. 1942).

established in the Bay of Biscay with the object of destroying enemy shipping including blockade runners, raiders, tankers and U-boats.(1) On this decision, aircraft were no longer required to attack such shipping unless specially ordered to do so by H.Q.C.C.

On the question of air co-operation with the submarines a plan of patrols was worked out by the Staff at Coastal Command and submitted to the A.O.C.-in-C. who ruled that, owing to the aircraft situation, the day to day procedure would have to be met by the normal B.P. patrols,(2) but a crossover to the westward would also be carried out as frequently as the aircraft situation permitted.(3) On receipt of information that an important blockade runner was passing through the area, an additional crossover to the eastward and a parallel track sweep would be introduced.(4) The easterly crossover, i.e. No. 2, could only be maintained if adequate cloud cover was available.

H.Q.C.C.
Operational
Instruction
No. 108

Discussions on the provision of air co-operation took place between H.Q.C.C. and F.O. (Submarines) during the first week of October, when final details of the plan were agreed. On 9 October 1942, the plan was issued under the title of Operation "Busby".

It was envisaged in these instructions that if the patrols, already outlined in a previous paragraph, were carried out efficiently, any surface vessel in or approaching the submarine patrol area should be located during daylight.

All aircrews participating in this operation were briefed on the movements of neutral shipping expected in the area. Any ship of over 2,500 tons encountered, the movement of which had not been notified, was to be shadowed and an immediate report sent to base; on receipt of an acknowledgment in the form of the letter 'R' the aircraft was to carry out homing

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- (1) The patrol area was bounded on the North by 44.40N and on the South by the Spanish coast; on the East by 05.30W and on the West by 09.00W. This area was subject to alteration by an extension or variation of the Total Bombing Restriction area on request by F.O. Submarines.
 - (2) For details see Map VIII.
 - (3) Crossover No. 1 begun, and was maintained, throughout daylight from 44.22N - 10.08W, thence 43.10N - 09.20W, then 43.23N 08.59W, thence 44.10N - 10.30W, then 44.22N - 10.08W. etc.
 - (4) Crossover No. 2 began, and was maintained throughout daylight. This was warped to cater for possible lines of approach. 44.40N - 05.30W, thence 43.32N - 05.00W, thence 43.40N - 05.30W, thence 44.48N - 05.00W, thence 44.40N - 05.30W.
Sweep - Aircraft to arrive at datum at first light.
Sweep to commence at 44.30N - 04.30W, thence to 44.30N - 08.20W, 43.55N - 09.40W, 43.35N - 09.25W, 44.10N - 08.10W, 44.10N - 04.20W, 43.50N - 04.10W, 43.50N - 08.00W, 43.20N - 09.10W.

procedure.(1) Ships under 2,500 tons were to be reported by W/T but not shadowed. Particulars of all vessels over 2,500 tons, the movement of which had been notified, were to be recorded and handed in on return to base. Should any doubt exist as to the identity of any ship located a signal was to be made giving a description and requesting instructions.

The success of the plan was very largely dependent upon the speed with which reports were passed. The fact that submarines would hear the aircraft signals only if they were on the surface made it essential that all reports received by H.Q. No. 19 Group must be passed immediately by telephone to the Controller or Duty Naval Staff Officer at H.Q.C.C. for transmission to F.O. (Subs.), who in turn would re-broadcast the information so that it could be picked up by submerged submarines.

By 14 October 1942, the submarines(2) had arrived in the operational area, and on this day thirty-five aircraft were engaged on B.P. patrols. Thus the scheme was initiated and results were awaited with more than usual interest.

(k) Second blockade running period

Admty.
N.I.D.24/T.60/45

German and Italian ship were again used during the second blockade running period which lasted approximately nine months, from August 1942 to May 1943.

The original request of the German High Command was for cargo space to accommodate 440,000 tons of merchandise, including 270,000 tons of solid or liquid edible fats, for transport to Europe. Plans were based on the shipping then available, i.e. twenty-three freighters (nineteen German and four Italian) and nine tankers. Modifications during the season however, reduced the original figure so that the final programme was arranged for 140,000 tons of dry goods and 70,000 tons of liquid edible fats, but even this comparatively modest amount was not loaded into the available cargo space. Fourteen freighters (twelve German and one Italian) and two tankers with cargo totalling 130,200 tons (approximately) ultimately left Far Eastern ports for Europe. In the opposite direction twelve ships made their departure for Japan with some

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- (1) An aircraft sighting an enemy vessel was to act as follows:-
 - (i) Pass the necessary enemy report to W/T control on the normal W/T frequency.
 - (ii) On receipt of the letter "R" from W/T Control, transmit the operating signal X548 - 385 (Am shifting to 385 Kcs), shift to 385 Kcs and broadcast the enemy report, subsequently transmitting the operating signal X730 for a period of about five minutes.
 - (iii) Amplifying enemy reports were to be transmitted in a similar manner, followed by homing signals on 385 Kcs. These reports were to be made at intervals of not less than once every fifteen minutes.
 - (iv) Cease the procedure when:- one of H.M. ships had made visual contact; one hour had elapsed (unless otherwise ordered); or reached P.L.E.
 - (2) Four submarines were sent to the operational area off the North Spanish coast - H.M. Submarines Ursula, Unique, Sealion and Graph, but the first two named only stayed a few days as they were actually en route to Gibraltar.

33,900 tons of cargo consisting mainly of war materials and valuable commercial products. Supplies for other blockade runners, auxiliary cruisers and supply ships based in the Far East, were also carried.

(1) Operations - 19 August 1942 to 31 October 1942

August

H.Q. No. 19
Group O.R.B.
August 1942

M.E.W./OBJ/SEA.
No. 2. 28.8.42.

ibid
No. 5
18.9.42.

As far as Coastal Command was concerned the second blockade running season opened on 19 August, when, during the course of searching for an outward bound supply tanker, a merchant vessel of 7,000 tons was sighted at 1440 hours to the north east of Cape Ortegal on a westerly course by a Wellington of No. 304 (Polish) Squadron. Unfortunately the Polish crew failed to report this incident until their return to base some four hours later. From the photographs taken the vessel was identified as the Weserland (ex Ermland) a German vessel of 6,328 gross tons. The absence of this vessel from Bordeaux had been reported by P.R.U. two days earlier. Subsequent photographic reconnaissance of Bordeaux, however, showed that this ship had returned to port for some unknown reason and remained there until 7 September. On the following day she had left and it seemed probable that it was the Weserland which was sighted by two aircraft, on 9 September, off Cape Villano and by another aircraft operating from Gibraltar during the following day in a position approximately midway between Cape Villano and the Azores.

September

Adnty.
N.I.D./24/
T.60/45

In the meantime another outward bound blockade runner had made her exit from Bordeaux unseen. She was the tanker Uckermark of 12,000 gross tons, which left port on 1 September during a scare for what was believed an inward bound vessel.

H.Q. No. 19 Grp.
O.R.B.
17.9.42.

During the second week of September there was every indication that at least five potential blockade runners were loading and nearly ready for sea. Such a target seemed to present an excellent opportunity to try the experiment of bombing these ships when lying in port, a policy that had long been advocated by Coastal Command but never carried out owing to other more important commitments. Wellington aircraft of Nos. 304 (Polish) and 311 (Czech) Squadrons were chosen for this task and of the eleven aircraft despatched, ten claimed to have bombed the target area on the night of 17 September. Photographic reconnaissance of the port the following day, however, showed no damage to ships but the roof of a large shed at Bassens North appeared to have been pierced in several places. No casualties were suffered by aircraft, but heavy and light flak was encountered over the target. Enemy opposition by air was negligible.

H.Q.C.C.
Controllers and
Naval Logs
24.9.42.

Adnty.
N.I.D./24/
T.60/45

The activities of F.W. 200s in the Bay area during 24 September gave every indication that the movement of a supply ship or blockade runner was in progress, but no sightings were made by Coastal Command aircraft on patrol in the vicinity. From German post war records however it appears that the Italian ship Pietro Orseolo of 6,344 gross tons did effect a breakout about this time, unnoticed.

On 27 September, a second tanker (with a U-boat escort (U-907)⁽¹⁾) made her departure during a spell of bad visibility,

(1) This was the German tanker Brake of 9,225 gross tons.

H.Q. No. 19
Group O.R.B.

H.Q.C.C.
Controllers Log

but was seen two days later by a Whitley of No. 502 Squadron when she had reached a position some 120 miles west of Cape Finisterre. As all the aircraft in the vicinity had reached P.L.E. none could be diverted to attack and as the weather was deteriorating the chances of relocating the target were too remote for further consideration.

October

H.Q. No. 19
Group O.R.B.

From intelligence sources information came to hand on 2 October that two blockade runners would probably leave the Gironde during the evening and in consequence two Sunderlands of No. 461 (R.A.A.F.) Squadron were sent out on a reconnaissance along the North Spanish coast. At 1600 hours a sighting was made and photographs were taken by aircraft I/461. It was too late in the day for a relief to be sent out but at first light on 3 October, three Sunderlands were scheduled to be in the area ready to relocate and attack. All three aircraft found the quarry, attacked and claimed three hits. The difference in positions given by the three aircraft prompted the belief that a second vessel was at large and two more Sunderlands were despatched to deal with this additional target. At the same time two Liberators of No. 224 Squadron were sent out to continue the attack on the original ship, which incidentally was last reported on a course of 130 degrees, a track which would take her into the Spanish port of El Ferrol. However, she was not sighted again. From the photographs taken of the vessel it was believed that she was the Belgrano of 6,095 gross tons.(1) The following day i.e. 4 October, reports from El Ferrol gave news of the arrival of a large German vessel with wounded on board. A further report stated that repairs involving the use of shore labour had been put in hand and were expected to take about three days. This ship sailed from El Ferrol on the night of 10/11 October, and a vessel bearing a close resemblance was sighted and attacked by a Sunderland of No. 461 (R.A.A.F.) Squadron which had been sent out especially to locate her. There was no claim for this attack and when last seen the vessel appeared to be resuming a normal voyage to the westward.

M.E.W./OBJ/SEA.
No. 8. 10.10.42.

H.Q. No. 19
Group O.R.B.

Meanwhile another outward bound ship had made good progress before being sighted on 10 October by an aircraft of No. 304 (Polish) Squadron some 250 miles N. of Cape Finisterre. She was subjected to a machine gun attack, and thereafter continued on her way westward.(2)

To confuse the issue still further, an outward bound tanker was at large in the centre of the Bay and attracted a lot of attention.(3) On 10 October she was sighted and photographed by a Wellington of No. 304 (Polish) Squadron. On the following day she was relocated and attacked no less than four times and when last seen was heading for the Gironde. The next day she was picked up again in 45.5IN-0918W on a westerly course, but four more attacks apparently persuaded her to turn eastward once more.

In the vicinity of the tanker on this same day a merchant

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- (1) German records indicate that this was the Rio Grande of 6,062 gross tons. She sustained some damage and put into El Ferrol for repairs.
 - (2) This was the German ship Bursenland of 7,320 gross tons.
 - (3) This was the German tanker Spichern (ex Krossforn (Nor)) of 9,323 gross tons.

vessel closely resembling the German ship Silva Plana of 4,793 gross tons was sighted and photographed by a Wellington of No. 311 (Czech) Squadron, but was not seen again until 13 October when a Whitley of No. 10 O.T.U.(B.C.) reported a hostile ship in 46.30N-15.40W. Two Liberators were diverted to the position but insufficient fuel led to the task being abandoned.

M.E.W./OBJ/SEA.
No. 10
24.10.42

Photographic reconnaissance of Biscay ports on 15 and 17 October confirmed the departures of the Burgenland and Silva Plana and the return of the tanker Spichern.

Throughout the remainder of the month the watch on Biscay ports revealed some significant movements within the ports which indicated further imminent departures, but nothing of importance occurred.

(2) The Tempo quickens - arrivals and departures - November 1942

H.Q.C.C.
Controllers
Log 1.11.42

Early in the morning of 1 November, information came to hand from secret sources concerning the departure of four naval vessels from La Pallice the previous evening. Their track was to be along "Route Burgraf" - a swept channel extending westwards from the Gironde. The inference was that they were going out to meet a blockade runner and escort her into port. Unusual activity by F.W. 200s supported this contention. Preparations for the interception of this force were made by H.Q.C.C. Six Wellingtons were to sweep an area along the North Spanish coast and a "Rover" by four Hampdens and three Hudsons to the westward of the Gironde as far as 0630W was also scheduled. Although an effort of twenty-two sorties were flown on this mission, nothing was sighted. For the next three days the normal standard anti-submarine patrols were maintained throughout the Bay of Biscay but nothing was seen to arouse any suspicions. However, it transpires from German records that two inward bound blockade runners arrived at Bordeaux during this four day period.(1)

H.Q. No. 19
Group O.R.B.

Adnty.
N.I.D./24/
T.60/45

H.Q. No. 10
Group O.R.B.

The sighting of four enemy naval units at 0900 hours on 5 November, was the start of a very active period of three days, during which two outward bound ships and one inward bound vessel passed through the area. The four naval units, which incidentally had air cover, were proceeding on a westerly course which naturally gave rise to the assumption that an inward bound ship was due. Some forty-five minutes after this sighting, the blockade runner herself was sighted by a Whitley aircraft of No. 502 Squadron some 320 miles to the westward on the latitude of 44 degrees North. An attack was made but no claims resulted. A few hours later she was sighted again by a Whitley of No. 10 O.T.U.(B.C.) apparently undamaged and proceeding in an easterly direction.(2) This concluded the operations against this vessel for the day as unfortunately the weather closed down all airfields in southwest England, and in consequence no strike or shadowing aircraft could take-off before dawn the following day, i.e. 6 November.

Meantime arrangements were made for three Wellingtons to search a large area off the North Spanish coast in addition to

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- (1) The Tannenfels of 7,840 gross tons arrived on 2 November and the Dresden of 5,567 gross tons came in on the following day.
 - (2) The aircraft making these sightings were all engaged on Anti-Submarine patrols.

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which four Sunderlands were to go right up to territorial waters commencing at 0830 degrees West, and work eastwards.(1) All other aircraft likely to be flying within the area in which the inward bound vessel might be encountered, were briefed to report and shadow. By 1300 hours on 6 November three sightings had been made of the ship, which by this time had reached a position half-way along the North Spanish coast. Now in company with the four minesweepers, the first sighting of the vessel was made by a Sunderland of No. 10 (R.A.A.F.) Squadron at 1043 hours, followed by a second sighting from a Whitley of No. 502 Squadron twenty minutes later. A second Whitley made the third sighting at 1300 hours. An F.W.200 was overhead and interfered with our aircraft, none of which were able to make an attack.(2)

At about the same time, but some sixty miles to the northward, a similar encounter was being waged between three aircraft of Coastal Command and an outward bound blockade runner.(3) Three attacks were made on this vessel but no claims were recorded. During the late afternoon of the same day yet a third ship was sighted on the longitude of six degrees west but in the northern part of the Bay. She was also attacked three times but no claims were made. Two of the aircraft reported her in a south easterly course but the third gave her course as westerly when first sighted but this had changed to south-easterly by the time the attack was made. This vessel also had an escort of three minesweepers.

H.Q.C.C./
Naval Log
Nov. 1942

Against the first outward bound vessel, the submarine Unbeaten directed some attention, and although the outcome of this remained obscure, the ship was apparently not damaged in anyway, for on the following day she was sighted three times by aircraft and attacked twice, but survived all onslaughts and continued her outward voyage.

H.Q.C.C.
Naval Log
5/6 Nov. 1942

Conforming to the current plan for minelaying, aircraft of Bomber Command visited the Gironde area during the nights of 5/6 and 6/7 November, and although none of the blockade runners touched-off any of the mines laid, it was evident throughout the day of 7 November that the sweeping of the channel had not been completed for there was some congestion among shipping at the mouth of the river. As this concentration of shipping could not be adequately attacked by Coastal Command's resources without detracting from the normal anti-submarine work, the help of Bomber Command's medium bombers was sought on this occasion. Six Mosquitos of No. 2 Group were loaned for the operation. All six aircraft attacked shipping at anchor in the approaches to the Gironde and hits on a speerbrecher, which was in company with an inward blockade runner, were claimed. In addition to this Bomber force, Coastal Command assembled a composite strike of sixteen, including Wellingtons, Beaufighters, Whitleys, Liberators and Hampdens, seven of which attacked various groups of shipping,

H.Q.C.C.
Controllers
Log

H.Q. No. 19
Group O.R.B.

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- (1) In addition, the eastward Crossover patrol outlined in Operation Busby was brought into force.
 - (2) This ship was subsequently identified as the Kulmerland of 7,363 gross tons.
 - (3) This vessel was identified as the Anneliese Essberger of 5,173 gross tons.

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but no claims were made.(1)

At midday on 7 November, the outward bound vessel, i.e. the Anneliese Essberger, which was attacked first on the previous day, was relocated by a Sunderland of No. 461 (R.A.A.F.) Squadron and subjected to an attack with depth charges and bombs. Four hours later a second attack was delivered by a Halifax of No. 158 Squadron (B.C.), but in both cases no results were observed.(2)

During the afternoon of the same day ~~even~~ (7 November) a batch of sightings was received from aircraft engaged on anti-submarine patrols in an area some 230 miles N.W. of Cape Villano which indicated the presence of yet another outward bound ship. This vessel was attacked by a Whitley aircraft of No. 10 O.T.U.(B.C.) but no claims were made. When sighted an hour later she was still on a westerly course.(3)

At last light on 7 November, a reconnaissance of the Gironde estuary showed that little or no movement had taken place among the shipping awaiting entry, and it was therefore arranged that a strike should be made on this target at first light on 8 November.

H.Q.C.C.
Controllers
Log

As Bomber Command were unable to provide a minelaying operation for the night 7th/8th, a Liberator of No. 224 Squadron was scheduled to drop depth charges "safe" in order to simulate mines. This sortie was completed, and in addition, five others were carried out by Wellington and Halifax aircraft at first light on 8 November against the shipping still at anchor in the mouth of the river. Four of these aircraft attacked, but no results were observed. During the early part of the night 8/9 November, fourteen aircraft of Coastal Command were despatched to attack the docks at Bordeaux, in view of the fact that much of the shipping sighted earlier in the day at anchor had now moved into berths. Although seven aircraft claimed to have dropped their bombs on the target area, no results were observed.

H.Q.C.C./S.7010/
42/2

H.Q. No. 19 Grp.
O.R.B.

Within twelve hours of the conclusion of this operation another incident concerning an outward bound blockade runner at sea was rapidly developing. At 1210 hours on 10 November a Liberator of No. 330 (U.S.) Squadron, engaged on an Anti-submarine patrol off the North Spanish coast, sighted a large tanker with an escort of four naval vessels about twenty miles off-shore. This aircraft sent a first sighting report but omitted to include an approximate course and speed of the enemy

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- (1) Among this group of shipping was the Elsa Essberger of 6,103 gross tons, about to depart from the Gironde for the Far East. She was heavily damaged by aircraft attack and returned to Bordeaux, where she remained until finally scuttled in August 1944. Ref: Admty/T.S.D./F.D.S/X.320/50
 - (2) This ship continued her voyage to the Far East, after these attacks, but at 0652 hours on 21 November, scuttled herself in 00.54N, 22.34W, when intercepted by the U.S. Cruiser Milwaukee. Prisoners numbering 62, were landed at Recife and handed over to the Brazilian Army for confinement.
 - (3) This ship was identified as of the Kota Nopan type of 7,277 gross tons which the Germans named Karin. It was believed that this was the same ship which was attacked during the previous afternoon in the northern part of the Bay.

force. Base ordered the aircraft to attack but this order was not carried out owing to shortage of fuel. No amplifying report was despatched. At 1305 hours Liberator P/330 (U.S.) Squadron located the same force and reported, but again failed to indicate the course or speed of the enemy. An amplifying report followed which gave the number of escort vessels screening the tanker as five. A few minutes later a third Liberator (S/330) of the same squadron sighted the enemy force and made an incorrect first sighting report with no course mentioned.

Assuming the course to be a westerly one, a Liberator of No. 224 Squadron engaged on a U-boat hunt was diverted by H.Q.C.C. at 1440 hours with orders to locate and shadow the enemy tanker. Two hours later this aircraft came up with the target made a correct first sighting report and proceeded to attack with depth charges, but no hits were claimed. Meanwhile Bomber Command had been approached in regard to the despatch of a Mosquito force, but the A.O.C.-in-C., decided there was not sufficient daylight left to get the Mosquitos off. Flag Officer Submarines had by 1530 hours informed H.M. Submarine Tigris of the existence of the enemy force in her locality and she was ordered to proceed to 44.01N. 12.30W to intercept. Information of this movement was given to the Air Officer Commanding No. 19 Group, and in consequence the Group's principal task was, from now on, to shadow the enemy force and keep H.M.S. Tigris informed. A Wellington strike of four aircraft which had taken off at 1730 hours were allowed to proceed with their task as they would not interfere with the submarine's action which could not take place at the earliest until some time on 11 November. At 2209 hours, Wellington K/172 Squadron sighted a force some forty-five miles westward of the original sighting and sent a first sighting report. This was followed at 2235 hours by a message indicating that the force, consisting of one unidentified merchant vessel and three destroyers, had now changed course to 090 degrees. Meanwhile at 2255 hours, a second Wellington (S/172) reported a single tanker with no escort, in a position nearly one hundred miles further west, which was attacked.⁽¹⁾ On receipt of this information two Whitleys of No. 502 Squadron were then ordered to take-off as soon as possible to shadow the two forces reported by the Wellingtons. One aircraft to cover each force. Nothing more was heard of the merchant vessel and her escort but at 0640 hours on 11 November, one of the Whitleys (L/502) sighted a tanker about thirty-five miles north west of Cape Ortegal. The first sighting report did not give course or speed, and the signal received after a request for further details, was corrupt. Two hours later the second Whitley made a sighting report of a tanker sighted fifteen miles to the south east of the first Whitley's report. This message was incorrectly compiled and although base requested the position and course of the vessel it was not received at either No. 19 Group, St. Eval or H.Q.C.C. yet the aircraft crew maintained that it was sent. Meanwhile, three Liberators of No. 330 Squadron (U.S.) ordered to take off on a shipping strike, were diverted to a corrected position given by Wellington S/172 on its return to base. One of the Liberators sighted and attacked a surface vessel in a position fifteen miles north of Cape Prior, and although two sighting reports were received from this aircraft, no course or speed was given in either message and no reply was received to a

H.Q.C.C.
Controllers
Log

H.Q. No. 19
Group O.R.B.

(1) After this attack the tanker set course for El Ferrol in view of the damage sustained. German records state that this was the Spichern of 9,323 gross tons.

request for details. A strike of six aircraft of No. 311 (Czech) Squadron ordered off at dawn on 12 November to attack the enemy vessel reported by L/502, failed to make contact.⁽¹⁾

As a result of the attack by Wellington S/172 Squadron the tanker was undoubtedly damaged⁽²⁾ and thereafter found it necessary to put into the Spanish port of El Ferrol. The fact that the action as a whole was only partially successful was, at Air Ministry request, made the subject of an enquiry as to why the action had not been more decisive.

H.Q.C.C./S.7010/
42/2

As in previous incidents, this one also revealed the shortcomings inherent in the diversion of aircraft trained in one role to take up another at short notice, and thereby emphasised the need for the provision of a properly equipped and thoroughly well trained striking force to deal with this type of target.

The main conclusion drawn from the enquiry was that the general standard of training and crew drill in the matter of drafting and sending first sighting reports still left much to be desired. In this respect the Air Ministry appreciated that it was not always practicable to employ experienced crews on operations of this type, but it was requested that all possible steps should be taken to improve the general standard of training and crew drill particularly with regard to the despatch of vital information concerning the enemy.

Action was taken with No. 17 Group to ensure that the basic training on this subject was improved and that the necessary emphasis was given in the syllabus of training at both the School of General Reconnaissance and the Operational Training Units.

(3) "Busby" in operation against the "Cortellazo".

The rest of November remained quiet until the last two days, when aircraft and submarines were engaged in chasing an outward bound blockade runner, which fortunately ran into a southward bound Allied convoy, otherwise it might well have cleared the Bay without damage.

So far, the number of times that "Operation Busby" had been brought into force were very few, but on this occasion it was fully in operation, and therefore some idea of the organisation can be assessed.

H.Q. 19 Grp.
O.R.B. Form
Orange BLU/02/29

H.Q.C.C.
Naval Log
29.11.42

The first intimation that any movement among blockade runners was afoot was received at 1424 hours on 29 November when a Halifax of No. 405 Squadron (B.C.) reported that she had sighted an enemy force of three destroyers, one cruiser and one troopship on a westerly course some eighty miles due north of Bilbao. The aircraft had been in the air since 0758 hours and therefore had not the endurance to remain and shadow. It landed at Beaulieu at 1802 hours. Within half an hour of the receipt of H/405's report, orders were given to divert one Liberator and three Halifaxes on Bay patrols to the signalled

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- (1) This strike force was due to make contact between 1150-1215 hours but as the tanker entered Ferrol just after midday the strike could not have arrived in time to take effective action.
 - (2) This is confirmed by German records (B. d.U. War Log) and Lloyd's.

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position of the sighting, but none of these aircraft received this diversion order. At 1520 hours, five Wellingtons, also engaged on Bay patrols, were diverted to the position of the enemy force. Three aircraft proceeded but the remainder had insufficient fuel and consequently set course for base. At 1750 hours, one Wellington (M/304) sighted four enemy vessels in 44.43N, 02.30W (about 86 miles North East of Bilbao) and attacked unsuccessfully. From the description, these vessels appeared to be the escort vessels on their way back to port. The blockade runner was not located.

H.Q. 19 G.R.P.
O.R.B. TAL/06/29
Nov. 42

By this time H/405 had returned to base and after interrogation the signalled position of the sighting was found to be incorrect, so a more accurate position was conveyed to higher authorities at 1925 hours. This read 45.45N, 04.50W, and the time of sighting was also amended to 1345 hours.

H.Q.C.C.
Naval Log
29 Nov. 42

On this day, F.O.(S) had at his disposal four submarines within reasonable distance of the scene of the sighting, (1) but as doubts were cast on the original report since the aircraft was one on loan from Bomber Command, the presence of an enemy force was not made known to the underwater craft until 1941 hours. On receipt of the information (2) the submarine best placed to effect an early interception i.e. H.M.S. Graph, proceeded towards an estimated position in an endeavour to fetch-up with the enemy in his furthest-on position at 0100 hours. (one hour after moonrise). A second submarine, H.M.S. Sealion informed F.O.(S) that owing to shortage of fuel she was unable to follow the route ordered and was, instead, proceeding on a northerly course about 20 miles to the eastward.

H.Q.C.C./S.7010
42/3

Meantime, at the suggestion of the Naval Staff at H.Q.C.C. one Sunderland (E/10) was despatched at 2254 hours to try and relocate the enemy, and at 0124 and 0139 hours on 30 November two more Sunderlands (Z/10 and C/10) were sent out to search along the blockade runners estimated track, eastward from 11.20 degrees west. At 0400 hours on 30 November, E/10 sighted a merchant vessel in position 44.30N 09.18W on a course of 230 degrees (3) and immediately sent out a first sighting report and commenced shadowing. Ten minutes later H.M.S. Graph herself intercepted this report, which placed the blockade runner some fifty miles to the west south west of her. The submarine immediately proceeded 240 degrees at a speed of 16 knots to overtake and intercept. At 0430 hours H.M.S. Sealion in approximately 45.52N, 10.42W, sighted a reddish flare or Verey light close to and dived. Nine minutes later she heard the hydrophone effect of a westbound diesel engined ship doing 82 revolutions; an asdic range of 3,000 yards was obtained. She surfaced and gave chase without sighting anything until

H.Q. 19 G.R.P.
O.R.B. PL/G4/
29 Nov. MB/01/
30 Nov.

H.Q.C.C./S.7010/
42/3

- (1) H.M.S. Graph - approximately 40 miles north of Cape Ortegal. H. Neth M.S. Dolfijn on patrol approximately 15 miles west of Cape Ortegal; H.M.S. Clyde on passage to the United Kingdom from Gibraltar, about 180 miles west of Cape Villano; and H.M.S. Sealion proceeding to the United Kingdom from her patrol off Ferrol. She was ordered to return home up longitude 13 degrees 22 minutes with the object of her crossing the supposed track of the enemy.
- (2) The position given to the submarines was based on the original sighting report, which was incorrect.
- (3) This position fitted in fairly well with that of the blockade runner, run on from 1345 hours on 29 November on course 270 degrees.

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0507 hours when a further Verrey light or flare was sighted. This led H.M.S. Sealion to believe she had been detected by R.D.F. and she again dived. Further H.E. was heard and an asdic range of 5,000 yards obtained. The submarine surfaced again at 0511 and gave chase, finally abandoning it at 0655 hours when she resumed her homeward course owing to shortage of fuel.

H.Q.C.C./Naval
Log - 30 Nov.

At 0520 hours aircraft E/10 was ordered by No. 19 Group to carry out homing procedure, and commencing at 0521 hours, continued to do so at intervals until 0637 hours when the aircraft broke-off the shadowing having reached P.L.E.(1)

H.Q. 19 G.R.P.
O.R.B. MB/02
30 Nov.

Another sighting report had, in the meantime, come to hand. Sunderland C/10 at 0620 hours sighted a merchant vessel in 44.27N, 10.30W on a course of 310 degrees at 12 knots, and later at 0725 hours reported a second vessel in company. This latter vessel, of naval type, opened fire on C/10 which attacked her with 8 x 250 lb. G.P. bombs at 0850 hours. This Sunderland left the enemy at 1012 hours in 44.25N, 11.10W steering 270 degrees at 12 knots. About 35 miles to the south-east, Sunderland Z/10 had also sighted a merchant vessel at 0654 hours on a course of 270 degrees which she shadowed until 0802 hours after attacking with 7 x 250 lb. G.P. bombs, twelve minutes before departing for base.(2)

MB/03/30 Nov.

H.Q.C.C.
S.7010/42/3

The reports from submarine and aircraft between 0400 hours and 1012 hours were undoubtedly confusing owing to the discrepancies in the reported positions of the enemy force. It seemed probable, however, that apart from the blockade runner there was at least one escort vessel in company which had during the night of 29/30 November made a run to the south west to mislead pursuers.

In view of the differences in reported positions, C.-in-C., Plymouth made an estimate of the blockade runners position and this was passed to submarines and aircraft between 1025 and 1030 hours.(3)

H.Q.C.C.
Controller's
Log. 30 Nov.

Three Halifaxes of No. 405 Squadron already on their way out to attack the enemy were informed of the amended position, but only one aircraft received the message. These Halifaxes, however, sighted nothing. At 0940 hours 30 November, five Wellingtons of No. 311 (Czech) Squadron were ordered to take off on an Anti-shipping strike, to proceed to 45N, 13W, and to sweep thence towards 44N, 11W, to P.L.E. These aircraft took off about 1015 hours, but only two made sightings. At 1443 hours B/311 sighted and attacked the blockade runner in 44.40N, 12.40W, on course 260 degrees, with 9 x 250 lb. G.P. bombs.

H.Q. 19 G.R.P.
O.R.B. TAL/02/
30 Nov.

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- (1) H.M.S. Graph reports that only once throughout the entire day were homing transmissions heard, that was from 0627 to 0634 hours from aircraft E/10. (H.Q.C.C./S.7010/42/3).
 - (2) This aircraft, as well as C/10, used the homing signals sent out by E/10, to find the blockade runner.
 - (3) The C.-in-C., Plymouth, estimated, that the blockade runner's 0850 hours position to be 44.40N, 11.10W, course 260 degrees, speed 13 knots. This signal was received by H.M.S. Graph and H.M.S. Clyde about 1130 hours and both submarines proceeded to act accordingly H.M.S. Graph in the meantime was receiving enemy reports direct from aircraft. From these and F.O.(S) signals she estimated that she would not sight the enemy until 0930 hours 1 December.

TAL/06/30 Nov.

The enemy took evasive action as bombs were released, and the nearest bomb was estimated to have missed by seventy yards. About the same time X/311 sighted an unidentified merchant vessel in 44.44N, 12.36W, on course 260 degrees. The Eire merchant ship Kyleclare was in the vicinity at the time, and while X/311 was trying to obtain photographs for identification, the enemy ship opened fire. At 1535 hours X/311 attacked with 8 x 250 lb. G.P. bombs, but the results were unobserved on account of the aircraft's evasive tactics. (1) The shadowing of the enemy was continued by a Liberator aircraft belonging to the United States Army Air Force which had been airborne on Bay Patrol No. 16 since 0816 hours. At 1445 hours the enemy was sighted in 44.20N, 13.39W, on course 270 degrees. This position was fifty miles south-west of those given by the two Wellingtons and was probably less accurate by reason of the fact that C/No. 1 U.S.A.A.F. had been in the air for 6½ hours. At 1520 hours the Liberator broke off shadowing on account of fuel shortage and reported to base accordingly. This concluded the action by aircraft for 30 November, 1942.

H.Q.C.C./S.7010/
42/3.

During the afternoon, C.-in-C., Plymouth re-estimated the position of the blockade runner as 44.26N, 13.30W, course 260 degrees, speed 13 knots at 1415 hours 30 November, and informed F.O.(S) and Admiralty accordingly. (2) It was now estimated that H.M.S. Graph was probably too far east to intercept, but that H.M.S. Clyde might be able to do so before dark.

As nothing had been heard from the submarines by 1830 hours, F.O.(S) ordered the two boats, if not in contact with the enemy, to proceed with despatch to two patrol positions, (3) fuel permitting, and informed them that the estimated "furthest on" longitude of the enemy at dawn 1 December, was 18.45W. (4)

H.Q. 19 G.R.P./
O.R.B. PL/912/
30 Nov.

Although the blockade runner was now rapidly approaching the position when she would be out of range of shore-based aircraft, one last effort to locate her was made by Coastal Command in sending out a Liberator C/No. 1 U.S.A.A.F. which took off at 0747 hours on 1 December. Nothing was sighted, however, and the aircraft returned to base at 1718 hours. Meanwhile one of the Torch build up convoys (K.M.F.4) escorted by H.M.S. Egret, three destroyers and two corvettes was in position 43.58N, 20.22W, at 1427 hours steering to southward, when an unknown merchant ship was sighted to the south-east. The ship rapidly altered course but stopped when challenged, and endeavoured to pass herself off as the Swedish Nanking. Finally when overhauled by H.M.S. Quickmatch and Redoubt she hoisted the white flag. Owing to weather conditions and the

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- (1) The reports by B/311 and X/311 confirmed the C.-in-C., Plymouth estimate of the blockade runners 0850 hours position.
 - (2) This position was amended later on receipt of three aircraft reports, to read 44.38N, 13.32W, at 1540 hours.
 - (3) Clyde - 44.01N, 18.40W.
Graph - 43.35N, 18.40W.
 - (4) H.M.S. Clyde could barely have reached this longitude, and H.M.S. Graph very probably not, by dawn 1 December. F.O.(S)'s message crossed a report from H.M.S. Clyde which reported her position and estimated that the enemy was passing 20 miles ahead of her. The submarine reported she would search to the westward till dark, but must then break off on account of fuel shortage.

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lack of escort vessels H.M.S. Egret ordered her Captain and crew to take to the boats and she was then sunk by H.M.S. Redoubt after her crew had been picked-up.

H.Q.C.C./S.7010/
42/3.

This blockade runner, identified as the Italian merchant ship Cortellazzo of 5,292 gross tons, was sunk as the result of running into a southbound convoy rather than by good management on the part of the combined forces provided in the Bay of Biscay for carrying out Operation "Busby". The failure to achieve success was manifold and could be largely ascribed as lack of training and practice between the sea and air forces concerned. The mistake in reporting the position of the initial sighting, which led to touch being lost with the enemy from about 1500 hours on the afternoon of 29 November to 0400 hours on 30 November, was undoubtedly very important but can be attributed to the fact that the aircraft involved (H/405) was one of a Bomber Command Squadron which had recently started operating with No. 19 Group and whose personnel were very inexperienced in Bay operations. On the question of homing procedure, this was not employed as successfully as it might have been, due according to the A.O.C., No. 19 Group to the instructions laying down that it was only to be brought into force when ordered by No. 19 Group, who in turn had to await instructions from F.O.(S).(1)

The submarines involved had by no means acquitted themselves on this occasion, for they were brought to book by F.O.(S) for errors of judgement and lack of initiative when well within range of the enemy.

In his report to the Admiralty on this operation, C-in-C, Plymouth summed up the failure by attributing the absence of success to the lack of centralised control. On this subject a special report was submitted to the Admiralty for consideration.

(4) Interception of the "Germania, Rhakotis and Hohenfriedburg"

Following the considerable activity in blockade running in November, there was a diminution in the scale of effort during the period December 1942 to February 1943. There was only one attempt to break out from a French port and only two incomers from the Far East. All these attempts failed. The break-out was made by the tanker Germania of 9,851 gross tons, which put out on 11 December, protected by four U-boats. She evaded the routine Bay patrols in a patch of bad weather, but at 1400 hours on 12 December she ran into a north bound Allied convoy in 45.00N., 14.40W. (approx.) and scuttled

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- (1) These instructions were promptly amended so that an aircraft in future should go over to medium frequency and make homing signals automatically as soon as it had made a sighting in the patrol area allotted to submarines.

herself.(1) She was undoubtedly on her way to pick up vegetable oil in the east and was travelling out in a light condition.

H.Q.C.C.
Controller's
Log.

Of the two incoming ships the first was the freighter Rhakotis of 6,754 gross tons. Forewarned of her arrival from intelligence sources, preparations were made to intercept the enemy at the earliest possible moment as the weather conditions were about as bad as they could be for this type of operation. Apart from this information the observed activities of enemy surface and air forces gave every indication of an early arrival from the Far East.

H.Q.C.C./S.7010/
42/4.

Certain naval forces, apart from the submarines engaged in Operation Busby, (2) were available on this occasion, and consisted of, H.M.S. Scylla, who by a fortunate coincidence was homeward bound from Gibraltar, and was expected to be in 43.00N., 16.00W (approx.) at dawn on 1 January 1943; at about the same time, an escorted convoy from Gibraltar was also expected to be in 46.00N., 14.42W on a northerly course.

PL/97/31 Dec.
PL/98/31 Dec.
H.Q. No. 19 Grp.
O.R.B.

In the light of the information to hand it was decided to lay on a wide search throughout the night of 31 December/1 January 1943. Nine aircraft were detailed for this task consisting of four Wellingtons of No. 172 Squadron (Leigh Light) and five Whitleys of No. 502 Squadron. All aircraft were fitted with radar. The parallel track search, designed to scan an area between the latitudes of 45.00N and 46.20N as far westward as 11 degrees west; was expected to meet all contingencies such as one or more aircraft returning early, or the enemy unit making variations in course either towards the south coast of Brittany or the N.W. coast of Spain. The aircraft took off at fifteen minute intervals from 2330 hours on 31 December 1942.

- (1) Always deploring the use of his U-boats as escorting screens for blockade runners, Admiral Doenitz comments on this operation thus:-

"Of the U-boats detailed for the protection of the Germania, only one was near the ship. How the other boats were placed in relation to the tanker was not known. In any case they were useless. Real support, for a blockade runner, could only be formed by an all round screen, at a distance of 50-60 sea miles from the ship. With a range of visibility at 10 sea miles - a favourable supposition - fifteen boats would be needed during the day; a number by no means available. But even this protection is theoretical, as owing to the necessity of submerging in the event of hostile aircraft, differences in fixes, deterioration of visibility there was always the possibility of not being able to report the sighted enemy before submerging." (B. d U. War Log dated 15 December 1942).

- (2) The position of submarines on the afternoon of 31 December 1942 was as follows:-

U.S.S. Blackfish in zone K.501.

U.S.S. Herring in zone K. 505.

U.S.S. Barb off Vigo.

U.S.S. Shad off Bilbao.

H.M. Neth. Submarine Dolfijn was in the vicinity of 45.30N., 13.15W., proceeding dived by day, on passage to Gibraltar.

STE/01/1 Jan.
STE/02/1 Jan.
H.Q. No. 19 Grp.
O.R.B.

The aircraft found the Met. forecast for the area only too accurate. There was ten tenths cloud with tops at 3,000 feet and base 400 feet. It followed that the search had to be conducted above cloud, making all possible use of radar. It was therefore to the credit of two Whitleys, who were on adjoining tracks, that they each obtained a radar contact at 0440 hours and 0441 hours from 3,500 feet and 3,000 feet at distances between 16 and 20 miles. Both aircraft homed onto the contact and after breaking cloud, one Whitley sighted the wake of a ship and dropped a flare by the light of which both aircraft sighted the blockade runner. Between 0500 and 0530 hours, first sighting and amplifying reports were sent to base but there was a divergence of opinion as to the position of the ship. J/502 reporting it as 46.05N., 14.32W., while M/502's estimate was 45.37N., 14.15W. Aircraft M/502, when investigating, inadvertently flew over the ship and was badly shot-up but managed to make base and effected a crash landing. The cloud base at St. Eval was at this time only eighty feet. The other Whitley attempted to attack from 2,000 feet but visibility was too bad to make a release of bombs.

CHI/05/1 Jan.
H.Q. No. 19 Grp.
O.R.B.

In the meantime a Wellington (N/172) had intercepted the first sighting report from J/502, set course and was successful in locating the enemy. His report to base differed again from the two Whitleys; however, all aircraft agreed that the blockade runner's course was 090 degrees. This Wellington attacked with 2 x 250 lb. D.Cs. but no results were observed.

PL/G9/31 Dec.
HWY/02/1 Jan.
MB/01/1 Jan.

Further aircraft in the form of two Sunderlands had been ordered into the air at 0100 hours to locate the enemy and were diverted following the original sightings. One of these ^{flying} boats sighted a convoy at 0730 hours and reported the vessels as friendly, but neither aircraft sighted the blockade runner.

H.Q.C.C./S.7010/
42/4.

Of the naval vessels, the Admiralty had directed H.M.S. Scylla and three escorts of convoy MKS.4 at 0730 hours⁽¹⁾ to proceed to intercept the unknown merchant ship sighted by aircraft at 0500 hours. Flag Officer Submarines informed the submarines, some of which were proceeding to their patrol areas, of the existence of an enemy unit. At 0719 hours an order was despatched for the submarines to operate in twenty mile wide zones between 46.20N., and 45.00N., and to make as much westing as possible to ensure an interception in daylight. The movements of our own surface forces was also communicated.

PL/G1/1 Jan.
PL/G2/1 Jan.
PL/G3/1 Jan.

It was clear by 0900 hours that there was no longer any aircraft in touch with the enemy and this state of affairs persisted until a Liberator of No. 224 Squadron and a Sunderland of No. 10 (R.A.A.F.) Squadron commenced a search at 1325 hours and 1425 hours respectively.

H.Q.C.C./S.7010/
42/4.

After receiving signals despatched by the naval forces, the C.-in-C., Plymouth made an appreciation of the position and estimated that the blockade runner would be within sixteen miles of 45.04N., 10.53W., at 1800 hours steaming between

(1) At 0915 hours, the Admiralty announced that H.M.S. Scylla had reported that she was proceeding at 28 knots. Acting on her own initiative she had set course at 0705 hours from 41.52N., 15.58W., in an endeavour to intercept. H.M.S. Lulworth in company with H.M.S. Moosejaw, escort vessels detached from the convoy, had also set course from 45.37N., 14.00W. at 15 knots, and were chasing the enemy.

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090 and 100 degrees at about 10-12 knots. A signal to all concerned was made accordingly.

MB/03/1 Jan.

The Sunderland and Liberator aircraft searching in the vicinity were diverted to fresh positions and ordered to sweep east and west respectively. The Liberator's search westward was unproductive, but at 1608 hours, the Sunderland Z/10, when in position 44.40N., 11.45W., (approx.) obtained a radar contact and subsequently closed with H.M.S. Scylla with whom she exchanged V/S signals. Z/10 then proceeded on her search and at 1630 hours obtained a further contact to the north east which brought her to the blockade runner. At 1632 hours a first sighting report was sent out, after which Z/10 closed with H.M.S. Scylla again, and there followed an unorthodox, but none the less effective, homing of the cruiser to the enemy by the laying of flame floats along the course to be steered. Unfortunately, the Sunderland had to leave when the two ships were still twelve miles apart, and was therefore unable to witness the final scene. A signal was despatched by the aircraft at 1735 hours stating that she had homed the cruiser within twelve miles of the enemy, but after this there was silence until at 1830 hours when H.M.S. Scylla reported "Enemy sunk". This signal was later amplified by the cruiser at 1251/2 January which stated that she intercepted the enemy identified as the Rhakotis at 1735 hours in 45.01N., 10.50W. and sank her 140 miles N.W. of Cape Finisterre.

H.Q.C.C./S.7010/
42/4

It is interesting to note the proximity of C.-in-C. Plymouth's estimation of the probable position at 1800 hours to that given by H.M.S. Scylla as the position of interception at 1735 hours i.e. 45.01N., 10.50W.

H.Q.C.C./S.7010/
42/4.

From the first aircraft being airborne in search of the blockade runner until she was sunk, eighteen and a half hours elapsed. During this time the enemy was located by three of the first sweep and subsequently by the Sunderland which led to a kill. This operation emphasized the supreme value of a fast surface vessel for this form of interception. Her presence in the area although fortuitous was decisive.

Although this operation ended very satisfactorily there were still several defects to be corrected in the organisation for the interception of this class of traffic.

Homing procedure was again the subject of much comment. The submarines did not receive any homing signals because the aircraft, almost at P.L.E., did not switch to 385 Kc/s. It was suggested by the Naval Staff that even a very short homing signal might, and probably would, have saved a great deal of confusion as to the correct position of the enemy, as it would have enabled the submarines to get a direct bearing themselves, and their Commanding Officers could have used their own initiative in the light of existing local conditions. Z/10 undoubtedly displayed highly commendable common sense in homing H.M.S. Scylla on to the Rhakotis by using flame floats and flares, but it was still necessary to make it clear that this procedure did not in anyway take the place of homing signals on 385 Kc/s.

The fact that navigation was considerably in error was entirely due to the weather, which rather emphasized the importance of adopting homing procedure at once thus automatically making navigational errors of little importance provided the

naval forces were in a position to receive the homing signals.(1)

H.Q.C.C.
Controller's Log

PL/G4/25 Feb.
PL/G5/25 Feb.
PL/G6/25 Feb.

There soon followed another occasion in which aircraft successfully co-operated with a surface force in sinking another inward bound blockade runner. Ample warning of her approach was received from intelligence sources and preparations were put in hand accordingly for an early interception. Four Liberators of Nos. 1 and 2 U.S.A.A.F. Squadrons and one Liberator of No. 224 Squadron were scheduled to sweep an area to the westward of Cape Finisterre the western extremity of which was 950 miles from Lands End. All five aircraft took off at intervals between 0230 hours and 0410 hours on the morning of 26 February.

The situation in regard to naval forces in the Bay of Biscay was that H.M.S. Sussex, on patrol, (2) was due to reach position 44.30N. x 20.07W. from the north westward at 0800 hours on 26 February; there would also be eight escort vessels of the convoy MKS-8 in position 45.20N., 14.40W. on a northerly course; and three submarines on patrol, one off Vigo, another some ninety miles N.W. of Cape Finisterre, and a third west of Oporto.

Four independently routed British and United States merchant ships due within the area of operations at 0800 hours were expected to complicate matters.

The weather was cloudy with occasional slight rain, visibility six to twelve miles, sea slight.

STE/08/26 Feb.

At 1008 hours a first sighting report was received from Liberator C/No. 1 U.S.A.A. Squadron which stated that at 0945 hours in 41.25N., 21.25W., an enemy tanker was sighted on course 140 degrees at 8 knots. This report and all subsequent messages were immediately re-broadcast by C.-in-C., Plymouth.

Aircraft C/No. 1 U.S.A.A.F. commenced to carry out homing procedure on making contact, and continued to shadow the enemy until she reached P.L.E. at 1158 hours. The tanker was last observed at 1155 hours in 41.09N., 21.28W. on a course of 085 degrees at a speed of 10 knots.

- (1) In his report to the Admiralty, the C.-in-C., Plymouth, again emphasised the need for a greater degree of centralised control in this type of operation. However, before the next incident occurred the Admiralty had taken appropriate measures to ensure that all Naval forces within the Bay of Biscay would come under the orders of the C.-in-C., Plymouth, at an appropriate time after the receipt of information that there was an enemy ship either in or approaching the area.
- (2) Difficult as it was to spare ships for the interception of blockade runners at this time, an operation ("Regulation") for this purpose was introduced by the Admiralty and brought into force as opportunity offered. H.M.S. Jamaica on passage to the Far East made the first of these patrols, from 4 to 8 February, north of the Azores, and another between 20 and 24 February, both without success. She was relieved by H.M.S. Sussex on passage to Freetown. After this ship's success the Admiralty arranged on 28 February to have one cruiser always available at Plymouth to sail for a similar patrol on receipt of information of a blockade runner.

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H.Q.C.C./S.7010/
42/5

At the time of first sighting the enemy, H.M.S. Sussex was estimated to be about 350 degrees 190 miles from the tanker, and making south east.(1) Based on this calculation it was apparent that she should be able to intercept within seven to eight hours provided the enemy maintained a mean line of advance of 085 degrees at a speed of ten knots.(2)

At 1151 hours, F.O.(S) instructed the submarines to come under the orders of the C.-in-C., Plymouth forthwith.(3)

Since the original sightings, two more had come in from aircraft on patrol, but after careful scrutiny each turned out to be our own independently routed merchant ships.

FL/G3/26 Feb.
FL/G5/26 Feb.
H.Q. No. 19 Grp.
O.R.B.

At 1222 hours, Fortress aircraft C/59, and at 1315 hours Liberator B/No. 1 U.S.A.A.F. left St. Eval, the latter to contact H.M.S. Sussex and then to commence a search for the enemy tanker (touch with which had been lost from 1158 hours on departure of C/No. 1 U.S.A.A.F.) and the former to carry out a search for the ship commencing from position 41.25N., 21.25W.(4)

H.Q.C.C./S.1010/
42/5

Meantime H.M.S. Sussex had made a good estimate for interception as at 1549 hours she sighted the enemy 20 degrees on the starboard bow steering a course of 080 degrees, and at the same time sighted a F.W.200 aircraft apparently approaching from the eastward. This aircraft did not attempt to interfere with the cruiser. At 1606 hours H.M.S. Sussex fired a warning shot, and then a salvo to force the enemy to abandon ship. At 1622 hours fire was opened at 17,000 yards range, but by 1700 hours when fire was checked, only the vessel was on fire and not its cargo. As the tanker showed no sign of sinking, fire was re-opened from 1730 to 1745 hours. She finally sank at 1810 hours in position 41.45N., 20.58W. During this episode Fortress C/59 arrived on the scene having made a radar contact at 1741 hours which was on the burning tanker, and reported her in position 41.56N., 20.50W., a good feat of navigation. The Fortress made contact with H.M.S. Sussex and took a good series of photographs. Making her departure one hour later C/59 reported the tanker sunk and that survivors were in four lifeboats.

STE/05/27 Feb.

STE/03/27 Feb.

Liberator B/No. 1 U.S.A.A.F. also made contact with H.M.S. Sussex but not until 1925 hours when the incident was closed.

In view of the U-boat menace, the cruiser reported that

- (1) From subsequent analysis the true position of the tanker at 0945 hours was 41.40N., 22.00W., some 300 degrees 30 miles from that signalled by C/No. 1 U.S.A.A., which placed H.M.S. Sussex 358 degrees 170 miles from the enemy. On receipt of the first sighting report the cruiser set course to intercept and worked up to full power.
- (2) The enemy's signalled course on first sighting of 140 degrees was thought to be only a temporary course, set by him to mislead the aircraft.
- (3) The submarines were, however, unable to take any effective part in this operation, being too far to the eastward.
- (4) H.M.S. Sussex was informed of this arrangement.

she was not attempting to pick up survivors, (1) and thereafter withdrew to the south west.

H.Q.C.C./S.7010/
42/5.

In the C.-in-C. Plymouth's report to the Admiralty on this operation it was stated that the successful conclusion was due to the early location of the enemy by a Liberator aircraft which was operating during the day at distances up to 950 miles from Lands End. The great value of these long range aircraft could not be sufficiently emphasised and although it could be argued that without them the enemy might still have been intercepted during the two succeeding days, the extra day gained enabled the cruiser to remain undetected by the enemy's reconnaissance aircraft. As a result, the enemy had no warning which might have given him the chance of running for safety to a Spanish port.

Communications were conducted with a very satisfactory lack of delay, apart from the fact that the cruiser did not receive any homing signals on 385 Kc/s although the Liberator had carried out the procedure correctly. No legitimate reason could be found to explain this failure.

(5) Summary and Conclusions

Up to the end of February 1943, this second blockade running season had not proved so successful to the enemy as the first. Of the twelve ships that had sailed from ports in the Bay of Biscay to the Far East, nine (75%) were sighted, of which six (50%) were attacked by aircraft, but only two sustained damage to a degree which necessitated a return to port for repairs. Eight (66.2/3%) of the total departures, however, safely delivered their cargoes.

In the reverse direction, of the fourteen ships that sailed for Europe up to February 1943, only seven could have possibly made port, as the remainder did not leave the Far East until January and February 1943, and therefore, were not due to arrive until March, April or May. So, only the seven possibles will be considered. Of this number, four (57.1%) were sighted by aircraft, two of which (28.6%) were unsuccessfully attacked. Only four ships (57.1%), however, brought their cargoes to port.

Of the seven losses inflicted on the enemy, i.e. four outward bound and three inward bound, interception by surface forces was the actual cause of the sinkings, three being by scuttling and four by gunfire. In two cases, aircraft through sighting reports and an unorthodox piece of homing were instrumental in guiding surface forces to the target.

As far as aircraft were concerned this second season of blockade running could not be regarded as satisfactory. In

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- (1) The tanker, which was subsequently identified as the Hohenfreidburg (ex Herborg, Nor.) of 7,892 gross tons, was escorted by three U-boats (U-264, U-258 and U-437) one of which, U-264 picked up the survivors. This U-boat, also attacked the cruiser with a four fan torpedo shot, but without success. One of three U-boats forming the wing protection for this tanker was attacked and damaged by Z/224 on her way home. This aircraft had been searching for the tanker and earlier in the day had sighted and attacked a U-boat in 41.31N - 21.49W. This U-boat was also one of the wing protection.

spite of the reasonably good intelligence system by means of which some accurate forecasts had been made of enemy departures and arrivals, no successes can be recorded for the air. The ships were located right enough by air reconnaissance, despite the blockade-runners' habit of passing in and out of the Bay of Biscay mainly under cover of bad weather, but giving the coup-de-grace to a well armed adversary was however, a very different proposition with single heavy aircraft, forced to operate at very long distances from base. Another difficulty brought sharply into focus during these operations was the impracticability of diverting aircraft and crews trained in one role to take up another at short notice. Many of the personnel engaged in operations against these blockade runners were either Bomber Command, ex Bomber Command or American crews, who in the first place were never intended to be used in anti-shipping operations; the general shortage of aircraft made their employment in this role an unavoidable necessity. Their lack of training and experience in maritime warfare, particularly anti-shipping operations, led to errors, especially in the reporting procedure, at the most critical stages which delayed the follow-up action thus enabling the enemy to slip away without further pressure being supplied. There is no doubt that the answer to this problem of air attack against a well armed moving target could only be found in the provision of a properly equipped and fully trained striking force.

Failure to produce this striking force from the start had led to an expedient in the form of a combined air and naval operation, known as "Busby" which was designed in a hurry to meet an immediate need. The object of the operation was to provide a "homing" aircraft so that submarines or surface craft could intercept and destroy enemy units, including blockade runners, in the Bay of Biscay. At its inception in September 1942 it was understood that as and when experience was gained the scheme would be reviewed and adapted to meet current needs. Instead, in the interim, so many minor alterations and modifications were applied piecemeal that the original order changed out of all recognition and by February 1943 neither ground staff nor aircrew were able to appreciate its significance any longer. However, as this chapter closes, the whole operation was under review and the order was being rewritten in the light of all that had happened since its inception in the autumn of 1942.

With the introduction of "Operation Busby", submarines were sent down to specified areas off the north and north-west coasts of Spain for certain periods, on the expiration of which they were relieved by other submarines. Throughout this campaign, these vessels seldom seemed favourably placed for attack, and coupled with the unfortunate fact that they were not very ably assisted by aircraft in regard to homing and reporting signals when the opportunity offered, their record of successes is even less than that of the aircraft. On the one occasion during the period under review when they appeared suitably placed i.e. during the Cortellazzo episode, lack of fuel and errors of judgement allowed the enemy to escape, only to be caught later by blundering into an Allied convoy.

Difficult as it was to spare surface ships from other more important commitments for the interception of this blockade-running traffic, the Admiralty, prompted by H.M.S. Scylla's success against the Rhakotis, arranged from February 1943 for one fast cruiser to be in the Bay area for this purpose, and the result achieved later in the month confirmed the view that in this arrangement the immediate solution of interception was

to be found. Provided air reconnaissance was used for early detection of the enemy in an area outside the range of German reconnaissance aircraft, the cruiser could intercept before the enemy received warning which might give him the chance of running for safety in a neutral port.

As an alternative means of stopping this traffic, H.Q.C.C. had throughout the period July 1942 to February 1943 repeatedly pressed for the bombing of these blockade runners when lying in port. At first this claim did not coincide with the existing bombing policy, but later i.e. October 1942 to February 1943, when the policy was changed in favour of bombing the Biscay U-boat bases, the blockade runners still remained unmolested. However, from post-war records it is now known that area bombing at this time had very little effect on shipping movements and it may well be that no worthwhile results would have followed if this method of stopping blockade runner activities had been adopted.

Minelaying was also resorted to on a fairly large scale in the Gironde Estuary, but it had little or no effect on the movements of blockade runners and was quite unsuccessful in claiming any victims.

In the next volume, the blockade running narrative will be continued and will deal with the concluding phase of the second season and the almost complete failure of the enemy's third season activities.

(xv) Summary and review - February 1943

MEW/ES/71/2

By the end of 1942, the enemy still possessed sufficient shipping in north west Europe to carry out any military operations likely to be contemplated, but was still finding it difficult to satisfy simultaneously current military and economic commitments.

Kaufmann's appointment in the summer of 1942 as Reich Kommissar for shipping and the subsequent granting to him of wide powers was in itself an admission on the part of the German Government of their anxiety of the seriousness of the shipping situation.

The Reich Commissar's policy was reflected in a number of measures designed to relieve the operational shortage of shipping: (a) an increase in merchant shipbuilding, (b) the mobilisation of such small untouched reserves as still existed, and (c) the co-ordination of administration.

In the last few months of 1942, there was a marked increase in the scale of merchant shipbuilding activity in Germany and certain occupied countries. Whereas in Germany only one merchant vessel of over 1,000 gross had been laid down for at least two years, construction of ten or more new ships under the "Hansa" scheme was begun after November 1942. The ships appeared to be of standard tonnage - 2,000/3,000 - the type of which Germany was in the greatest need.

Meanwhile the search for tonnage south of the Dover Straits, in Denmark and Finland had continued.

A total of nine merchant vessels of from 3,000 to 5,000 gross tons was transferred during the period under review from French Biscay ports to the North Sea. Six of them were previously engaged in the iron ore trade between North Spanish

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ports, Bayonne or Bordeaux. The subsequent appearance of three of this number in the coal trade from Germany to Norway - a traffic which was usually reciprocal to the southbound carriage of iron ore - lent weight to the assumption that the transfer was symptomatic of the need to reinforce tonnage engaged in the transfer of iron ore from Narvik.

The tightening of German control over Danish shipping, which had formerly received more lenient treatment than that of other occupied territories, was foreshadowed by an order in December 1942 that no vessel of more than five gross tons could in future be offered for sale or charter without a licence. This was followed in January 1943 by the seizure of the four best ships totalling 6,821 gross tons out of a small block of Danish coal burning tonnage laid-up in Copenhagen.

Further indications of the enemy's necessity to exploit all available resources was well illustrated by the increasing use of small craft, many of which were totally unsuitable for the tasks allotted to them.

All these measures, so far, had in themselves been sufficient to retard the decline in Germany's shipping potential, but it was doubtful whether they could be repeated to meet the needs if losses continued to exceed new construction and the return to service of repaired shipping.

The effects of the decline in Germany's shipping potential which had become really evident in 1942 and which threatened to assume serious proportions during 1943, had been mitigated by the exceptionally mild weather of the winter 1942/43. Not only was the trading period for the greater part of the Baltic extended by some three months, but Germany was also spared the usual aftermath of the ice-bound period with large numbers of vessels awaiting repair for ice damage and congestion of merchandise in the ports.

Another factor which had assisted the enemy to pull through 1942 without serious embarrassment to his seaborne traffic in North West Europe was the use of Swedish shipping to the tune of some 450,000 gross tons. By the Spring of 1943, however, there was evidence of the increasing reluctance on the part of the Swedes to trade with Rotterdam as the Allied air offensive against enemy shipping in this area once more gained momentum. To counter this, not only were especially favourable terms fixed for Rotterdam voyages under the 1943 German/Swedish Freight Agreement, but also much of the coal and coke so urgently required by the Swedish State was deliberately concentrated in that port by the Germans, as an enticement to Swedish vessels to proceed there.

Corporation of
Lloyds, German
Admiralty and
German Shipowners
Association.

H.Q. Coastal,
Bomber and
Fighter Command
O.R.B's.

Although the enemy's losses from all causes during the period under review i.e. July 1942 to February 1943 was 250 ships of 261,154 gross tons, the R.A.F. in direct attack at sea in North West European waters had only accounted for 20 ships of 27,821 gross tons. To achieve this result some 5,660 sorties on reconnaissance and strike had been flown and 883 attacks were carried out. The wastage rate among the aircraft employed was 92, so that 4.6 aircraft were lost for each ship sunk, which is not a very satisfactory rate of exchange.

Attacks on enemy shipping remained fairly constant throughout this period of eight months with the peak occurring in July 1942 with 210 attacks which, however, resulted in only

Some progress was made during the period in the development of the co-ordinated Strike Wing, and it was hopefully anticipated that the upward trend of this form of attack would be maintained and thus provide the answer to the heavily defended convoy.

This period for the R.A.F. in direct attack at sea had been one of improvisation while the strike force was being rebuilt and the technique of co-ordinated attack was being perfected, rather than one of spectacular achievement. At the same time the air forces available, although largely nullified by the enemy's defences, had not allowed the enemy any relaxation or diversion of effort to anything but defence. Although the effect of the enemy's drastic rationalisation scheme was to increase the lift of the German Mercantile Marine to an extent sufficient to offset, for the time, the effects of the Allied offensive, this process could not be repeated.

There would be, undoubtedly, plenty of scope for the employment of the Strike Wing now under training to deal with the defensive structure which the enemy had built up.

Throughout the period June 1941 to February 1943, offensive operations by German surface craft in British Coastal Waters was very largely confined to E-boat activities, both torpedo and minelaying.

At the beginning of October 1941, part of the 2nd Flotilla (6 boats) was brought back and by the end of the year the 6th Flotilla (7 boats) and the 1st Flotilla (9 boats) were also ready for action in British Coastal Waters. Thus with ten boats of the 4th Flotilla already operating the number of E-boats for operations in the West was brought up to thirty-two, but of this total an average of nearly 50% was always out of action for overhauls.

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Coastal convoys proceeding between Flamborough Head and the Thames were exposed to torpedo attacks and mining by E-boats, excluding the mouth of the Humber and the Wash, where aerial minelaying was a function of the Luftwaffe. The entire Channel convoy route as far west as Plymouth could be reached from the E-boat bases at Boulogne and Cherbourg.

In these areas from June 1941 to February 1943, there was a total of 649 sorties by E-boats engaged on torpedo operations of which 285 boats made attacks on Allied shipping. In addition 426 minelaying sorties were also completed.

Admiralty
BR.1337

Allied shipping losses by E-boat torpedo amounted to 44 ships totalling 75,484 tons. Losses through mining by E-boats is not yet available.

No. 16 Group
ORBs., and
Fighter Cd.
Forms Y

Aircraft of Coastal and Fighter Command specifically engaged on Anti-E/boat operations flew 347 sorties and made 60 attacks. Supplementary to this effort, a further 93 attacks were made by aircraft engaged on other duties but which fortuitously sighted E-boats. A total of three aircraft were lost during these operations, but no fatal casualties were inflicted on E-boats.

Admiralty
NID/FDS
X.237/48

From the periodical reports rendered to higher authority by the Senior Officer E-boats (F.d.S.), it was evident that there was no air menace to E-boat operations up to February 1943, but towards the end of the period the subject of enemy air forces received more attention than hitherto in these reports, and from such comments it was apparent that the presence of British aircraft in the operational areas was at least instrumental in restricting E-boat activities to the dark hours, and furthermore only for a limited number of nights during the month.

British destroyers and radar were regarded by the Germans as the principal enemies of the E-boat.

CHAPTER XII

THE RENEWAL OF THE U-BOAT WAR IN MID-ATLANTIC
JULY TO DECEMBER 1942

(i) Introduction

At the time of his broadcast to the German people at the end of July, Admiral Donetz was already re-deploying his U-boats into mid-Atlantic and by the end of August had re-opened the campaign against ocean convoys on a large scale. On the 26 August, a Fuehrer Conference was held to consider the war situation and it was decided that the two main lines of strategy must continue to be pursued.

- A. To defeat Russia and so create a lebensraum which was blockade proof.
- B. To use every means to further the fight against the Anglo-Saxon sea power.

Fuehrer
Conferences
in 1942

Foremost in the latter struggle was the maintenance of the U-boat war. In spite of a good August in the remaining soft spots on the American coast⁽¹⁾, it was plain that these waters were becoming more unprofitable. However, Admiral Raeder (C.-in-C., Navy) reported a satisfactory increase in delivery of new operational boats from construction and the training grounds in the Baltic⁽²⁾ which had enabled additional groups of U-boats to be stationed in the middle areas of the North Atlantic. It was confidently hoped, therefore, that even in the absence of adequate G.A.F. reconnaissance, this net of watching U-boats would lead to many opportunities for attack provided the convoys were beyond the range of Allied aircraft protection. Admiral Raeder pointed out that U-boats had recently suffered heavy losses from aircraft mainly because of superior location-finding devices but he was able to report that radar interception sets had been on trial in some U-boats since the 8 August with favourable results. In addition to the North Atlantic, he proposed to launch other attacks by U-boats at several places simultaneously - in the Atlantic Narrows between Brazil and West Africa, off Capetown, on the Russian Arctic coast and at the same time to keep up the pressure in the Caribbean area. Hitler approved of these measures, but, although accepting the implied complaint on the absence of G.A.F. sea reconnaissance in the Atlantic, he made no definite promises for its future co-operation neither would he accept the repeated Naval Staff view that the capture of Malta with Gibraltar as the next objective was of vital importance in order to prevent the Anglo-Saxon forces from getting a foothold in Northwest Africa.

At this period, the joint planners in London and Washington were drawing up a scheme for this very project and active preparations were going ahead in both countries during the summer and autumn months. The launching of this expedition and the intensive operations by Gibraltar-based aircraft

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- (1) In the Caribbean and Brazilian areas 58 ships totalling 276,000 tons had been sunk by U-boats in August. For shipping losses in other areas see Appendix IV.
 - (2) Construction of U-boats was running at an average of 22 U-boats per month. The number of U-boats on their first operational cruise had risen from an average of 12 per month previous to July to 24 in July and 32 in August. See Appendix II.

against the U-boats endeavouring to interrupt the build-up convoys form a separate section in this chapter.

Meanwhile, the convoy battles in mid-Atlantic raged with increasing severity during the five winter months with both sides adding to the numbers engaged. Having regard to this concentration of Allied effort, Donetz was constantly probing for soft spots in which the defences might have been weakened by the reinforcements sent to the mid-Atlantic campaign. U-boat forays spread south to the Brazilian coast, the equatorial Atlantic, the waters around South Africa and up as far as Madagascar. Super-imposed on all this was an increasing tempo by Coastal Command aircraft in the Bay of Biscay through which all these U-boats had to pass. Stung by Donetz's caustic comments on their inability to combat the British aircraft, the G.A.F. made greater efforts to strangle the ceaseless air patrols. The hurried introduction of the German search receiver and the false echoes provided by French fishing boats as the tunny fishing season developed into mid-Bay areas brought the night offensive almost to a full stop but the day attacks on U-boats continued. Finally, in despair of effective action by the G.A.F., Donetz limited the surface time of U-boats in transit areas entirely to the dark hours now that the Search receiver was in more general fitment and, early in 1943, commenced to strengthen the U-boats' flak armament so that they might defend themselves.

(ii) British Policy during the period

The re-opening of the U-boat war in mid-Atlantic necessitated no new departure in policy for Coastal Command, but the shift of the centre of gravity to British strategic zones made it important that the Allied output of aircraft and equipment suitable for combatting U-boats should be made available where most needed.

C.O.S. (42) 332

A.C.A.S. (P)
File 35/7
Item 7

W.P. (42) 326
W.P. (42) 302

In June 1942, the Chiefs of Staff had drawn up a report on the employment of aircraft in the war at sea. When it was submitted to the War Cabinet, the Australian Commonwealth representative⁽¹⁾ criticised the briefing which the War Cabinet received from such sources and embodied these criticisms in a note forwarded to the Prime Minister on the 16 June. In it he suggested the immediate appointment of a small high-powered committee to examine our air offensive against the enemy at sea and to consider any proposals however unorthodox. Such a committee should, he considered, include the best available scientists. In a further memorandum, dated the 31 July, he expressed dis-satisfaction with another report drawn up by the Chiefs of Staff Committee on the provision of aircraft for the war at sea, observing that having enumerated the priorities, the report proceeded to confuse them in the reasoning and recommendations put forward. The idea of a small special committee was again suggested by him as being the best solution to the problem of allocation as between the security of our sea routes and the air offensive against Germany; moreover he considered that, having cleared our own minds on this subject, we should approach the U.S.A. with a view to laying down a common policy to be implemented by a common effort. Resulting from a Cabinet meeting on these subjects, held on the 12 August, steps were taken to nominate a special committee on the lines advocated by Mr. S. M. Bruce. In addition, A.C.A.S. (P)⁽²⁾ was instructed

(1) The Right Honourable S. M. Bruce.
(2) Air Marshal Sir John Slessor.

to proceed to Washington in order to negotiate reinforcements of American A/U Squadrons and to hasten delivery of Liberator aircraft. Under the Slessor/Arnold/Tower agreement both these objectives were achieved. Further details are given in Section (xi).

Regarding the security of our sea routes, the main menace was from U-boats and during the autumn of 1942 the special committee was formed under the chairmanship of the Prime Minister and known as the Cabinet Anti-U-boat Committee. It consisted of certain members of the War Cabinet, the American Ambassador, the Chiefs of the Naval and Air Staffs, and the head of the American Naval Staff in London. Also present were scientists, other heads of department and the Service officers most closely connected with the war against U-boats.⁽¹⁾ The first full meeting was held on the 4 November and thereafter weekly. The presence of the American representatives ensured full liaison with Washington and all measures for the prosecution of anti-U-boat war were kept under active review. The Cabinet status of this Committee enabled quick decisions and top priority to be exercised more fully than ever possible to the Admiralty and Coastal Command A/U Committees and these latter now concerned themselves with technical and tactical details.

The changes in disposition and tactics necessary during the next seven months are dealt with in succeeding sections but there remain two policy matters to be mentioned.

In September 1942, the A.O.C.-in-C., Coastal Command, forwarded two papers to the Air Ministry and the Admiralty on the subject of the war at sea. In one, he deprecated the responsibility placed on heavy aircraft of Coastal and Bomber Commands for the location and attack on enemy raiders and blockade runners in the Bay of Biscay. This type of aircraft had the range necessary for search but were unsuitable for attack on these well armed vessels which, when hugging the Spanish coast, were frequently escorted by enemy fighters. In recent weeks such operations had cost us four Lancasters and a Sunderland in return for two ships possibly damaged. While agreeing that location was a proper function of the Air, he considered that the Navy ought to provide the attacking force. This suggestion was repeated a little later in connection with the breakdown of the air offensive in the Bay against U-boats following their adoption of a search receiver. It was decided to use our submarines in the Bay against the U-boat line of transit and also for attacking enemy blockade

CC/PBJ/1587/42
in C.C.O.R.B.
Sept. Appendices

CC/S. 7050
Encl. 58A

(1) The complete list of attendance by the end of 1942 was:-

The Rt. Hon Winston Churchill	Prime Minister and Chairman
Mr. Averell Harriman	U.S. Ambassador
Sir Stafford Cripps	Minister of Aircraft Production
Mr. Oliver Lyttelton	Minister of Production
Lord Leathers	Minister of War Transport
Sir Archibald Sinclair	Secretary of State for Air
Mr. A. V. Alexander	First Lord of the Admiralty
Sir Edward Bridges	Secretary of the War Cabinet
Lord Cherwell	Paymaster General
Sir Robert Watson-Watt	M.A.P. (radar)
Professor Blackett)	Admiralty Scientific Research
Dr. Goodeve)	
Admiral of the Fleet Sir Dudley Pound	First Sea Lord and C.N.S.
Air Chief Marshal Sir Charles Portal	Chief of the Air Staff
Air Chief Marshal Sir Philip Joubert	C. in C. Coastal Command
Rear Admiral Brind	Asst. C.N.S. Home operations
Rear Admiral Edelsten	Asst. C.N.S. Anti-U-boat and Trade
Air Vice Marshal Sorley	Asst. C.A.S. Technical Requirements
Air Commodore A. V. Stevens	D.O.N.C. Air Ministry
Captain C. P. Clarke R.N.	D.A.S.W. Admiralty

N.B. Admiral Stark U.S.N. (Commander U.S. Naval Forces Europe) attended from 14th April, 1943.

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runners. In both cases Coastal Command supplied the necessary air reconnaissance. Submarine patrols were inaugurated during October.

The other paper reviewed the anti-U-boat warfare situation and put forward a number of proposals for intensifying its prosecution. Among them were the direction of heavier attacks by Bomber Command on the U-boat construction yards in Germany and the Biscay U-boat operating bases, the development of weapons of increased lethality against U-boats at sea, the early production of 10 cm. A.S.V. and finally the institution of a supreme control for the whole of the anti-U-boat war with a central planning staff to co-ordinate the existing independent policies of the Royal Navy and Air, the American Army Air, the American Navy, the Canadian Navy and Air and the various service authorities in such areas as the Mediterranean, West Africa and Australia. Further details of this suggested supreme command were furnished by Sir Philip on request by the C.A.S. in November 1942. Similar proposals were to come from the American side of the Atlantic early in 1943, and the story of how this eminently logical arrangement was turned down, after nearly becoming a fact, is given in Volume IV.

Northern

(iii) The main battle develops in mid-Atlantic

On the 1 August, the Atlantic U-boat fleet numbered 113 operational boats.⁽¹⁾ Of these, 89 were at sea distributed roughly as follows:-

One group of twelve boats to the southward of Greenland down to latitude 45°N.

One group of six boats in the vicinity of the Azores.

One group of six boats off the N. W. African coast.

About four or five boats off the Canadian coast, about fifteen operating in the Caribbean and Bermuda Sea Frontier zones, and about six boats off the Brazilian coast.

There were some 30 on passage to or from the above dispositions, and ten new boats coming out from Germany north about Scotland or South of Iceland.

Being well aware of the effective range of Allied air cover, B.d U. (Admiral Donetz) disposed his mid-Atlantic U-boats so as to sight convoys proceeding towards an area outside air range. Once free of air observation the nearest boats concentrated on the convoy which was attacked nightly, and often by day as well, until such time as the re-appearance of aircraft warned him that the gap had been traversed whereupon the pack would be called off and the tactics repeated on another convoy. A glance at Map XXV shows the principal convoy lanes and the areas where air cover was non-existent. The most important stream of traffic contained the HX, SC and ON convoys between North America and the

(1) The total fleet numbered 342. Of these, 59 formed the permanent training force in the Baltic with 131 newly commissioned boats undergoing working up exercises in this area. 152 U-boats were fully operational - 113 being in the Atlantic Command, 16 in the Mediterranean and 23 in Arctic waters. Reference - B.d U. War Diary.

United Kingdom and it was athwart this that the absence of air support in the Greenland Gap resulted in the heaviest ocean losses during the next nine months. There was another serious gap to the east of the Azores athwart the OS, OG, SL and HG convoys. This was accentuated by the understandable reluctance of the Admiralty to route these convoys within range of enemy bombers based in Western France and so close to the main U-boat operating bases. A further gap lay across the OS and SL convoy route around the Canary Islands.

At this time air cover, both escort and sweeps, could only be consistently guaranteed, weather permitting, inside a radius of 450 miles from air bases. Sorties could, and were, directed to threatened or attacked convoys outside this radius even up to 800 miles but such escort was momentary and could not be maintained. Not only were there insufficient very long range aircraft in Coastal Command(1) to attempt this task for all threatened convoys, but unless exceptional circumstances demanded it, there was no justification for the lavish expenditure of engine hours in order to get, at most, two or three hours with the convoy.(2)

August opened with the interception of convoy ON.115 in the Greenland Gap by Six U-boats who attacked in foggy weather to the eastward of the Newfoundland Bank on the 2 August, sinking three ships before the convoy reached firm air cover. The first real transatlantic battle occurred during the eastward passage of convoy SC.94. It was so typical of similar battles during the next nine months that the story is given in detail in the next section.

(iv) Convoy S.C.94(3)

The convoy, at first consisting of 30 ships, sailed from Sydney, Cape Breton Island, on the 31 July. The local surface escort was relieved by an ocean escort to the south of Newfoundland and on the 3 August in foggy weather, three more merchant ships and another escort vessel joined up, making in all 33 ships and seven escorts.(4) Still in foggy

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- (1) Coastal Command had only one squadron containing very long range (V.L.R.) aircraft. This was No. 120 Squadron of Liberators. Six of their aircraft were Mark I with an operational range of 2,400 miles at 150 knots. Two were Mark II with a range of 1,800 miles and three were Mark III with a range of 1,680 miles. Neither Canada, Gibraltar or West Africa had any Liberators.

The Catalina had a range of 1,840 miles and the amphibian Catalina 1,600 miles, both at a speed of 100 knots. The Sunderland had a range of 1,300 miles at 110 knots. The Mark I Liberator was, therefore, the only V.L.R. aircraft at this time.

- (2) Night air escort was still impracticable, not only because no long range aircraft had searchlights, but because many American types, being rushed into the front line on arrival, had not had any A.S.V. installed. It was, therefore, the policy to use the limited time with the convoy in frustrating the movements on the surface of the U-boats engaged in shadowing or endeavouring to get ahead of the convoy into attacking positions.
- (3) The references for this account include Admty. CB.04050/42(8), Coastal Command Records and B.d U's War Diary.
- (4) H.M. Ships Primrose, Dianthus and Nasturtium with H.M. Canadian Ships Orillia, Assiniboine, Chilliwack and Battleford.

weather on the 5 August, part of the convoy was sighted by U-593 one of the Group Steinbrink line of U-boats stationed athwart the north Atlantic trade route. (1) U.593 reported the position to base and immediately attacked, sinking one merchant vessel at 1510 hours in 5312N x 4330W. (2) Owing to the thick weather and distance from Canadian bases (500 miles) no air escort was in attendance or forthcoming after the attack.

Admiral Donetz ordered the rest of Group Steinbrink and five adjacent new U-boats, which were outward bound in the North Atlantic from Germany, (3) to operate forthwith against this convoy. By the evening of the 6 August, six U-boats had contacted the convoy and several mutual sightings and engagements with the escort vessels took place in confusing conditions of foggy weather. Attempts to attack the convoy were frustrated by the escorts. U.210 was rammed and sunk by the Assiniboine who herself was damaged in the action and had to return to St. Johns, Newfoundland. 38 survivors from U.210 were picked up. Other D.C. attacks damaged U.595 and so seriously affected U.454 that she had to abandon the operation. Contact was effectually broken for the night and no torpedo attacks took place.

Foggy weather persisted on the 7th and S.C.94 was sighted only by U.176 though at least eight U-boats were in the vicinity. During the night of the 7th, contact was made by U.379, 607 and 704 but weather conditions and the vigilance of the escorts prevented close attack and though U.607 fired torpedoes at extreme range they all missed. Admiral Donetz ordered three more new U-boats, which were outward bound, to take up a waiting position to the eastward on the convoy's line of advance. (4) On the 8th the convoy was contacted by seven U-boats. (5) Again several torpedoes, which were fired by U.605 and 704, all missed but at 1325 hours U.176 got in a close attack and sank four ships. (6) A fifth ship - the Mount Kassion of 7,914 tons - was hit but remained afloat until finished off on the morning of the 9th by U.176. In the midst of explosions all around them, three further vessels abandoned ship under the impression they had been hit. Two crews quickly went back on board, but that of the Radchurch of 3,701 tons refused to do so and the ship was left abandoned.

Efforts to attack continued during the night of the 8/9 August and resulted in numerous encounters with the escort vessels. At 2230 hours, H.M.S. Broke joined up to reinforce the escorts and took over Senior Officer's duties. At midnight she was fired at and missed by U.595. U.607 also missed the convoy again with all her torpedoes. In an attempt to press home a surfaced attack, U.379 was compelled to dive and was then depth-charged, brought to the surface

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- (1) Group Steinbrink - U.593, 71, 210, 379, 454, 597, 607 and 704.
 - (2) S.S. Spar - 3,616 tons.
 - (3) New U-boats outward bound - U.176, 256, 595, 605 and 660!
 - (4) U.174, 254 and 335. In point of fact the latter boat had been sunk on the 3 August to the north of the Shetlands by H.M.S./M Saracen.
 - (5) U.176, 379, 593, 595, 605, 607 and 704.
 - (6) S.S. Trehata - 4,817 tons.
S.S. Kelso - 3,956 tons.
S.S. Kaimoku - 6,367 tons.
S.S. Anneberg - 2,537 tons.

and rammed by H.M.S. Dianthus who collected five survivors. In spite of structural damage forward, the Dianthus was able to rejoin and remain with the convoy. U.704 received damage from depth charges which forced her to withdraw from the operation and U.71 also started the journey home owing to the illness of her Engineer Officer(1) and slight damage in the boat. No ships were torpedoed and the pack lost touch with the convoy.

It was re-located after daybreak on the 9 August by U.607 and then by U.174, 256, 597 and 605. Admiral Donetz ordered yet another two new outward bound U-boats to join in the operation from the eastward.(2) During the day, aircraft appeared on the scene and the U-boats complained that, through having to dive constantly, they frequently lost contact and had increasing difficulty in getting ahead of the convoy into attacking positions. Realisation that SC.94 was so heavily beset had made the A.O.C.-in-C., Coastal Command anxious to establish air escort at the earliest possible moment. When the convoy was some 850 miles from Ireland, Liberator H/120 Squadron had taken off just before midnight on the 8th from Ballykelly so as to be with the convoy at dawn on the 9th. In spite of a search from 0530 to 0945 hours the convoy was not found. The C.in-C., Western Approaches, by signal to SC.94, put into force the standard W/T homing procedure and the next three sorties, by O, S and V/120 Squadron succeeded in meeting and continuous escort was given between 1230 and 1730 hours. At the same time a sweep, as near to the convoy as range would permit, was carried out by three Catalinas of No. 73 U.S.N. Squadron(3) from Iceland between noon and dusk. One of these latter aircraft - I/73 - sighted and attacked a U-boat on a southwesterly course at 1709 hours. The position was about 165 miles north-east of the convoy and may have been either U.438 or 705. No damage to either is on record.

During the afternoon the Polish destroyer Blyskawica joined the escorts which now numbered eight vessels. After the departure of Liberator V/120 Squadron at 1722 hours there was a gap of an hour until the last sortie of the day, by W/120, sighted the convoy. While searching for it at 1806 hours, the aircraft sighted a U-boat's diving swirl but not knowing how much time had elapsed since disappearance no attack was made. Eight minutes later the convoy was found and the U-boat sighting position given by R/T to the Senior Officer Escorts who ordered the Blyskawica to hunt the area. W/120 also flew back and at 1842 hours sighted a U-boat off the convoy's port beam. It dived before an attack could be made. Search was continued until 2008 hours when distant escort to the convoy was resumed. At 2222 hours, another U-boat was sighted on the surface about 25 miles astern of the convoy. An attack with six depth charges was made but in the gathering darkness no after effects could be seen. Escort was again resumed and continued uneventfully until 2305 hours. During the late afternoon and evening, according to German records, several long range shots were fired by U.254, 174 and 256 but all torpedoes missed and none were detected by the convoy. Contact appears to have been lost towards nightfall and the last shadowing signal was made

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- (1) In a German submarine the Engineer Officer controlled the diving and trimming entirely and was therefore of equal importance in the crew as the captain.
 - (2) U.438 and 705.
 - (3) No. 73 U.S.N. Squadron were amphibian Catalinas.

by U.607 at dusk. This U-boat, having only one air driven torpedo left, then commenced the homeward journey followed by U.595 who was suffering from the cumulative effects of depth charge damage. This left ten U-boats still operational in the neighbourhood.

Contact was regained by a few of these soon after daylight on the 10 August and, after an abortive attack by U.597, the convoy was closely attacked at 1023 hours by U.660 who torpedoed and sank four merchant ships.⁽¹⁾ Search by the surface escorts did not locate the attacker. Soon after this U.597 requested to leave for home in view of depth charge damage and a very low remaining stock of fuel. U.593 also moved off because of a crack in a cylinder block. Later in the day U.438 located the abandoned S.S. Radchurch and sank her.

The first air sortie on the 10th to the convoy was by Liberator V/120 Squadron who left Ballykelly at 0630 hours and reached the convoy at 1206 hours - 1 $\frac{3}{4}$ hours after the successful U-boat attack. From then until 2248 hours, using the homing procedure to facilitate a meeting, practically continuous air escort was given by V, X, F and A/120 Squadron and Catalina H/73 U.S.N. Squadron. A further addition to the surface escorts occurred at 2000 hours when ~~H.M.S.~~ H.M.S. Castelton joined up. Sweeps were also carried out in the vicinity of the convoy by other Catalinas of No. 73 U.S.N. Squadron. At 1117 hours, one of these aircraft - K/73 - attacked a U-boat some 40 miles north of the convoy, and at 1313 hours, E/73 attacked another U-boat close to the same position. Both U-boats got under before the release of depth charges and no damage was inflicted. Just after leaving the convoy, Liberator X/120 Squadron homed on to an A.S.V. contact and at 1604 hours sighted a U-boat four miles ahead in the act of diving. Although over the spot 35 seconds after complete disappearance the diving swirl was indistinguishable in the rough sea and no attack was possible. Later on at 2110 hours, F/120 got an A.S.V. contact, homed and sighted a U-boat 10 miles off the convoy's port beam. An attack was made four seconds after disappearance but no damage was inflicted. Finally G/73, when searching for the convoy at 2140 hours attacked a U-boat 10 miles to starboard of the convoy. No signs of damage were observed.

During the evening Admiral Donetz signalled that the operation was to continue only if the boats could catch up with and get ahead of the convoy by daylight on the 11th. By this time U.254, with only one torpedo left, had hauled off, thus leaving six U-boats still in the vicinity. U.705 made a last shadowing report at dusk giving the probable course of the convoy as to the north east as aircraft were constantly visible in that direction. Contact was then lost and not regained during the night by any of the others. As air support was now regular and there was little likelihood of boats being able to get ahead of the convoy unobserved, Admiral Donetz ordered the chase to be discontinued and the boats to move off to the southward.

At dawn on the 11th, unaware of the withdrawal of all the U-boats, the Senior Officer Escorts decided that, as all

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- (1) S.S. Condylis - 4,439 tons.
 S.S. Empire Reindeer - 6,259 tons.
 S.S. Oregon - 6,008 tons.
 S.S. Cape Race - 3,807 tons.

the escorts were very short of fuel, the outer screening duties should be left entirely to aircraft. Liberator B/120 Squadron arrived at 0900 hours and air support was provided during the 11th and 12th by Liberator, Fortress and Hudson aircraft. Without further incident the convoy, now numbering only 22 ships, arrived in the United Kingdom on the 13 August.

In his summing up of the operation, Admiral Donetz said that, of the 18 boats directed into the operation, 17 at one time or another succeeded in making contact. Twelve U-boats fired torpedoes but only nine made close attacks. Two boats were sunk, three were damaged sufficiently to cause retirement and five were slightly damaged. He claimed that at least ten merchant ships and possibly one destroyer had been sunk. Although this result appeared poor, he took into account that, with the exception of U.607, only young commanders with no experience of convoy battles were operating. In addition, unfavourable thick weather continued for the first three days and thereafter strong air escort continually hampered mobility. He was pleased that successful day attacks had been carried out in spite of surface escort craft and considered that future prospects were favourable.

(v) Other convoy experiences

Of the other convoys intercepted by U-boats during August, S.L.118 left Sierra Leone on the 4 August and received air cover for part of the next four days by Sunderlands and Hudsons of the West Africa Command. The passage was uneventful until the 16 August when the convoy was about 150 miles east of the Azores. Here it was intercepted by the groups of U-boats lying in wait in the Azores Gap and attacked during the afternoons of both the 17th and 18th, losing three ships sunk and one damaged.⁽¹⁾ At the earliest possible moment air escort was sent out from the United Kingdom, two Liberators having been moved down to Predannock in Cornwall in readiness. Liberator F/120 Squadron reached the vicinity of the convoy (780 miles from base) at 1746 hours on the 18th and immediately sighted a U-boat on the surface ahead of the convoy. An excellent D.C. attack was delivered which so severely damaged U.653 that the boat had to break away and return to port. With no endurance in hand to stay by the convoy, F/120 had to start back to base at 1807 hours. The first sortie on the 19th, by H/120, met the convoy at 0535 hours (690 miles from base). An hour later H/120 sighted and attacked a U-boat on the surface eleven miles to starboard of the convoy. Slight damage was inflicted on U.566. At 0836 hours another U-boat was sighted on the surface 20 miles on the convoy's starboard quarter. Having no more D.Cs. left, an attack with cannon-fire was delivered until it dived. The aircraft had to leave for base at 1035 hours. One sortie on air escort was possible from Gibraltar and was given by Catalina B/202 Squadron (750 miles from base) between 0800 and 1030 hours but no U-boats were sighted. The only other aircraft available which could reach the convoy was B/120 at Ballykelly in North Ireland. This aircraft took off at 0757 hours 19th and reached the vicinity of S.L.118 at 1430 hours (780 miles from base). Search was made but the convoy was not sighted. At

(1) Sunk - S.S. Triton - 6,607 tons, S.S. Balingkar - 6,318 tons and S.S. Hatarana - 7,522 tons.
Damaged - S.S. Cheshire.

1552 hours a U-boat was seen in the act of diving but had disappeared long before an attack could be made but at 1633 hours an attack was successfully delivered on another U-boat 30 seconds after disappearance. This may have been U.214 who reported having been attacked by an aircraft just after diving. Slight damage was inflicted. Although in the close vicinity of the convoy, B/120 did not actually sight it, and at 1740 hours, had to leave for base. All the seven U-boats taking part in the operation reported continual interference by aircraft which made it almost impossible to keep contact or get ahead of the convoy into attacking positions. However, no more aircraft were available after B/120's sortie and she had never been within sighting distance of the convoy. No air escort had actually been with S.L.118 since the departure of H/120 and B/202 at 1030 hours. This respite allowed one or two U-boats to get ahead into positions for submerged attack. At 1430 hours, U.406 torpedoed and sank S.S. City of Manila of 7,452 tons. Close contact with the convoy was then lost by these U-boats. During the night B.d U., realising that full air cover would be available on the 20th, ordered the pack to break off the operation. Again he considered this rather meagre result to be satisfactory in view of the fact that only one U-boat (U.653) had been severely damaged and none lost during the whole operation.

Also on the 16 August, convoy O.S.37, southbound in the same convoy lane, had been sighted and reported at 0830 hours by U.89 homeward bound from the Canadian coast in position 4560N x 2100W. The U-boat's reporting signals were D/F'd in England and an air escort was sent out in addition to diverting an aircraft which was already in the neighbourhood on an Outer Bay A/U patrol.(1) The first escort - Lancaster H/61 - sighted no U-boat but the next sortie - Liberator F/120 - after being directed by the Senior Officer Escorts to fly out on a D/F bearing from the convoy, sighted and attacked a U-boat at 1933 hours. In point of fact this was U.89 who was so severely damaged that she had to break away. In view of the air escort, B.d U. made no attempt to operate at all against this convoy.

The next S.L. convoy, - No. 119 - was intercepted and reported on the 25 August to the west of Madeira. D/Fs of these signals established that it was S.L.119 that was threatened and the convoy was re-routed to the northeast so as to get within range of Gibraltar aircraft as soon as possible. During the 26th, several U-boats were closing in on the convoy. Gibraltar managed to cover the convoy on the 27th which greatly hindered the pursuing U-boats, but on the 28th only one sortie from Gibraltar was possible which gave escort from 0430 to 1100 hours. No U-boats were sighted. Steps had been taken to have V.L.R. aircraft ready at Predannock and H/120 Squadron succeeded in meeting the convoy 720 miles from base at 1843 hours. The Senior Officer Escorts immediately ordered the aircraft to search well ahead of the convoy but hastily recalled it at 1930 hours as an attack had been delivered on the convoy. Between 1100 and 1800 hours, U.566 had succeeded in getting ahead into a diving position and at 1930 hours torpedoed two merchant ships. Counter attacks by the surface escorts severely damaged the U-boat. For the remainder of the time at

(1) Lancaster F/61 on A/U patrol was diverted and met O.S.37 at 1131 hours in position 4640N x 2041W. No U-boats were sighted.

disposal H/120 kept close escort but no U-boats were sighted. No attacks eventuated during the night and air escort was re-established on the 29th, becoming continuous as the convoy reached medium range limits from the United Kingdom on the 30th. B.d U. had discontinued his operations during the dark hours of 28/29th in view of the expected air interference.

Turning to the northern convoy lane, O.N.122 was followed westward in the Greenland Gap from the 22 August by a pack of U-boats. Attacks were made during the night of the 24/25th and four ships were sunk before the convoy came into range, on the 25th, of Catalina sorties from Newfoundland. On the last day of the month, U.609, one of the Group Vorwaerts line of U-boats, located convoy S.C.97 in position 5713N x 3340W and immediately attacked, sinking two merchant ships. B.d U. ordered the rest of the Group to join in and eight of them made contact during the next 36 hours. Air escorts were provided from 1220 hours on the 1 September by Iceland based aircraft. These consisted of Catalinas of No. 330 Norwegian Squadron and amphibian Catalinas of No. 73 U.S.N. Squadron. During the remainder of the day eight U-boats were sighted and forced to dive and three were attacked with D.Cs. One of these attacks, that made by B/73 U.S.N. Squadron, sank U.756. These actions hindered the mobility of the following U-boats so effectually that in B.d U's own words: "I decided to break off the operation as experience has shown that further pursuit in an area under constant air patrol would be useless."

By the beginning of September, B.d U. had stationed three groups of U-boats in the Greenland Gap extending down to latitude 40°N. Two groups were in the vicinity of the Azores and the Atlantic Narrows so that apart from occasional sorties by selected U-boats into the Canadian and West African areas his main efforts were divided between the Caribbean zone and the trade routes in the North Atlantic. There was one other project which was initiated by Donetz during August. This was an exploratory cruise by five 740 ton U-boats to the waters round the Cape of Good Hope. It bore increasing fruit in subsequent months in the shape of much Allied shipping sunk in this new area which stretched round well up the east coast of Africa and which was almost defenceless. Although strictly not part of the Atlantic Battle a short account has been given in Chapter XIII - Part II.

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In spite of a considerable rise in shipping sunk in mid-Atlantic during August, and of his statements to Hitler that the future possibilities against convoys were favourable, Donetz was not happy.⁽¹⁾ Summarising in his War Diary towards the end of August and again at the beginning of September, he wrote:-

"The number of British aircraft in the East Atlantic has increased, a great variety being seen. They are equipped with an excellent location device against U-boats. U-boat traffic round Scotland and in the Bay of Biscay is gravely endangered by daily, even hourly, hunts by aircraft. In the Atlantic the enemy's daily reconnaissance covers out as far as 20°W which forces U-boat dispositions far out into the centre of the Atlantic with consequent higher fuel consumption, shorter operational periods and greater difficulty in finding the enemy convoys in the open Atlantic. There are also some types of aircraft of particularly long range."

If development continues at the present rate, these problems will lead to irreparable losses, to a decline in ship sinkings and consequently to reduced chances of success in the U-boat warfare as a whole. In view of this situation I must once more demand the use of the He.177, the only aircraft which has a range and fighting power capable to acting as reconnaissance against the Atlantic convoys and of combatting the English aircraft in the Biscay area."

Quoting verbal discussions with his U-boat captains in confirmation, Donetz said that successful operations were perfectly possible against convoys even heavily escorted by surface craft, but only as long as Allied aircraft were not in evidence.

Enough has been recounted to show how important very long range air escort had become in forcing the U-boat packs to disengage from their prey. Much improved though the offensive qualities were of the surface escorts, they were still in insufficient numbers to avoid being swamped when large packs of U-boats succeeded in gathering close around a convoy. It was air support, frequently directed by the Senior Naval Officer Escorts on bearings of U-boat W/T signals disclosed by his shipborne HF/DF, which forced the pursuers to dive and, even if not becoming casualties to air attack, so to lose close contact.

The weak points in the British defence were the existence of broad gaps in air cover, paucity of V.L.R. aircraft and insufficient surface escort vessels. The enemy's weakest points were the constant chatter on W/T once contact with a convoy had been made and the absence of long range air reconnaissance which necessitated the use of long extended patrol lines of U-boats whose interception value was limited to a few miles of visual look out from the conning tower.

If Donetz could so fill up the Atlantic with watching U-boats he might hope to counter the evasive routing measures practised by the Submarine Tracking Rooms in London and New York, but once the gaps in air cover could be closed, he would be unable to use the U-boats' surface mobility to effect a swamping concentration round the intercepted convoy. The Battle of the Atlantic was, in effect, a race as to whether Donetz could sink ships faster than the Allies could build replacements and before air cover could span all the main trade routes.

(vi) The Bay Offensive

(a) Interference with the Day Patrols by enemy aircraft

The best indication of the effectiveness of tactics in a long drawn out struggle is in the reactions of the enemy. We have seen that the U-boat tactics had changed from continuous surface passage during 1941 to surfacing mainly by night in the first half of 1942. The advent of the Leigh Light Wellingtons reversed their procedure, but the growing accuracy of daylight attacks necessitated enemy fighter patrols to drive off our aircraft. Little was seen in this area up to July of enemy efforts to interfere with the A/U sweeps though an indecisive action took place on the 7 June between a Sunderland and an Arado 196, another between a Hampden and two F.W.190s. on the 13th and a combat by an He. 115 with a Whitley and a Sunderland on the 21 June which resulted in the latter being shot down.

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By the beginning of September, B.d U. had stationed three groups of U-boats in the Greenland Gap extending down to latitude 40°N. Two groups were in the vicinity of the Azores and the Atlantic Narrows so that apart from occasional sorties by selected U-boats into the Canadian and West African areas his main efforts were divided between the Caribbean zone and the trade routes in the North Atlantic. There was one other project which was initiated by Donetz during August. This was an exploratory cruise by five 740 ton U-boats to the waters round the Cape of Good Hope. It bore increasing fruit in subsequent months in the shape of much Allied shipping sunk in this new area which stretched round well up the east coast of Africa and which was almost defenceless. Although strictly not part of the Atlantic Battle a short account has been given in Chapter XIII - Part II.

In spite of a considerable rise in shipping sunk in mid-Atlantic during August, and of his statements to Hitler that the future possibilities against convoys were favourable, Donetz was not happy.⁽¹⁾ Summarising in his War Diary towards the end of August and again at the beginning of September, he wrote:-

"The number of British aircraft in the East Atlantic has increased, a great variety being seen. They are equipped with an excellent location device against U-boats. U-boat traffic round Scotland and in the Bay of Biscay is gravely endangered by daily, even hourly, hunts by aircraft. In the Atlantic the enemy's daily reconnaissance covers out as far as 20°W which forces U-boat dispositions far out into the centre of the Atlantic with consequent higher fuel consumption, shorter operational periods and greater difficulty in finding the enemy convoys in the open Atlantic. There are also some types of aircraft of particularly long range which are used for convoy escort. Such escort has been flown as much as 800 miles from English bases.

DS 64294/1(495)

(1) On 4 August 1942 Donetz made an important announcement to a leading Swedish newspaper for world circulation on the very prospects for the U-boat war in the course of which he stated that 'the aeroplane can no more eliminate the U-boat than a crow can fight a mole'. It was ironic that four August onwards the casualties to U-boats at sea by air attack rose rapidly until during 1943 the aeroplane was U-boat killer No. 1.

and the neutral
press
Fuhrer Conferences
on Naval Affairs
1942, p. 56

If development continues at the present rate, these problems will lead to irreparable losses, to a decline in ship sinkings and consequently to reduced chances of success in the U-boat warfare as a whole. In view of this situation I must once more demand the use of the He.177, the only aircraft which has a range and fighting power capable to acting as reconnaissance against the Atlantic convoys and of combatting the English aircraft in the Biscay area."

Quoting verbal discussions with his U-boat captains in confirmation, Donetz said that successful operations were perfectly possible against convoys even heavily escorted by surface craft, but only as long as Allied aircraft were not in evidence.

Enough has been recounted to show how important very long range air escort had become in forcing the U-boat packs to disengage from their prey. Much improved though the offensive qualities were of the surface escorts, they were still in insufficient numbers to avoid being swamped when large packs of U-boats succeeded in gathering close around a convoy. It was air support, frequently directed by the Senior Naval Officer Escorts on bearings of U-boat W/T signals disclosed by his shipborne HF/DF, which forced the pursuers to dive and, even if not becoming casualties to air attack, so to lose close contact.

The weak points in the British defence were the existence of broad gaps in air cover, paucity of V.L.R. aircraft and insufficient surface escort vessels. The enemy's weakest points were the constant chatter on W/T once contact with a convoy had been made and the absence of long range air reconnaissance which necessitated the use of long extended patrol lines of U-boats whose interception value was limited to a few miles of visual look out from the conning tower.

If Donetz could so fill up the Atlantic with watching U-boats he might hope to counter the evasive routing measures practised by the Submarine Tracking Rooms in London and New York, but once the gaps in air cover could be closed, he would be unable to use the U-boats' surface mobility to effect a swamping concentration round the intercepted convoy. The Battle of the Atlantic was, in effect, a race as to whether Donetz could sink ships faster than the Allies could build replacements and before air cover could span all the main trade routes.

(vi) The Bay Offensive

(a) Interference with the Day Patrols by enemy aircraft

The best indication of the effectiveness of tactics in a long drawn out struggle is in the reactions of the enemy. We have seen that the U-boat tactics had changed from continuous surface passage during 1941 to surfacing mainly by night in the first half of 1942. The advent of the Leigh Light Wellingtons reversed their procedure, but the growing accuracy of daylight attacks necessitated enemy fighter patrols to drive off our aircraft. Little was seen in this area up to July of enemy efforts to interfere with the A/U sweeps though an indecisive action took place on the 7 June between a Sunderland and an Arado 196, another between a Hampden and two F.W.190s. on the 13th and a combat by an He. 115 with a Whitley and a Sunderland on the 21 June which resulted in the latter being shot down.

CC/S.7050
Encls. 20A to
22A, and
CC. Location
Statement
for July

However, as July advanced numerous combats took place between Coastal Command aircraft and enemy Arado 196s. and a few Ju.88s.(1) To provide protection against this interference, No. 235 Beaufighter squadron was moved from No. 16 Group to Chivenor in Devon on the 20 July. Under No. 19 Group's direction the squadron commenced patrols in the Bay area to intercept the enemy aircraft on their outward or homeward tracks. Most of the enemy attacks took place to the west of Ushant where the A/U fan patrols converged and it was into this area that the Beaufighter sorties were directed. Their first success occurred on the 5 August when one Arado 196 was destroyed.

The scale of enemy effort during August was maintained but more JU.88s. were in evidence.(2) In September the enemy patrols were increased both in number and extent and they consisted almost entirely of JU.88s. No. 248 Beaufighter squadron was moved into No. 19 Group to reinforce the interception patrols and enemy casualties rose.(3) In October the number of known combats dropped to 17 but the missing aircraft rose to 16. Beaufighters were responsible for all the months' enemy casualties which amounted to 4-Ju.88s. and 1-Br.20 seaplane. During November the Bay A/U patrols were intensified as part of the air protection to the "Torch" build-up convoys and air combats increased to 35 in which 4-Ju.88s. 6-Arado 196s. and 2-Me.210s. were destroyed. Four Beaufighters were shot down but only three A/U aircraft were lost. Thereafter the enemy effort died away and A/U aircraft were scarcely ever molested.

The efforts of the G.A.F. failed signally to interfere with the prosecution of the Bay offensive, and, after the introduction of Beaufighter interception patrols, suffered casualties itself which were unacceptable.

(b) Interference with the Night patrols by French tunnynmen

The rising success of the Bay Offensive in July was not maintained in August. Although nearly as much flying was done which resulted in more day sightings and attacks, the latter were not so accurate. Moreover the night offensive

- (1) 17 known combats took place with a further eight probable as this number of aircraft were missing from unknown causes. The only claim, which is substantiated from German sources, was an Arado 196 shot down by Sunderland C/461 Squadron in action with three of these aircraft on 30 July. This sudden increase in enemy activity was the result of Doenetz's representations to Goering on the necessity for G.A.F. action against British anti-U-boat patrols in the Bay.
- (2) During August there were 21 known combats with a further 12 aircraft missing. Nine of the known combats were by No. 235 Squadron in which they accounted for 2-Arado 196s. and damaged 1-Ju.88. and 1-F.W.200. A/U aircraft destroyed 1-Ju.88. and 1-Arado 196.
- (3) In September there were 30 known combats with a further 14 aircraft missing. Nine combats were by Beaufighters which resulted in the destruction of 1-F.W.200, 6-Ju.88s. and 1-Arado 196. A/U aircraft succeeded in shooting down 4-Ju.88s.

N.B. All the enemy casualties listed are confirmed from G.A.F. records. Reference G.A.F. losses by units in the Brest area including JG2 fighters and KG40 at Merignac.

was definitely disappointing. This was partly due to the change of tactics by the U-boats who now did much submerged time at night, but there was another reason.

No. 172 Sqn.
Form 540
and
C.C. Naval Staff
Log. 17/7/42

CC/S.7050/4
Min.70

Admty. Signal
T.O.O.
1355B/23/7

C.C.O.I.No. 5
new para. 7
dated 29/7/42

Towards the middle of July it had been noticed that French tunny-fishing craft were spreading out in increasing numbers into the middle areas of the Bay. The shoals of tunny follow certain annual movements somewhat similar in regularity to those of herring in the North Sea. The fishing craft naturally follow them. This had not had any special significance for A/U operations in the Bay in previous years because there had been no night offensive. Now it was found that the Leigh Light aircraft were getting numerous A.S.V. blips on unlighted objects which, on exposure of the searchlight, proved to be merely tunny craft. The blip was quite indistinguishable from that given by a surfaced U-boat so that in each case the full pre-attack approach had to be carried out. Not only did this run down the searchlight batteries unnecessarily but the glare of illumination gave wide warning to any U-boats in the vicinity. By mid-August this nuisance had reached such a pitch that night sorties were considered almost useless. Various means of limiting the extent of tunny fishing had been discussed with the Admiralty and on the 20 July a series of broadcasts by the B.B.C. were commenced in which French fishing vessels were warned to keep to the Inner Bay. Leaflets containing an explanatory warning were dropped on tunnymen by day and over their home ports by night. Finally a broadcast warning was given that, after four days grace, any fishing craft found outside the published limits would be fired on. An operational order to the Coastal Command Squadrons was circulated and action against the tunnymen was started on the 1 August. However, this shooting up of fishing craft, besides being repugnant, was not successful in lessening the nuisance, and, following the arrival in Plymouth on the 9 August of a tunnyman who professed ignorance of the reason why he had been fired on, it was decided to cancel the firing orders and to try further methods of propaganda. Subsequently a naval operation from Plymouth was planned to round up as many tunny-craft as possible, but it did not achieve its object and the problem remained unsolved until the end of the fishing season in October. In view of the need for searchlight aircraft to take part in the Northern Transit Offensive, where interference by fishing craft did not exist, and the fact that ~~no~~ U-boats had been located at night in the Bay since the 20 July, it was decided to move the majority of No. 172 Squadron to No. 18 Group. On the 17 August, seven of these aircraft landed at Wick and commenced night operations immediately. An additional advantage accruing from this transfer was that the experience of No. 172 Squadron proved invaluable in hastening the training of the new searchlight squadron, No. 179, forming at the same air station.

During August in the Bay 4,114 day hours were flown which produced 32 sightings of which 24 were attacked. Only two of these attacks were really accurate. A Czech Wellington, H/311 Squadron, sank U.578 on the 10th and two Whitleys, B/502 and O/51 Squadrons, seriously damaged the homeward bound U.256 on the last day of the month. 179 Leigh Light night flying hours produced one sighting on the 6th, but an attack was indirectly frustrated by numerous previous locations of tunnymen. 172 hours of ordinary night flying obtained no sightings.

In September, the day flying hours rose to 5,002 which gave 33 sightings. 22 U-boats were attacked but the results were better. Whitley V/77 Squadron sank U.705 on the 3rd

and four other U-boats were seriously damaged. In the middle of September, No. 179 Squadron became operational at Wick and No. 172 Squadron reverted to full strength in the Bay where it was hoped that the seasonal tunny fishing might be drawing to a close. However, the 565 night flying hours only produced one location and the U-boat was already under water when the attack was delivered. The tunnymen were indeed less troublesome but another and far more potent factor was affecting the night offensive.

(c) The German Search Receiver

War Diary of
B.d U.

ibid

The Germans were fully alive to the possibilities on metre wavelength Radar and had been aided by the capture of a Mark II A.S.V. set in Tunisia in the Spring of 1942. Accordingly they concluded rightly that this type of location was responsible for the surprise night attacks made on U-boats in the Bay during June and July. Priority was placed on the production of a counter-measure and by August a prototype receiver was installed in three U-boats - U.214, U.107 and U.69 - for trial on operations. These three U-boats put to sea on the 9, 15 and 16 August respectively. On the 19th, U.214 reported that the interception set worked well during her operations against convoy S.L.118 in avoiding detection by the air support to that convoy and on the 20 and 21 August, U.107 and 69 reported favourably on the warnings received by the equipment during their transit of the Bay of Biscay.⁽¹⁾ Without waiting for any further refinements to the comparatively makeshift set, Donetz ordered the speedy fitting of all U-boats. The mass production of the receiver (Type R.600) was entrusted to the Paris firm of Metox. The aerial display for this set was crude, being mounted on a wooden crosspiece, known as the Southern Cross, which had to be carried up through the conning-tower to the bridge and was operated manually. By mid-September many U-boats had been supplied with the equipment and there were frequent cases of fitted boats being detailed to escort unfitted boats through the Bay of Biscay. During October nearly every outward bound U-boat was using the device when on transit within range of air attack, but because the aerial was cumbersome and had to be taken below before diving, the set was not used in convoy battles where instant readiness to submerge was vital. By December, nearly all U-boats at sea had been fitted.

(d) Counter-measures by Coastal Command

The absence of night locations during the latter half of September was disquieting to H.Q. Coastal Command but, coming so soon after the maximum period of interference by tunnymen and considered in conjunction with the suspected night submerging tactics on the part of most U-boats, the

(1) The receiver gave warning of A.S.V. transmissions at ranges up to 30 miles, so that a U-boat had ample time to dive before being detected itself by A.S.V. whose echo range was only some 5 to 10 miles.

true cause was not realised in British circles,⁽¹⁾ particularly as the day sightings were not much lowered in ratio to the flying hours. In October, however, for almost the same expenditure of flying hours the day sightings fell to 16 with again only one night location.⁽²⁾

CC/S.7050
Encl.69A

ibid
Encl.59A
and 73A

These figures, together with some confirmation from intelligence sources, justified the belief that the enemy was employing a receiver capable of giving ample warning of the approach of aircraft when using A.S.V. and that U-boats were once again probably surfacing by night and submerging by day. A new policy was therefore adopted. The night patrols were instructed to continue using A.S.V. and to expose the search-light or drop flares periodically in order to keep the U-boats submerged as much as possible, thus, it was hoped, forcing them to surface more frequently by day to charge batteries and get on with their passage. Normal day patrols were flown but in good visibility the A.S.V. equipment was not used. In poor visibility, the A.S.V. was only switched on periodically. If a contact was obtained, the bearing and distance was taken and the A.S.V. switched off until, by D.R. navigation, the target was estimated to be fairly close after which it could be used for the final attacking approach. These orders were modified during November whereby special night sorties by Whitleys of No. 502 Squadron did the scarecrow A.S.V. and flare tactics while the Leigh Light sorties followed the intermittent A.S.V. procedure. No change was made for aircraft actually supporting convoys but the orders against using A.S.V. did apply when such aircraft were on passage to and from the convoys.

It was realised that the value of all purely A/U patrols was much lessened and that a higher premium than ever was placed on the early introduction of the short wave 10 c.m. A.S.V. which could not be detected by the existing German receiver. Meantime it was desirable to augment the air support given to threatened convoys, where the U-boats would probably not use the receiver, at the expense of the transit offensives.

ibid
Encl.74A

Poor results in the Bay area continued during November⁽³⁾ and on the 22nd another modification of the existing orders was introduced. With the exception of the Liberator squadrons⁽⁴⁾ all aircraft fitted with A.S.V. were to be used

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- (1) The possibility of U-boats listening to our A.S.V. transmissions had been considered several times at H.Q. Coastal Command between March and August, 1942, but no convincing evidence was obtained. See CC/S.7050/4 minutes 28 to 51. A report was submitted by the C.C. Naval Staff on the 20th Sept. in which evidence between 29 Aug. and 14 Sept. was put forward to support the belief but this was doubted by Operational Research figures. Ref. C.C. Naval Staff file Encl.48 and CC/S.7050/4 Encl.111A and minute 111.
 - (2) In October, for 4,300 day flying hours, 16 U-boats were sighted of which 11 were attacked. Liberator H/224 Squadron sank U.216 on the 20th and slight damage was inflicted on two other U-boats. The one night attack, for 775 hours flying, was made by I/L Wellington A/172 Squadron on the 27th and was considered to have slightly damaged the U-boat.
 - (3) For flying hours and sightings see Appendix XXXIV.
 - (4) Nos. 224 and 59 squadrons R.A.F. and No. 330 U.S. Army Eighth Bomber Force. The latter had no A.S.V.

at night in the Middle Bay and were to use their A.S.V. continuously, moreover at least two of the night sorties were to fly at 8,000 feet so as to flood the area as much as possible with A.S.V. transmissions. The Leigh Light aircraft were exempted and were still to conform to the periodic use of A.S.V. in the hopes of catching a U-boat off its guard. The Liberators were to fly day patrols in the Middle area of the Bay.

ibid.
Encl. 75A
and 78A

No improvement resulted and in December another change in tactics was made whereby the long range aircraft reverted to their day patrols in the Outer Bay. This referred particularly to the newly arrived U.S. Army Liberators of the provisional No. 1 A/S squadron who were equipped with the American type 10 c.m. A.S.V. (SCR.517).⁽¹⁾ A.S.V. flooding by night continued in the Middle Bay and the medium range day flying routine was re-introduced but was restricted to those sectors of the fan patrol system which covered and overlapped the night effort.

Slightly better results per flying hours expended were obtained in December, including a small increase in night locations⁽²⁾ but January 1943 saw a new low record in sightings⁽³⁾ and it was plain that, pending the more general introduction of 10 c.m. A.S.V., new tactics must be tried in February.⁽⁴⁾

(e) 10 centimetre A.S.V.

The great importance of centimetric A.S.V. having been described, the further sequence of events in its development must be narrated. From Section (xiv) of Chapter III it will have been seen that the trials at Nutts Corner with the American-built experimental set in May 1942, were most successful. Development and production of 10 c.m. A.S.V. in the United States was rapid and when the specialised First A/S

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- (1) No. 1 U.S. Army A/S Squadron commenced single sorties on 16 November, but even by 7 December only two aircraft were available for patrols. This squadron and No. 2 Squadron, which arrived later in January 1943, were not trained up to the standard necessary for Bay operations. Their navigation was sketchy, they were not trained in night flying and the SCR.517 radar was not at maximum efficiency. The early history of the arrival of the Squadrons is given in Section (ix) Subsection (c) of this chapter.
 - (2) No. 502 Whitley Squadron had, previous to June 1942, been used on night patrols, but the still inefficient flares had prevented attacks on their A.S.V. locations. The introduction of the Leigh Light Wellingtons resulted in the transference of No. 502 Squadron to daytime patrols. (Ref. CC/S.7050/4, Enclo. 110A). The development and equipment of the squadron with a much improved $4\frac{1}{2}$ " delayed action flare in October allowed a night role to be re-adopted. During November, No. 502 Squadron was used extensively on combined A/U and anti-shipping night patrols in the Inner Bay and in December the squadron was employed almost entirely on A/U night patrols. Four of the seven night locations were made by these aircraft and in one case the first attack aided by flares was made. The Squadron flew 365 night hours in November for two sightings and 438 hours in December also for two sightings.
 - (3) 3,136 day hours produced only five sightings and 827 combined Leigh Light and ordinary night flying obtained only three sightings.
 - (4) All this time the U-boat traffic through the Bay was rising:— June 1942, 65; July, 47; August, 62; September, 72; October, 94; November, 90; December, 107; January 1943, 89; February, 100.

Army Air Command was formed over there in October(1), the Douglas B.18 squadrons in it were already equipped with 10 c.m. A.S.V. type SCR.517, and SCR.717.(2)

A.M.
C.S.16786
Encl.7A

Corresponding production on this side of the Atlantic was much slower. The first sets of Mark III A.S.V. were not due to be delivered until the end of 1942. In August the logistic side of the new equipment was regularised. The training of officers and technical personnel was commenced and technical handbooks were prepared. At a conference held at H.Q. Coastal Command on the 28 August, the A.O.C.-in-C. commented on the fact that none of the new aircraft delivered from America had any type of A.S.V. fitted, although over one hundred of their own aircraft were equipped already with 10 c.m. A.S.V. He requested the Air Ministry representatives to enquire as to whether subsequent deliveries could be so equipped and urged most strongly that the dates of the prototyping for our own 10 c.m. A.S.V. be advanced.

C.C.O.R.B.
August
Appendices

A.M.
C.S.16786
Encl.9

A few days later it became clear that the first deliveries of the British Mark III set might not begin until May 1943, and the best date that could be hoped for was March 1943. This delay in production was brought to the notice of the Ministry of Aircraft Production on the 6 September, and a meeting was held at the Air Ministry on the 11th to consider the position. It was found that the demands made by the Bomber Command H2S programme would effectually prevent any bringing forward of the date for the Mark III

ibid
Encl.12

- (1) From January 1942 onwards, the bulk of the A/U air patrols off the American coast were flown by the U.S. First Bomber Command. In October, those squadrons of this Command which were primarily engaged and trained in A/U duties were re-organised into the First A/S Army Air Command and established in two Wings whose headquarters were at New York and Miami. The Wings at first each contained from five to six squadrons. (Ref. United States A.S.W. operations in World War II, Vol. III, p. 244)
- (2) The first model (SCR.517) was developed from the existing American A.I. set as mounted for night interception purposes in fighter aircraft. Concurrently an improved and more compact set called DMS.1000 was developed with the aid of the British team of scientists in America. This latter set was fitted in two Liberators Mk.II in April 1942, for demonstration trials. It was one of these aircraft that was flown over to Nutts Corner in Northern Ireland and carried out the trials mentioned in Section (xiv) of Chapter III. This aircraft (A.L. 507) was afterwards fed into No. 224 Sqn. and had its first operational sortie on 19th Nov. 1942 under the Squadron letter 'Z'. The other aircraft did similar trials in America. Owing to Staff confusion between SCR.517B and DMS.1000, the American Army Air Command order was given for the former and their early A/U squadrons were equipped with SCR.517B. Realising later the superiority of DMS.1000, the rest of the order was cancelled and a set called SCR.717 was substituted. This was an American set but included the British invention which made the DMS.1000 so superior to the SCR.517B. Meanwhile the U.S. Navy ordered a set which not only included the British improvement but incorporated all the latest American refinements. This was called A.S.G.1., but did not come into general production in America until January 1943. (Ref. R.A.F. Signals in the Second World War, Vol. VI, (S.D. 736) Ch.8).

CC/S.9108
Encls.70A
and 72A

A.S.V.(1) On the 15 September, the Air Officer Commanding-in-Chief wrote personally to the Air Officer Commanding-in-Chief, Bomber Command, asking for his assistance in making possible the production of 200 sets of Mark III A.S.V. by December, instead of the projected May 1943. However, the Commander-in-Chief, Bomber Command, was unwilling to allow any productive effort to be diverted from his H2S programme.

A.M.
C.S.17067
Encl.2A

The discovery at this time that the Germans were listening to the 1½ metre Mark II A.S.V. with the consequent collapse of the Bay Offensive in October brought matters to a head and by order of the V.C.A.S. the first 40 sets of H2S were diverted to fitting in the Leigh Light Wellingtons in spite of the fact that H2S, being designed for a different objective, was not expected to be so efficient against U-boats as the Mark III A.S.V. The Commander-in-Chief, Coastal Command, accepted this compromise provided the standard of performance was brought up to that of Mark III A.S.V. as soon as possible. Meanwhile successful efforts were being made by the R.A.F. delegation in America, not only to hasten the supply of Liberators to this country, but to have American 10 c.m. equipment installed before delivery. It had been decided to fit the best American set which was the ASG.1 but, as at this date (October) none were yet in production, and having regard to the vital need for 10 c.m. A.S.V. in the Bay, a few Liberators were hastily fitted with the original DMS.1000 set. From the middle of October onwards at wide intervals, single Liberators arrived in this country fitted with DMS.1000 sets. After a period for the completion of the modifications always necessary before the aircraft themselves conformed to Coastal Command requirements, they were fed into No. 224 squadron which was then engaged on A/U patrols in the Bay.(2) Delivery of Liberators fitted with ASG.1 did not commence until nearly the end of January 1943.(3) The first few of these were also fed into No. 224 Squadron and then went towards re-equipping Nos. 120 and 86 Squadrons. The few sets of DMS.1000 received an R.A.F. nomenclature of Mark IV A.S.V. and ASG.1 became Mark V.

The position in the Bay Offensive had become so serious by November that the A.S.V. question was raised in the newly constituted Cabinet A/U Warfare Committee. At its second meeting on the 13 November, the committee requested that all possible steps should be taken to expedite the fitting of 10 c.m. A.S.V. in aircraft employed on A/U patrol in the Bay of Biscay. A week later, at the third meeting, the C.A.S. announced that the two Leigh Light Squadrons - Nos. 172 and 179 - would be re-equipped with 10 c.m. A.S.V., the fitting to begin in December and complete by February 1943. The first twenty aircraft would receive converted H2S sets. However,

- (1) The production of H2S for navigational use in the heavy bomber squadrons had been granted absolute priority. As many of the components were common to Mark III A.S.V. the latter suffered in date of delivery. See R.A.F. Signals History Vol. VI (S.D.736) Ch.IX
- (2) Single Liberators IIIA fitted with DMS.1000 arrived at Prestwick on the following dates - 15 Oct., 24 Nov., 17 and 22 Dec., 31 Jan. and 7 Feb. But their A.S.V. was not effective in No. 224 Squadron until 26 Feb. 1943.
- (3) Single Liberators V fitted with ASG.1 arrived at Prestwick on the following dates - 20, 26, 30, and 31 Jan. 1 and 7 Feb. and thereafter at a slightly accelerated rate. First operational in Nos.224 and 86 Squadrons on 21 March and 5 April, 1943 respectively.

R.A.P. Signals History
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Chaps. IX to XI.

once again production delays intervened. At the end of January 1943 only three aircraft looked likely to be completed in the near future and ultimately the first squadron - No. 172 - did not become operational with Mark III A.S.V. until March 1943. It was, therefore, not till mid-February 1943 that even American 10 c.m. A.S.V. was operational in the Bay by day⁽¹⁾ and not till mid-March were any night patrols so equipped.

(vii) The Northern Transit Offensive

The introduction, at the end of July 1942, of anti-submarine fan patrols southeastward from Iceland in order to link up with similar fan patrols working northwestward from Scotland enlarged the scope of the Northern Transit Offensive which now extended from the narrows between the Shetlands and Norway right round to a line joining Iceland and Ireland. This was a very large area over which comparatively thin air cover was available. The U-boat traffic was far less dense than that in the Bay of Biscay and consisted of inexperienced but cautious outward bound U-boats on their first war patrols. They had many alternative routes open to them as the mined areas to the north and south of the Faroes were more of a propaganda bogey than a lethal barrier.⁽²⁾

With the inauguration of A/U patrols southeastward from Iceland and the introduction of night flying by No. 172 Squadron's Leigh Light Wellingtons in the latter half of the month the flying hours in the transit area during August increased to 1,460 hours by day and 76 at night. These gave 6 day sightings of which 5 were attacked and one night location. Only one attack was considered accurate enough to have inflicted even slight damage. The German records mention several attacks but in no case was any damage reported. There was one episode, however, in which there was no doubt about the result although the aircraft concerned (I/73) was not specifically engaged on the standard offensive patrols.

Iceland O.R.B.
Appendices

The U.S.N. Catalina I/73 squadron was on the way to meet and escort a naval minelaying force - S.N.73 - then steering a north-westerly course between Scotland and Iceland. When some 20 miles short of S.N.73, a small Icelandic fishing vessel was sighted at 0601 hours on the 20 August and three minutes later a large surfaced U-boat was seen in position 6125N x 1440W steering 240°. An attack was immediately made on the U-boat which opened fire on the aircraft. Fire was returned with the 0.5 inch front guns and five 325 lb. U.S.N. depth bombs set to shallow detonation were dropped accurately across the U-boat. Following the explosion, the U-boat was seen to be stopped and emitting large quantities of fuel. After a further exchange of shots, I/73 flew on to S.N.73,

- (1) No. 1 A/S Squadron U.S. Army Air Cmd. was only partially operational from St. Eval in Jan. 1943. The aircraft had been hastily equipped with the inferior type SCR.517 which owing to continual maintenance troubles gave a very poor performance until February 1943.
Ref. CC/S.7010/57/2 Enclo.34A.
- (2) Minelaying by surface craft was in active progress during the summer and autumn of 1942. Air escort was always provided for these operations and this commitment, added to normal coastal convoy escort, inevitably reduced the flying available for transit patrols.

Admty.
CB.04050/42(8)
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B.d U.
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CC/S.7050
Encl.46A

ibid
Encl. 54A
and 57A
ibid
Encl.48A
and 53A
ibid
Encl.67A

reported to H.M.S. Castleton and directed her to the scene of the attack. In the meantime the U-boat had sunk and some survivors were in the water while others were being picked up by the Icelandic fishing vessel. In all, 53 survivors were collected by the Castleton. Some of them stated that the U-boat was a 1,600 ton tanker, a story that was received at first with reserve as no positive information had been received that such U-boats were actually in operation. In point of fact this boat was U.464(1), the sixth type XIV 1,600 ton supply U-boat to be used since March for refuelling and provisioning U-boats in the Atlantic so as to extend their period on patrol and therefore her loss was a serious blow to B.d U's organisation.

During September, the newly formed Searchlight Squadron - No. 179 - became operational at Wick and the night patrol hours rose to 102 giving two locations of U-boats. The 1,583 daylight hours produced 17 sightings of which 13 were attacked. Most of these were innocuous but on the 15 September, Whitley Q/58 Squadron sank U.261. The major proportion of these sightings were to the north of the Shetlands. The Admiral Commanding the Orkneys and Shetlands Area wrote to the Admiralty pointing out the increasing U-boat traffic(2) and complaining of his lack of surface craft with which to co-operate with the air patrols. This complaint was backed up by similar letters from the naval C.-in-C., Rosyth, and the C.-in-C., Home Fleet, who also drew attention to the desirability of increasing the air patrols. Similar letters were forwarded by the A.O.C.-in-C., Coastal Command to the C.A.S. However, the Admiralty replied in October that, although agreeing with the need for surface craft in this area, none could be spared.

In October, the flying hours in the area increased slightly to 1,441 of which 40 were at night. Six day sightings resulted in four attacks all of which were indecisive but in one of the two night attacks B/179 Squadron sank U.412. At the end of October the C.-in-C., Home Fleet, was able to make available three destroyers to co-operate with the air offensive. A combined operation was planned and lasted from the 1 November to the 11th, but nothing resulted.(3) In point of fact the main surge of new U-boats was, for the time being, over.

From the middle of November onwards, flying was severely curtailed owing to the diversion of two of No. 18 Group's A/U Squadrons to Gibraltar in support of Torch operations and the

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- (1) U.464 had left Kiel on the 4 August and, after a few days spent in Bergen, sailed for the Atlantic via the Faroes/Iceland channel on the 14 August. Ref. B.d U. War Diary.
 - (2) The number of new U-boats actually traversing this transit area rose from 13 in June 1942 to 24 in July, 32 in August, 29 in September, 24 in October and then fell away to 10 in November, rising once more to 14 in December, 20 in January 1943, and 25 in February 1943. Ref. B.d U. War Diary.
 - (3) This was given the name of operation SE. The orders are contained in No. 18 Group Operational Order No. 2 Ref. No. 18 Group O.R.B. October and November Appendices.

re-equipment of two more squadrons.(1) Flying hours in the area dropped to 1,059 in November, 386 in December, 483 in January 1943 and 562 in February. Sightings of U-boats fell to one, one, nil and one respectively. Lack of searchlight aircraft and the general use by the enemy of the German Search Receiver undoubtedly contributed largely to the poor results per flying hour.

(viii) September and October in the Atlantic

With a larger number of new U-boats becoming available for operations at this time,(2) Donetz was able to increase the number in the Atlantic and for the first time an average of 100 boats were at sea in this area. Pressure was maintained in the Caribbean and Brazilian area, and off the west coast of Africa extending down to the Cape where many independently routed ships were sunk.(3) In the North Atlantic several U-boats penetrated the St. Lawrence estuary and sank eleven ships of 32,563 tons before the air and surface craft defences managed to eject them.(4) On the transatlantic trade routes the convoy battles followed the same pattern as in August. Doentiz commenced to position his lines of U-boats on each side of the Greenland Gap so as to be able to follow both eastbound and westbound convoys into the area of no air cover. Occasionally adverse weather prevented his U-boat concentration on a located convoy, at other times air support broke up a pack before heavy attacks could develop(5), sometimes the surface escorts succeeded themselves in frustrating all attacks, sometimes only a few U-boats managed to fire long range shots and sometimes they got in close and inflicted severe losses, but in every case it was the appearance of air support which finally caused the packs to break away. As the numbers of new escort vessels slowly increased it was found possible to form an independent re-inforcing or Support Group whose primary duty was the hunting of U-boats as opposed to the close escort of convoys. In emergencies this Group was diverted to operate around particularly hard pressed convoys.(6)

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- (1) 12 Nov. No. 48 Sqn. Hudsons. Withdrawn prior to dispatch to Gibraltar.
16 Nov. No. 179 Sqn. L/L Wellington. prior to dispatch to Gibraltar.
26 Nov. No. 612 Sqn. Whitleys. Commenced re-equipping with L/L Wellingtons.
1 Dec. No. 58 Sqn. Whitleys. Withdrawn to re-equip with Halifaxes.
 - (2) See Appendix II on the growth of the U-boat fleet.
 - (3) See Appendix IV for location of shipping losses and Chapter XIII - Part II.
 - (4) See Appendix XXXV and Chapter XIII - Part I.
 - (5) H.X.206 was an example of this. Convoy was intercepted by two U-boats on the 13 September. During the night the surface escorts kept them at bay. Seven other U-boats were closing in early on the 14th. Air support was provided from 0845/14 which forced six U-boats to dive and attacked two. Further attempts at concentration were abandoned by B.d U.
 - (6) The first Support Group was EG.20 with Commander Walker R.N. as Senior Officer in H.M.S. Stork. Operations commenced on the 22 Sept. and continued into the first week of October. Thereafter regular cruises by this Support Group were carried out and, as more ships became available, additional Support Groups were formed.

War Diary
of B.d U.

During these two months, 63 ocean convoys were at sea. About 21 were located by U-boats and of these only seven were attacked seriously. In all, 43 ships were sunk in ocean convoy battles but only four U-boats were destroyed.(1) The heaviest loss was sustained by convoy SL125 in the last days of October and, as its story is bound up with the experiences of the Torch expedition to N.W. Africa, a full description is given in the following Section (ix) Subsection (e).

Regarding the U-boats in the Mediterranean, it will be recalled from Chapter II Section (xv) that no more U-boats were sent in after January 1942. During the course of 1942, six had been sunk inside reducing their numbers by the end of August to fifteen. On the 19 September, the German Naval Staff decided that re-inforcements must be despatched and instructed Doenitz to send six more boats into the Mediterranean during the October new moon period. They sailed during the first week of the month and four made the passage of the Strait undetected on the night of the 10/11 October.(2) The other two - U.89 and 438 - developed defects in their radar search receivers and were ordered not to make the attempt but to remain in the Atlantic.

Fuehrer
Conferences on
Naval Affairs
1942

On the 28 September, a Fuehrer Conference was held by Hitler to review the course of the war at sea. The C.-in-C. Navy (Admiral Raeder) considered the Battle of the Atlantic to be a source of real satisfaction to the German navy. U-boats were sinking ships faster than they could be built in spite of the lapse of fruitful hunting grounds off the American coast. Admiral Doenitz was asked to comment on the outlook for the U-boat war. He reported that U-boat losses had begun to increase as the Allied counter-measures improved. He said that though the increased numbers of U-boats at sea made it easier to locate convoys, they were not more strongly protected by surface escorts but it was aircraft that were the greatest menace to U-boats. On a map he showed the British aircraft ranges from base attained in the years 1940, 1941 and 1942 pointing out those sea areas where effective pack attacks on convoys had now to be abandoned and how his U-boat groups were being pushed further and further towards the middle of the Atlantic. He remarked that if the same process was repeated from the American coasts the U-boat pack tactics would be endangered. He stressed the necessity for the G.A.F. to support U-boat warfare to a much greater extent not only for providing air location and shadowing of convoys but to reduce the scale of enemy air attacks on U-boats in the transit areas. In the latter respect, he said that the Search Receiver now being fitted gave some warning of the approach of Allied aircraft in the Bay area but it was vital for U-boats to keep in step or ahead of Allied technical developments. Apart from equipment of this nature, the most important requirement was for increased underwater speed.

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- (1) ON.127 10/13 Sept. lost 7 ships and 1 destroyer - No U-boats sunk.
 SC.100 18/24 Sept. " 4 " - No U-boats sunk.
 ON.136 10/11 Oct. " 3 " - VLR air escort sank 1 U-boat.
 SC.104 12/14 Oct. " 8 " - Surface escort sank 2 and VLR air escort 1 U-boat.
 ON.139 16 Oct. " 2 " - No U-boats sunk.
 HX.212 27/29 Oct. " 7 " - No U-boats sunk.
 SL.125 27/31 Oct. " 12 " - No U-boats sunk.
- (2) These boats were U.458, 593, 605 and 660.

This should be accomplished by the Walter submarine which relied on an entirely new system of closed cycle propulsion⁽¹⁾ which dispensed with the orthodox diesel or electric motive power. The hull design was especially streamlined and very high underwater speeds were envisaged. Hitler was much impressed and after further discussion it was agreed that, if successful on trial,⁽²⁾ massed production would be started as soon as possible with corresponding adjustment of the present U-boat construction programme.

(ix) Operation Torch - The expedition to N.W. Africa

(a) Introduction

When the Russian armies were falling back before the German Spring offensive in April 1942, it was decided that a major attack on the Axis powers must be made from the west as soon as possible. A major invasion of France across the Channel was at this time impracticable and was considered to be so at any time before late in 1943 but a diversionary operation against the Brest Peninsula (Sledgehammer) was prepared and alternatively an expedition against French N.W. Africa (Gymnast) was proposed.

In July 1942, it was agreed that Sledgehammer offered no hope of success in 1942 and that Gymnast should be proceeded with. On the 22nd it was decided to launch it at the earliest possible date before December. Planning was to begin immediately and the operation was henceforth known as Torch. On the 31st, Lieut. General Dwight D. Eisenhower was appointed Allied Commander-in-Chief for the operation, and it was recommended that it should be mounted early in October 1942.

After further and protracted discussions at the highest level, it was decided to land at three points simultaneously - Casablanca, Oran and Algiers. The final plan was produced by General Eisenhower on the 20 September 1942. In order to reconcile French feeling, the initial landings were to be made by predominantly American forces but with the necessary British naval and air support.⁽³⁾ The follow up at Algiers was to be entirely British. American air support for fighter defence and army co-operation was to be used for the Casablanca and Oran Task forces, British for that at Algiers. The shipping and escorts necessary for the Casablanca landing and build-up were an American responsibility while Great Britain undertook those necessary for Oran and Algiers.

This plan was approved by the U.S. Chiefs of Staff on the 29 September and the British on the 2 October. It was issued in its final form on the 8 October. On the 12 October,

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- (1) The propulsion was by turbine using diesel oil acted upon by a special hydrogenated oxygen mixture known as T. Stoff. The system was developed by Professor Walter of the Walter-Werke at Kiel.
 - (2) The special difficulties of this revolutionary machinery delayed the completion of the first prototype until November 1943. Three more were delivered early in 1944 but the teething troubles were so protracted that the system never advanced beyond the trial stage.
 - (3) The American Army forces for the Oran and Algiers landings were already in the United Kingdom. Those for the Casablanca landing would come direct from the United States.

C.O.S. (42)
65th Meeting

C.C.S.
23rd Meeting

P.M.P.T.
T.1181/2
5.9.42

C.C.S.
41st Meeting

C.O.S.(42)291
and T.C.A.O.
No. 2

orders to the British Naval and Air Forces operating in the Western Mediterranean and western approaches to Gibraltar were promulgated under the signature of General Eisenhower.(1) The operation of all British Air Forces in these areas was to be exercised by the British Air Commander(2) and for the duration of the second stage of operation Torch, the R.A.F. Gibraltar(3) was to come under his operational control.

(b) Details of planning

Detailed planning of the project had commenced early in August 1942 at the H.Q. of the Allied Expeditionary Force which had been set up in Norfolk House, St. James's Square, London. The Air Force planning was conducted between the staff of No. 333 Group(4) in Norfolk House and the Air Ministry. The Allied Air Forces were required to provide air cover and support for the initial assaults; to protect bases and communications against air attack and, in conjunction with naval forces, against attacks by U-boats and surface raiders; to provide air co-operation for land operations subsequent to the assault phase; and lastly, to provide strategic air forces for offensive operations against the enemy territory outside French N.W. Africa.

A.H.Q.
S/42/Air

The task of No. 333 Group was to plan the administrative and operational part that the R.A.F. was to play in Operation Torch and the subsequent development and build-up. This of course included the air anti-submarine protection to the convoys carrying the expeditionary force to N.W. Africa with the necessary long range sea reconnaissance and, subsequent to the landings, the protection of build-up convoys by anti-submarine patrols both inside and outside the Mediterranean. The westward approaches to Gibraltar and the waters off the North African coast were likely to become one of the most concentrated areas for U-boat attack in the world. Hence, not only would it be vitally necessary to protect the Torch convoys, but these waters should prove a most fruitful ground for destroying U-boats.

ibid
Encl.2A

The Naval Commander of the Expeditionary Force(5) made his requirements known to the A.O.C. No. 333 Group on the 27 August and two days later these were discussed with the A.O.C.-in-C., Coastal Command, and the Air plan was prepared. On the 12 September, in view of the decision to land at three points simultaneously, the naval requirements were discussed afresh and necessary modifications were incorporated. The resultant Air plan for naval co-operation was issued on the 21 September.

The requirements were:-

(a) Strategic reconnaissance of harbours in French Algeria, Morocco, West Africa and in Italy to report movements of hostile naval forces and shipping.

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- (1) Torch Combined Navy/Air Orders - short title T.C.A.O.
 - (2) Air Marshal Sir William Welsh.
 - (3) A.O.C. Air Vice Marshal S. P. Simpson.
 - (4) Headed by the A.O.C. Air Marshal Sir William Welsh.
 - (5) Admiral Sir Andrew Cunningham - short title N.C.X.F.
- The detailed organisation of the Naval side of the expedition was worked out by a staff under Vice-Admiral Sir Bertram Ramsay, who was appointed Deputy Naval Commander - short title D.N.C.X.F.

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- (b) A/U protection along the convoy routes and in the Straits of Gibraltar.
- (c) Long range A/U and reconnaissance patrols inside and outside the Mediterranean.
- (d) Offensive action against enemy ship targets.
- (e) Fighter protection for convoys.

These requirements were met by the Air plan in two stages. The first stage from the departure of the convoys from Allied ports up to and including D + 4 and the second stage from D + 4 to D + 28.

Control

During the first stage, all G.R. aircraft operations were under the control of the A.O.C.-in-C., Coastal Command with aircraft based in the United Kingdom and at Gibraltar, including the photographic reconnaissance flights necessary to obtain information under (a). In the second stage the control of the R.A.F. at Gibraltar was to pass to Air Marshal Sir William Welsh as the British Air Commander under General Eisenhower.

A/U Protection

During the first stage the A/U offensive would be intensified in the Bay of Biscay and long range escort by A.S.V. fitted aircraft be provided for all convoys on the Atlantic route and inside the Mediterranean. In addition, A.S.V. equipped Swordfish aircraft would carry out A/U searches by night in the Strait of Gibraltar. To reinforce the G.R. force already at or allotted to Gibraltar⁽¹⁾, a third squadron of Hudsons (No. 500) was to be available for A/U patrols from D + 2,⁽²⁾ and up to 12 Catalinas for long range escort and A/U patrols. During the second stage it was hoped to move two of the Hudson squadrons to Oran and Algiers for A/U patrols off the north coast of Africa.

Long range sea reconnaissance

This was to be performed inside the Mediterranean, outside along the Moroccan coast to the Canary Islands and around the Cape Verde Islands by co-ordination between the Gibraltar, Malta and West African Commands. During the second stage it would be done in the Mediterranean by squadrons based at Algiers.

Fighter protection

During the first stage, fighter protection of the convoys was to be provided by carrier borne aircraft until land based fighters could be flown into African airfields.

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- (1) The permanent force at Gibraltar was No. 202 Squadron Catalinas and No. 233 Squadron Hudsons. No. 608 Hudson Squadron was to re-inforce Gibraltar shortly before D. day.
 - (2) This was in addition to No. 608 Squadron Hudsons already earmarked for Gibraltar in the original plan and withdrawn for this purpose from No. 18 Group on 24 August.

Areas of control in the second stage

From D + 4 it was hoped that Sir William Welsh would be established in an A.C.H.Q. at Algiers under the title of A.O.C. Eastern Air Command and be in a position to control all G.R. and photographic squadrons and flights based on the north coast of Africa. The suggested line of demarkation of responsibility between Gibraltar and Algiers after D + 4 was the Greenwich meridian and after D + 14 the longitude of 2° West.

ibid.
Encls.19A
and 20A

There was no provision in the Air plan for air protection to the convoys sailing direct from the United States to Casablanca and, after discussion, it was provisionally agreed that the A.O.C., Gibraltar would be responsible, in conjunction with the A.O.C.-in-C. Coastal Command and Admiral Cunningham, for sea reconnaissance, convoy escort and A/U patrols to the extent of the range of his aircraft.

C.C. Operational Order
No. 6/42 in
C.C.O.R.B.
Nov. appendices

On the 10 October, an operational order was issued by H.Q. Coastal Command which gave effect to these provisions in as far as they concerned the Command's squadrons. Arrangements had already been made for the despatch to Gibraltar of Nos. 500 and 608 Hudson squadrons and up to 12 Catalinas of No. 210 Squadron, the maintenance personnel being ferried out by Sunderlands of No. 461 squadron. H.Q. No. 15 Group were required to be responsible for the A/U protection of possibly five convoys leaving the U.K. on or about the 18 October. The control of operations from Gibraltar from approximately the 4 November would be assumed by the Torch British Air Commander who would be designated the A.O.C. Eastern Air Command.(1) It was expected that his control would revert to the A.O.C.-in-C., Coastal Command in December when the expeditionary force had effected a secure lodgement in N. Africa.

(c) Final details of A/U Protection

AHQ/S.42/Air
Encl.27A

By the 14 October, the G.R. aircraft arrangements for Operation Torch were almost complete and on that day a final conference was held at the Air Ministry between representatives of the Air Ministry, No. 333 Group, A.F.H.Q., the Admiralty and the U.S. Navy. The issue still to be decided was the details of A/U cover during the approach and assault period of the Casablanca landing. The U.S. Navy now proposed to make available two amphibian Catalina squadrons to give extra air cover to the Casablanca forces. They suggested that U.S.N. Squadron No. 73 (then based in Iceland) should move into Northern Ireland and from there to Gibraltar and that U.S.N. Squadron No. 92 should go direct from the United States to Freetown. When there was available accommodation, both squadrons should move into Casablanca. Coastal Command insisted that a relief Squadron must be provided in Iceland and accordingly No. 84 U.S.N. amphibian Catalina Squadron moved into Iceland from Newfoundland where its place was taken by U.S.N. Ventura Squadron No. 82. The limiting factor in the final move of No. 73 Squadron was the

CC/S.7010/57/2
Encls.1A to
5A

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- (1) In point of fact the operational control of the R.A.F. Gibraltar passed from Coastal Command to the new A.O.C. Eastern Air Command when he landed at Gibraltar on the 2 November.

SECRET

500

airfield accommodation at Gibraltar, (1) and ultimately it was decided that No. 73 Squadron should remain in Northern Ireland until accommodation was free at Gibraltar or Casablanca and, as an insurance in the initial stage of the landings, that Coastal Command should place three Mosquito aircraft at the disposal of Gibraltar. (2) No. 92 Squadron was to operate, as suggested, from Freetown, on A/U duties until space was available at Casablanca.

On the subject of the Casablanca force, one provision must be mentioned here as it affected Coastal Command in after months. On the personal initiative of Mr. Stimson, the U.S. Secretary of War, two new Liberator A/S squadrons of the U.S. Army Air Command were earmarked early in October for the specific purpose of affording A/U protection to the American build-up convoys after the landing at Casablanca had been effected. At that time, Air Marshal Sir John Slessor was still in Washington on his special mission in connection with the supply of Lend/Lease Liberators to the R.A.F. General Arnold, the Head of the U.S. Army Air Force, asked Sir John Slessor's advice as to the disposition of these two squadrons. This was given to the effect that the requirements for aircraft in the Torch area, which was in the British

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- (1) Prior to March 1942, there was a landing strip (980 x 75 yards) in the centre of a small area of land directly under the north face of the Rock. During that month, work was commenced on extending this runway into the sea at its western extremity. This was continued with such zeal by the Garrison's Royal Engineers that by the 4 September 1942 this landing strip had been converted into a fully tarmaced runway 1400 x 100 yds. Erection was completed of the whole of the administrative buildings, living quarters and dispersal area which were also contained in the small space between the Rock face and the Neutral Zone on the Spanish frontier. Gibraltar was the pivotal point of the whole expedition. In Operation Torch it fulfilled not only its wonted roles of a Naval base and an Army fortress, but its new guise as a R.A.F. operational aerodrome. It was only from Gibraltar that aircraft could be provided to guard the convoys in their passage of the Straits and to their assault positions off the North African shore, to prosecute A/U patrols against the U-boats soon to gather on both sides of the Straits, to provide a spot for the erection of fighter aircraft to be flown to captured airfields in North Africa and to act as staging post for the reinforcements after the landings. Many other services, such as the storage of petrol and the accommodation of vastly increased personnel, were successfully provided in the limited area of Gibraltar. The following examples show the extent of the undertakings:-

On the 28 October, 116 Spitfires and 13 Hurricanes arrived in crates. All these aircraft were erected and tuned up to operational pitch by 6 November. During November the following aircraft were accommodated or operated from the airfield. 450 fighters, 60 Hudsons, 36 F.A.A. aircraft, 15 photographic reconnaissance aircraft, 10 amphibian Catalina, 8 L/L Wellingtons, 20 large communication aircraft, 6 M.S.F.U. and two meteorological Hudsons. Ref. North Front O.R.B.

- (2) In effect, two Beaufighters of Coastal Command's No. 235 Squadron were already at Gibraltar and four more were flown out by the 10 November. Ref. No. 235 Squadron form 540.

CC/S.7010/57/2
Encl.11A

ibid

Encls.20A,
21A, 35A
and 70A

strategic zone, had been fully worked out and, although welcoming American assistance, particularly in the form of Liberators, it was doubtful if it would be wise to dump two new and inexperienced squadrons into Morocco and expect them to play a useful part in the A/U war in any reasonable time. He recommended that they should be based initially in S.W. England under the control of Coastal Command's No. 19 Group, where they could be indoctrinated and thoroughly trained under expert supervision. The advice was taken and, after agreement by General Eisenhower, a signal was sent on the 27 October to the Commanding General U.S. VIIIth Air Force that the first provisional A/S squadron would arrive in the U.K. in the near future and was to be placed under the operational command of the A.O.C.-in-C. Coastal Command. Actually the first two aircraft of the squadron did not become operational at St. Eval in No.19 Group until the 16 November and even by the 13 January 1943 only six had arrived. Sir John Slessor's advice was justified to the hilt as extensive training was found necessary. Moreover the 10 c.m. SCR.517 equipment, having been rushed into the aircraft, took a considerable time to be brought into an efficient state. Seven aircraft of the second squadron arrived at St. Eval towards the middle of January but neither squadron was fully operational until February 1943.

CC/S.8/I
Encl.19A

Regarding the requirements for the first stage protection of the Torch convoys. As discussed in the various planning conferences up to the 18 October, it had been understood by the A.O.C.-in-C., Coastal Command and his staff that, of the five main convoys, only one would be routed within range of No. 19 Group aircraft; the others being routed well out into the Atlantic and the gap in air cover between No. 15 Group and Gibraltar accepted against the smaller chance of location by enemy air reconnaissance. The A.O.C.-in-C. had, therefore, made no request for the reinforcements to No. 19 Group. However, at an Air Ministry meeting on the 19 October, at which were present representatives of the Admiralty, it appeared that there were three additional convoys all routed within range of No. 19 Group and furthermore it might be expected that in certain circumstances the original convoys would be diverted in to obtain air cover. In the light of these fresh requirements Coastal Command had not sufficient long range aircraft.

CC/S.7010/57/1

ibid

CC/S.7010/57/2
Encls. 6A and
29A

Accordingly it was decided to reinforce No. 19 Group with certain long range aircraft for both escort and A/U duties from Bomber Command and enquire if the U.S. VIIIth Air Force could assist. A directive was issued to No. 19 Group on the 22 October in which these extra commitments were set out and stressing that, in addition, the Bay Offensive must be maintained at maximum intensity. After some last minute changes the actual reinforcements from Bomber Command consisted of 15 Halifaxes from Nos. 405 and 158 Squadrons to operate from Beaulieu from the 26 October. The VIIIth Air Force expressed their willingness to assist and detailed eight Liberators of U.S. Bomber Command No. 330 Squadron to operate from Holmesley South from the 25 October, followed a short time later by a further eight Liberators of No. 409 Squadron.

It was now possible to agree with all the requirements affecting the first stage of the Torch convoys and to meet the general situation at sea. These were issued in an Admiralty signal to all concerned dated the 28 October and are summarised as under:-

CC/S.7010/57/1

(1) Torch convoys will be operated by the C.-in-C. Western Approaches similarly to W.S. convoys.(1)

(2) The A.O.C.-in-C., Coastal Command will give general priorities for air requirements and the A.O.C. No. 15 Group will meet the needs of C.-in-C. Western Approaches to the best of his resources arranging if necessary direct with No. 19 Group.

(3) The Admiralty special requirements are -

(a) Every Torch convoy should be escorted during daylight to the limit of range of the available aircraft.

(b) To be able to provide air support for two convoys, assuming that each is being engaged by up to 15 U-boats. This air support is additional to the aircraft for (a) and (c).

(c) The A/U offensive in the Bay to be maintained, particularly in the outer Zone.

(d) At least six Catalinas to be ready for use with the Home Fleet with such spare Catalinas as may become available and one Fortress squadron held at short notice to reinforce fleet reconnaissance.

(e) Equivalent forces to those now in Iceland to be retained there for Trade Protection or Fleet Reconnaissance.

(f) All available torpedo bombers, except those now operating in the Bay, to be disposed in the north, with one squadron at short notice to proceed to Iceland if required by the C.-in-C., Home Fleet.

(d) The Expedition Sails

The assault date for all landings was scheduled for the early hours on the 8 November and the sailing of the various components of this large force had to be adjusted so that the slow, medium and fast convoys should arrive in the Western Approaches to Gibraltar on or about the 5th. The first three convoys - K.X.2., K.X.3., and K.X.4A - sailed from the Clyde on the 18, 19 and 21 October respectively. These convoys, carrying basic stores, equipment and spares for Gibraltar, were slow and all three were routed across the Outer Bay, down longitude 18°W. They therefore came within range of No. 19 Group's aircraft and were the ones over which the misunderstanding arose between the Admiralty and Coastal Command. The next two convoys - K.M.S.1. and K.M.S.2 - carried heavy assault forces and sailed from the Clyde area on the 22 and 25 October. They were followed by a fast convoy - K.M.F.1. - carrying the initial assault troops which left the Clyde on the 26th. All these three convoys were routed far to the west down longitude 26°W. This precluded continuous escort by land based aircraft, and to bridge the gap in air cover, escort carriers were attached to the first two convoys, H.M.S. Avenger sailing with K.M.S.1. and H.M.S. Biter with K.M.F.1. in addition to strong naval

CC/S.7010/57/1

(1) W.S. convoys were the regular troops convoys proceeding to the Middle East via the Cape of Good Hope.

escorts.(1) The second fast troop convoy - K.M.F.2. - sailed from the Clyde on the 1 November and was also routed far to the west. Meanwhile another two basic store convoys - K.X.4B and K.X.5 - left Milford Haven and the Clyde respectively on the 25 and 30 October routed across the Outer Bay.(2) Several naval task forces were also on their way, H.M. Aircraft Carrier Furious with three destroyers having left the Clyde on the 20 October, H.M. Battleship Rodney with three destroyers from Scapa Flow on the 23rd, a force composed of two aircraft carriers, two cruisers and four destroyers from the Clyde on the 27th and the main British Naval Support force consisting of two battleships, one battle cruiser, two Fleet carriers, one cruiser and thirteen destroyers from Scapa Flow and the Clyde on the 30 October.

ibid

Nos. 15 and 19
Group O.R.B.
Appendices

Air Escort was given by No. 15 Group to all these convoys and naval forces as far out and to the southwest as range would permit,(3) but No. 19 Group was interrupted by poor visibility weather in giving consistent escort to the five K.X. convoys routed across the Outer Bay.(4) In only one case was a U-boat sighted. This was by Liberator G/224 Squadron on the 24 October. The aircraft was searching for convoy K.X.2. and when some 12 to 15 miles north of it, a U-boat was sighted on the surface on an easterly course. An excellent attack was delivered which sank U.599. This boat was inward bound from the American coast and had not sighted the convoy.

In addition to the air escort given to the Torch convoys, flying hours in the Bay Offensive were stepped up and, aided by the Halifaxes of Bomber Command and the Liberators of the U.S. VIIIth Air Force, particular attention was given to the Outer Bay area in order to make the U-boats on passage keep submerged by day.(5) Between the 20 October and the 10 November, four U-boats were sighted and attacked by

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- (1) Each escort carrier had three Swordfish of No. 833 F.A.A. Squadron. Sea conditions on the voyage only allowed flying to take place on three days from the Biter and on five days from the Avenger. No U-boats were sighted.
 - (2) K.M.S.1 - 47 ships K.M.F.1. - 39 ships
K.M.S.2 - 52 ships K.M.F.2. - 18 ships
K.X. convoys averaged 16 ships.
 - (3) Seven convoys and three naval forces were escorted for a total of 168 hours. In addition, 86 hours were devoted to covering sweeps.
 - (4) Five convoys and two naval forces were escorted for a total of 43 hours, with 112 hours in covering sweeps apart from routine Bay patrols in the area near the convoys.
 - (5) Action was also taken by the U.S. VIIIth Air Force against the U-boat operating bases in the Biscay area. Starting on the 21 October and on nine subsequent dates in November, small daylight precision-bombing raids were carried out by Fortresses and Liberators. The U-boats, however, had been housed in the massive concrete shelters for some nine months and their activities were unaffected by this bombing. See also Chapter IX Section (viii)(a).

the Outer Bay patrols, of which one - U.216 - was sunk.(1) Four other U-boats were attacked in the Middle Bay area of which two were seriously damaged.

(e) Failure by the Germans to apprehend the Expedition

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Diary B.d U.

From contemporary German records, the enemy seems to have had no inkling of the gathering of this Armada in Northern ports and during the sea passage of the various components neither a solitary G.A.F. reconnaissance report nor several chance sightings by U-boats were recognised in their true nature.(2) To a large degree this was due to

- (1) Liberator H/224 Squadron on A/U patrol in the Outer Bay on the 20 October, sighted a U-boat in position 4821N x 1925W steering East. The aircraft carried out an up-track attack and released six depth charges from 50 feet altitude while the U-boat was still fully surfaced. So accurate was the aiming that one of the depth charges landed on the after end of the boat, and, contrary to all previous experience, exploded on impact. The other D.Cs. in the stick detonated close to and ahead of the U-boat in the normal manner. The U-boat sank but the aircraft sustained serious damage. The tail and elevators were partially blown away, the main hydraulic pipe line burst, the doors in the rear turret and the side windows were blown out and both dinghies disappeared. After a very crowded minute with the aircraft almost vertical on its tail, partial control was regained and the 600 mile journey home was begun. Both pilots had to brace hands and knees on the control column to keep in level flight. Most of the crew were stationed in the nose after having, with great difficulty, jettisoned the two 250 lb. A/S bombs and all movable heavy equipment. The pilots - F/O D. M. Sleep and Sgt. S. E. Patton - were occasionally relieved by the flight engineer and wireless operator. About an hour before making a landfall at the Scilly Islands it was necessary to lash both control columns to the instrument panel as it was beyond the strength of the pilots to keep them braced forward. It was decided to risk a crash landing at Predannock. On the final approach, when just over the airfield boundary, the elevator control broke loose and the aircraft hit the chance light and crashed, catching fire immediately. Miraculously the crew escaped with one man fracturing a leg and the rest with minor cuts and scratches.
- (2) The following were the sightings up to 1 November:- (Ref: War Diary of B.d U.)
On the 26 October, H.M.S. Rodney was sighted and reported by U.608 on 4700N x 2100W. The U-boat wrongly identified her as an American battleship. Contact was lost almost immediately and U.608 continued her outward bound passage. The Rodney reached Gibraltar on the 29 October. At 1100 hours on 31 October, the force consisting of aircraft carriers, cruisers and destroyers was sighted on a southerly course, 300 miles west of Cape Finisterre by a F.W.200 on reconnaissance in aid of the movement of a German blockade runner. On the 1 November, the supply boat U.463 reported a convoy steering south in position 4700N x 2700W and later in the day, U.575, returning to port from mid-Atlantic, sighted three merchant ships and a destroyer on a southerly course in approximately 4630N x 2600W. These sightings could only have been of K.M.S.2.

the attention of the enemy being directed to a convoy battle taking place to the westward and north of Madeira between the 26 and 31 October, and to a lesser degree to enemy suspicions that something might be attempted against Dakar.(1)

In mid-October, the main U-boat dispositions lay athwart the North Atlantic trade route westward of longitude 30°W, in the Caribbean and Brazilian zones, across the Atlantic Narrows and on the West African coast. Few U-boats were stationed in the triangle Ireland-Azores-Portugal owing to the prevalence of British air cover and, apart from the normal U-boat traffic entering and leaving the Bay of Biscay, there was no special watch on this area.(2) B.d U. considered that he had better chances of interfering with the North/Southbound shipping in more southerly latitudes out of reach of air cover. This policy was, in fact, paying good dividends against independently routed ships, but the Sierra Leone convoys, which sailed at comparatively long intervals, were treated as separate operations requiring specifically grouped U-boats. Estimating that another S.L. convoy was nearly due, B.d U. formed such a group on 20 October consisting of eight U-boats stationed in a line in the vicinity of Madeira.(3) Other boats available were two under orders to join this group from Biscay ports, two on watching patrols in the Azores and one stationed close off Lisbon.

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of B.d U.

During their sweep to the southward, some boats of this Group Streitaxt reported three merchant ships on the 26th and early on the 27 October sighted the mastheads of numerous ships steering a northeasterly course about 350 miles southwest of Madeira.(4) This was rightly assumed to be convoy S.L.125 and B.d U. ordered the Group Streitaxt and other U-boats in the vicinity to operate against it. The convoy was attacked by 8 to 10 U-boats from the 27 to the 31 October and lost 13 ships out of 42. It came within long range air escort from Gibraltar on the 29th, but gales there prevented flying boats from taking off and it was not till 1900 hours on the 31st that a Catalina got out to the convoy. By this time S.L.125 was 360 miles west of Lisbon and, fearing consistent air cover the next day, B.d U. broke off the operation at daybreak on the 1 November. Map XXVI shows the position of convoys and naval forces on the 1 November. It can be seen how the unfortunate S.L.125, surrounded by all the

ibid

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- (1) In a summary of the U-boat positions on the 19 October, B.d U. stated that, besides the special operation against shipping in the South African area, increased numbers of U-boats were being maintained in the Freetown and Cape Verde Islands zone not only because it was a profitable spot but to be prepared for enemy operations against Dakar which, according to press reports and observations by his U-boats, might not be improbable.
 - (2) H.M.S. Furious and the first two K.X. convoys arrived at Gibraltar on the 25 and 29 October without being sighted by any U-boat. Air escort was given them by Gibraltar aircraft from the 24 October, and Swordfish aircraft of No. 813 F.A.A. Squadron started A/U patrols in the Straits from the 26 October.
 - (3) Group Streitaxt - U.134, 203, 409, 509, 510, 572, 604 and 659.
 - (4) The torpedoing of one of the ships sighted on 26 October and the D/Fing of the U-boat W/T reporting signals warned British authorities of probable trouble and S.L.125 was re-routed to the north/eastwards in order to gain air cover from Gibraltar as soon as possible.

U-boats in the area, had left the way clear for the converging Torch convoys.

Regarding the F.W.200 report of a naval carrier force 360 miles north of S.L.125, on the 31 October, no attempt was made to shadow because, not only were there few of these aircraft available, but experience had shown their vulnerability to carrier-borne fighters.(1) In view of only a single air report, B.d U. decided to continue using his U-boats against S.L.125 until full British air cover should put in an appearance. When he broke off the U-boats from S.L.125, he detached one to patrol off Lisbon, one to re-locate the carriers and spread four others on a line 180 miles west of Cape St. Vincent on the assumption that the force was making for Gibraltar. The remaining four were to make their way at high speed towards Gibraltar. However, on the 2 November, a homeward bound U-boat - U.514 - reported the presence of seven large ships and a destroyer steering East in 3800N x 2200W. (This can only have been part of K.M.F.1.). The U-boat was forced to submerge at once by aircraft and lost contact. Since this was possibly a troop or equipment convoy for Gibraltar, B.d U. ordered one of the waiting line, the two boats off Lisbon and an outward bound boat from the Biscay area to form another line to the southward of Cape St. Vincent. Meanwhile nothing further had been seen of the carrier force and, later on the 2 November, the four boats to the west of Cape St. Vincent were ordered to proceed to points south of the Azores to refuel from supply boats there. Even now another chance sighting occurred, for one of them - U.440 - sighted a convoy at 0130 hours on the 3 November in 3640N x 1700W C° East(2) but action against it was impossible since the group was hopelessly scattered. No success attended the interception line stationed southward from Cape St. Vincent and, on the 4 November, they too were re-deployed - two to return to the patrol off Lisbon and two to proceed westward of Madeira for refuelling.

The way through to Gibraltar was now wide open to the converging convoys. Two more K.X. convoys arrived in the western approaches to the Straits on the 3rd and the main assault convoys (K.M.F.1. and K.M.S.1.) together with the heavy naval support force on the 5 November. During this final approach the assault convoys each split into two portions - one destined for Algiers leading the other destined for Oran. Air escort and support was given from Gibraltar and A/U sweeps were carried out on both sides of the Straits.(3) Between the 1 and 3 November, two doubtful sightings were made to the westward. To the eastward four sightings, probably of two U-boats on patrol, were made well off the Algerian coast. Two attacks were made one of which caused slight damage. No sightings at all were made on the 4 or 5 November.

(1) In his report on this operation, B.d U. again pointed out the necessity for speedy allocation of He.177 aircraft for the task of sea reconnaissance.

(2) This sighting also must have been of K.M.F.1.

(3) Gibraltar aircraft met and escorted these convoys as under:-

KX4A	-	35	hours	between	31	October	and	3	November
KX4B	-	6	"	"	1	November	"	2	November
KMS1	-	13	"	"	1	"	"	5	"
KMF1	-	11	"	"	3	"	"	5	"

Carrier Force - 19 hours between 1 November and 2 November. Additional air support and A/U sweeps totalled 234 hours between the 1 and 5 November.

(f) The landings in N.W. Africa

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of B.d U.

While the Torch convoys were approaching the Straits of Gibraltar, the VIIIth Army had opened the offensive on the Egyptian front at El Alamein and by the 3 November the German forces under Rommel had started their withdrawal. In view of the acuteness of the situation, the German High Command on the 4 November requested U-boat reinforcements to break into the Mediterranean. Accordingly B.d U. detailed seven U-boats from among those available in the Azores/Madeira area or coming out from Biscay ports and formed them into Group Delphin with orders to attempt the passage of the Straits as soon as possible. The four first arrivals succeeded between the 6 and 8 November.(1)

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The leading portions of the assault convoys passed through the Straits during the night of the 5/6 November and the remainder on the following night. From early morning on the 6th an increasing number of offensive sweeps, mostly to the eastward, were flown by the Gibraltar Hudsons while almost continual daylight air escort was given to all portions of the assault forces on the 6th and 7th.(2) No U-boats were sighted to the westward on the 6th, but nine sightings (probably of four U-boats) were made to the north of the Algerian coast by the easterly patrols. Six indecisive attacks were delivered. These sightings were not near any of the convoys. On the following morning, before the first escort sortie to KMAF.1. arrived, a U-boat succeeded in attacking the convoy and torpedoed U.S.S. Thomas Stone at 0730 hours on the 7th about 150 miles northwest of Algiers.(3) During the rest of the day, the sweeps to the west sighted one U-boat on two occasions getting in one attack while the easterly sweeps made five sightings (probably of the same four U-boats) and got in three attacks, two of which caused slight damage.

After entering the Mediterranean, the two groups of assault forces had steered slightly north of east, well away from the African coast. During the afternoon of the 6 November, the leading convoy was sighted twice by single JU.88s. Early on the 7th, both this convoy and the naval support force just to the north of it were shadowed by enemy aircraft. In the afternoon a heavy air attack developed on the naval force. JU.88s. pressed home both bombing and torpedo attacks but, beyond inflicting damage on one destroyer with a near miss bomb, no ships were hit. The

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- (1) Group Delphin - U.407, 440, 595, 596, 617, 662, 755. Owing to engine trouble U.440 and 662 were cancelled and two outward bound boats, U.259 and 380 were detailed in their place. All the flying from Gibraltar during this period was between dawn and dusk on escort or A/U sweeps in support of the Assault Convoys except during the night of the 7th/8th when Swordfish of No. 813 Sqdn. patrolled around Cape Spartel. U.595 made the passage on the night 6th/7th followed by U.407, 596 and 617 on the 7th/8th.
 - (2) On the 6 November, 43 hours were flown on actual escort and 134 on offensive sweeps. On the 7 November the figures were 44 and 196 respectively.
 - (3) U.S.S. Thomas Stone did not sink and was taken into tow, ultimately reaching Algiers some days later. Relays of Hudsons gave A/U protection until dark on the 7th. This was the only casualty sustained from U-boat action by the Mediterranean Assault Forces between leaving England and arrival off the beaches.

steady easterly course, well to the north of the African coast, caused the enemy to assume that the destination of the expedition was Malta. On this assumption, dispositions of the Mediterranean U-boats in the area were made to the eastward and preparations ordered for a resumption of air attacks on the following day. However, as darkness fell on the 7th, the convoys wheeled to the south and soon after midnight arrived in their assault positions off Algiers and Oran unseen and unsuspected.

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Meanwhile, since the last week in October, the American assault convoy - UGF.1. - consisting of 60 vessels heavily escorted by battleships, cruisers, aircraft carriers, destroyers and minesweepers had been steaming across the Atlantic and by the 5 November was close to the westward of Madeira.⁽¹⁾ In view of the strong defences of Casablanca and the presence of French warships, including the battleship Jean Bart, the plan envisaged three separate landings - at Safi to the south, and at Fedala and Medhia to the north (see Map XXVI.). These forces were subsequently to converge on Casablanca from the flanks and rear. The portion of UGF.1. destined for Safi split off on the 6 November and by the evening of the 7th the two portions were some 80 miles off the coast of Morocco. The northern portion, which had received long range air escort by Catalinas from Gibraltar on the 6th and 7th, then split again and all three forces arrived punctually off their assault points in the early hours of the 8 November also unseen and unsuspected.

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While the assaults were taking place during the 8 November, the Gibraltar based Hudsons and Catalinas flew 21 sorties on A/U cover against U-boats off shore from Algiers, Oran and Casablanca.⁽²⁾ Air escort was given to convoy KX.5 approaching Gibraltar and to one of the second wave convoys - KMS.2 - still far out in the Atlantic.

The story of the actual assaults and subsequent operations of the landed forces is told in the R.A.F. Narrative of the North African Campaign. Hereafter this account deals with the air operations from Gibraltar directed against U-boats endeavouring to interfere with the build-up convoys and shipping engaged in supplying the expedition after it had effected a lodgement.

(g) Air operations against the U-boat threat to Torch supplies 7 November - The enemy air reports of the movement of numerous convoys in the western Mediterranean reached the German High Command on the 7 November. B.d U. was ordered to investigate and report on how many and how soon U-boats in the Atlantic could be sent into this area (a) from existing operational positions, and (b) from Biscay bases.

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- (1) The convoy thus passed through the Madeira area after the U-boats had been drawn off on S.L.125 and before any had returned.
 - (2) 52 flying hours were carried out actually off these ports. One U-boat was sighted and forced to dive off Algiers but none were seen off Oran or Casablanca. Regarding the latter area, four Hudsons of No. 233 Squadron failed to return and it has never been established whether they were shot down by French fighters or, as a result of faulty recognition, by American carrier-borne fighters. 116 flying hours were flown on other A/U patrols and 21 on actual escort to convoys.

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In his considered reply to this enquiry, B.d U. stated that only the type VII U-boats were suitable for transfer to the Mediterranean. Up to 18 of these could arrive off Gibraltar during the next fortnight from operational areas and 12 from Biscay ports by the end of the month. Regarding the larger type IX boats, the figures were nine and six respectively but he deprecated their use for this type of operation. With the exception of the seven type VII boats already detailed in Group Delphin, he was against any transfer at all into the Mediterranean and considered that better chances of sinking ships would result by keeping the boats in the Atlantic particularly as the English would be very wide awake in the Straits and needlessly high casualties would be suffered in attempting a mass break through, moreover his Atlantic U-boats had recently noted that the transatlantic convoys had much weaker surface escort which indicated that the Mediterranean movements would have a correspondingly much strengthened defence.

ibid

8 November - However, while these discussions were going on, the High Command, on the 8 November, received the news of the landings at Oran and Algiers. All available U-boats in the Mediterranean were ordered to operate against shipping to the east of Gibraltar or lying off these ports while the remaining boats of Group Delphin were instructed to go through the Straits independently and with despatch.(1) Later in the day came the news of American landings on the Atlantic coast of French Morocco. Action against these exposed anchorages was put in train by B.d U. immediately. Sixteen of the nearest Atlantic U-boats received orders to steer for the Moroccan coast(2) and nine others in the mid-Atlantic area were directed to the western approaches to Gibraltar.(3)

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9 and 10 November - Air sweeps flown eastwards from Gibraltar as far as Algiers sighted nothing on the 9th and only two U-boats on the 10th, both northwest of Oran. One of these was attacked indecisively. U-boats were, however, gathering in the western end of the Mediterranean. Very early on the 10th the S.S. Garlinge - 2,012 tons, sailing in convoy, was sunk about 50 miles north east of Oran and H.M. destroyer Martin was attacked and sunk 85 miles north east of Algiers. Later in the day the Italian U-boat Emo was destroyed by a naval trawler close off Algiers. To the westwards, the follow-up convoys KMF.2 and KMS.2 received air escort and Hudson sweeps were flown in the area. No U-boats were seen.

ibid

11 November - The two follow up convoys had now entered the Mediterranean and received 36 hours of air escort. The easterly sweeps made five sightings during the day, all well to the north and west of Oran but, although four were attacked, no damage was inflicted. In the forenoon, two large liners returning empty from Algiers to Gibraltar, were attacked and sunk; S.S. Viceroy of India - 19,627 tons, some 40 miles north of Oran and S.S. Nieuw Zeeland - 11,069 tons about 40 miles eastward of Gibraltar. Air escort to the

- (1) In the continued absence of any night air patrols in the Strait the remaining three boats did so undetected. U.259 passed through on the night of 8th/9th followed by U.380 and 755 on the 9th/10th.
- (2) U.103, 108, 130, 155, 173, 411, 509, 515 and 571 - First wave at best speed.
U.86, 91, 185, 510, 511, 519 and 752 - Second wave at 200 miles per day.
- (3) U.92, 98, 218, 263, 413, 564, 566, 613 and 653.

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former had not yet arrived. The torpedoing of the latter was witnessed by a Hudson of No. 233 Squadron but no signs of the U-boat was seen. Later in the day, a detachment of No. 500 Squadron landed at Tafouroui airfield (near Oran) from where they subsequently carried out operations off the Algerian coast. To the westward, only one U-boat was seen and this was attacked indecisively about 300 miles west of Gibraltar. The leading U-boats of the first wave directed to the Moroccan coast had arrived and, in spite of A/U patrols by American destroyers and carrier borne aircraft, U.173 and 130 succeeded in sinking four transports off Fedala. (1) The ships in the newly arrived follow-up convoy UGF.2 were ordered to seaward until A/U measures could be strengthened. Other U-boats of the approaching waves also came into action and during the night of the 11th/12th, U.515 sank the fleet repair ship Hecla and torpedoed the destroyer Marne about 180 miles west of Gibraltar.

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12 November - The Hudson sent to provide A/U escort for the damaged Marne in tow on the 12th, sighted and attacked this U-boat but did not damage it. No other U-boats were sighted to the west. The Tafaroui Hudsons sighted five U-boats off the Algerian coast attacking two and damaging one so seriously that it had to return to port. U.660 was sunk by H.M. Ships about 30 miles north of Oran but another U-boat torpedoed and sank S.S. Browning - 5,332 tons close off this port. The return westwards of the empty convoys started on this day and air escort was provided during daylight hours on succeeding days.

ibid

13 November - Two more losses to U-boat attack occurred on the 13th. The Dutch destroyer Isaac Sweers being sunk about 60 miles north east of Algiers and one merchant ship in convoy - S.S. Maron, 6,487 tons - some 50 miles north of Oran. Air sweeps inside the Mediterranean found six U-boats and attacked five of them. Two, in positions well to the east of Algiers, were damaged. H.M. ships sank U.605 about 20 miles north of Algiers. Only one U-boat was sighted to the west of Gibraltar and this was indecisively attacked 200 miles out.

ibid and
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14 November - The easterly sweeps ~~and the 3000 ft. range sweeps~~ ^{by Hudsons of Nos. 233, 500 and 608 Squadrons} sighted six U-boats of which four were attacked. U.595 was sunk after successive attacks by five aircraft of No. 500 Squadron and another U-boat was seriously damaged, both about 50 to 60 miles north east of Oran. By now, 16 U-boats had arrived in the western approaches to Gibraltar and were disposed in a rough line extending from off the west coast of Portugal to Casablanca. In the morning, before the air escort had joined up, the returning convoy MKF.1(X) was attacked by U.413 about 240 miles northwest of Cape St. Vincent and S.S. Warwick Castle - 20,107 tons - was torpedoed and subsequently sank. The westerly air sweeps during the day sighted six U-boats of this line but only managed to attack three. In two cases there was no evidence of damage, but one attack produced convincing after-evidence of serious damage or destruction. Post War evidence so far discounts loss or

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- (1) U.S.S. Joseph Hewes - 9,359 tons
U.S.S. Edward Rutledge - 9,360 tons
U.S.S. Hugh L. Scott - 12,579 tons
U.S.S. Tasker H. Bliss - 12,568 tons.

damage to either a German or Italian boat on this day in this position.(1)

ibid

15 November - While still dark in the morning, another home-bound convoy - MKF.1(Y) - was attacked some 110 miles west of Gibraltar. U.155 hit and sank S.S. Ettrick - 11,279 tons - and H.M. Auxiliary Carrier Avenger; the latter blew up with heavy loss of life. The U.S. Combat Leader Almaak was also hit but managed to reach Gibraltar in tow.(2) Subsequent air sweeps in the area sighted five U-boats and attacked two, inflicting slight damage on both. Inside the Mediterranean, air sweeps sighted no less than nine U-boats, of which six were attacked. Hudson S/500 Squadron sank U.259 30 miles north of Algiers(3), Y/500 Squadron seriously damaged a U-boat some 70 miles northwest of that port and J/500 Squadron seriously damaged another 75 miles north of Oran. H.M. Minesweeper Algerine was torpedoed and sunk off Bougie.

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16 November - Although the scale of A/U sweeps, both to the east and west of Gibraltar, was maintained, the sightings of U-boats started to fall off from this date. On the 16th, inside the Mediterranean only one attack was made. Four sightings were obtained to the west between 150 and 200 miles from Gibraltar. Three of these were attacked and in two cases slight damage was inflicted. That there were still some U-boats closer in was shown in the early hours when U.92 torpedoed and sank S.S. Clan MacTaggart - 7,622 tons - only 100 miles west of Gibraltar. Many reports were received by B.d U. from the western U-boats complaining of frustration and damage inflicted by the strong air and surface patrols off the Moroccan coast. U.173 was sunk this day by U.S. ships off Casablanca. In an admittance of failure to interfere with the American build-up and supply shipping, B.d U. withdrew the five boats remaining to a respectful distance off shore in deep water and hoped to institute a blockade of Casablanca. Further north in the western approaches of Gibraltar, the heavy air patrols(4) and strong surface escort to shipping prevented any day attacks and it was only with difficulty that

(2) Another U-boat concerned in this attack (U.411) was sunk by H.M. destroyer Wrestler, one of the escorts to the convoy

- (1) The attack, carried out by Hudson S/608 Squadron, was delivered while the submarine was still fully surfaced and two of the depth charges were seen to explode under the after part. When the explosion plumes settled there was no sign of the boat but very large quantities of oil and air were coming to the surface. The aircraft could only remain for 35 minutes by which time the oil covered an area of 2,000 by 1,000 yards. It is possible that this marked the end of one of the three Vichy French submarines unaccounted for from Casablanca which never made port.
- (3) The pilot of the aircraft making this successful attack was Flying Officer M. Ensor. It was the second occasion in which one depth charge of a well-aimed stick actually landed on the U-boat and detonated on impact. As in the previous case of H/224 Sqdn. on 20 Oct., the aircraft was seriously damaged. The explosion blew the plane 300 ft. upwards, removed the rudders and elevators, jammed the ailerons and bent six feet of each wing tip up at right angles. After a dizzy few minutes, the pilot regained partial control but 20 minutes later the port engine cut and the crew had to bale out. Ensor and one other were picked up by surface craft but the other two of the crew lost their lives.
- (4) B.d U. stated in his War Diary that between the 12 and 16 November, eleven U-boats had been attacked by English aircraft and four of them damaged.

a few night attacks had been delivered, moreover these had not been on supply convoys. Here again B.d U. withdrew further to the west and stationed his 16 U-boats chequerboard fashion in a semi-circle from Portugal to the Moroccan coast.

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17 and 18 November - Inside the Mediterranean 30 miles north-west of Algiers, four aircraft of No. 500 Squadron attacked and so damaged U.331 that she hoisted the white flag. While surface craft were closing to take the surrender, a Fleet Air Arm Albacore attacked and sank the U-boat with a torpedo. Two other U-boats were attacked in positions 60 miles north and northeast of Algiers. Never more than 20 strong in the Mediterranean, the operational number of U-boats were now so reduced by casualties that they ceased henceforth to be a menace. Harried by increasing air and surface hunts organised from the new Allied bases in North Africa and constricted in the narrow waters of the inland sea, the story of their reduction to a mere minor nuisance is told in Volume VI of the R.A.F. in Maritime War, which deals with the Mediterranean and Red Sea.

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of B.d U.

In the western approaches, three U-boats were sighted, more than 250 miles from Gibraltar. Two good attacks were delivered in which U.566 and 613 were damaged, the latter seriously enough to force her return to port. The lack of any further success and the continuance of air attacks decided B.d U. to withdraw the western U-boats still further into the Atlantic and he made a pessimistic report on the whole situation to the High Command. Operations inside the Mediterranean, he stated, were unsatisfactory. Two-thirds of the U-boat force had been sunk or seriously damaged with few successes against the supply shipping. As most of the casualties had been from air attacks, he expected conditions to get progressively worse as the enemy took over further North African airfields. Westward of Gibraltar, of the 22 U-boats operating, five had been sunk or badly damaged with results even less in proportion. Better prospects against the supply convoys could only be hoped for outside the scope of air patrols and from experience this could not be found anywhere on the route between England and Gibraltar. Action against convoys coming direct from the U.S.A. would have to be located in the Azores area to be outside air cover and, since the diversionary courses open to the enemy would be so extensive, this held out no great promise.

After comparing the meagre results attended by high losses in attempting to interfere with the shipping bound for N.W. Africa, against his recent successes with a few U-boats in the North Atlantic, Admiral Donetz put it on record that he was convinced that the U-boat war must be carried out as a tonnage war and as such must be waged where the greatest success could be achieved with the smallest loss. Any deviation from this fundamental concept would only lead to a weakening of the total war effort.

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19 to 25 November - To enable the harassing air patrols to continue by night as well as by day, the A.O.C.-in-C. Coastal Command had sent No. 179 Leigh Light Wellington Squadron to reinforce the Gibraltar Command and they went into action from the night of the 19/20 November. Earlier in the day, Hudson C/608 Squadron had sunk U.98 about 300 miles west of Gibraltar, and that night R and T/179 Squadron sighted two and attacked one U-boat in the same area. During the same day, two southeast bound supply convoys were sighted and reported by U.413 and 519 to the westward of Cape St. Vincent. Neighbouring U-boats were ordered by B.d U. to operate against

ibid. and
War Diary
of B.d U.

both convoys. U.413 and 86 following KMF.3 were forced off by the air and surface escorts and soon lost touch. U.519 followed KMS.3 until early on the 20th when she was driven off by depth charge attacks by the surface escorts, but U.103, 185 and 263 succeeded in making contact. The first Catalina escort of the day to KMS.3 was unfortunately shot down in flames by ships in the convoy at 1027 hours. Almost simultaneously U.263 attacked and torpedoed two ships(1) which were seen to sink by the relief Catalina. The subsequent depth charge hunt by the surface escort damaged U.263, forcing her to abandon the chase, while both U.103 and 185 lost touch through having to constantly dive for the air escort.

ibid.

For the next three days little was seen of U-boats(2) except two sightings far to the west of Gibraltar by meteorological aircraft. In spite of this belated success against convoy KMS.3, the continuance of casualties and the far-ranging air patrols had forced B.d U. to withdraw his U-boats still further into the Atlantic and the 15 remaining boats were formed into Group Westwall stationed in a short arc some 300 to 350 miles from Gibraltar. Even here they were not immune for on the 24 November, U.263, having repaired the defects caused on the 20th, was caught by Hudson Q/233 Squadron and so severely damaged that she had to start home. She was again depth-charged on the night of the 24th/25th by R/179 Squadron, but managed to get away on the surface after a gun duel with the aircraft. On the 25 November only the Catalina sorties sighted any U-boats, one being southwest of Cape Finisterre steering northwards and two on westerly courses far to the west of Gibraltar. On this day, B.d U. had finally decided that the constant air patrols day and night out to 300 miles from land with active search groups of surface craft had made it impossible to continue to operate. He therefore withdrew the Group Westwall boats to the Azores area from where he intended to sweep to the westward in order to intercept American supply convoys in an area free of air cover.

ibid. and
Adty. B.R.1337

It can be seen, through enemy eyes, how the November air effort from Gibraltar of 3,700 flying hours spent actually on escort or sweep, the resulting 95 sightings and the 64 attacks involving destruction to four and damage to nineteen U-boats had a decisive part in frustrating their attempt to hamstring the build-up and supply shipping to the initial Allied force which landed in North West Africa. During the month some 30 to 35 U-boats operated to the west of Gibraltar and up to 20 on the eastern side. Ten merchant ships and liners of 95,911 tons, four U.S. transports and five warships were sunk by them involving a loss of eight German and one Italian U-boat. It will, therefore be appreciated how totally out of proportion these results appeared to Donetz in comparison with the enormous losses inflicted on Allied shipping in the rest of the Atlantic (102 ships of 586,000 tons) accompanied by only four U-boats destroyed.

(h) The Aftermath

While agreeing to a temporary withdrawal of the U-boats

- (1) S.S. Grange Park - 5,132 tons, and Prins Harold - 7,244 tons.
- (2) On the 20 November, No. 500 squadron was transferred from Gibraltar to Blida near Algiers. Both this detachment and that at Tafaraoui now came under the direct control of the Eastern Air Command H.Q. recently set up at Algiers. No. 608 squadron followed on 16 December.

westward of Gibraltar, the German Naval Command insisted on some reinforcement to the depleted numbers inside the Mediterranean and on the 3 December B.d U. detailed four U-boats to make the passage in the coming new moon period. U.301, 443 and 602 accomplished the journey between the 3 and 9 December but U.257 had to return owing to a leaky stern gland and the illness of her engineer officer.(1)

During December, the air effort from Gibraltar continued at the same high level(2) but only six U-boats were sighted to the westward, all at distances which allowed them to get under before attack could be delivered. Except for one sighting close off the Straits, probably of U.301, all were far to the westward of Gibraltar and Portugal. In the western Mediterranean, however, 37 were sighted mostly by Leigh Light Wellingtons of No. 179 Squadron. 18 attacks were made ~~in one of which Hudson I/500 Squadron sank the Italian Dossie. Three other U-boats were damaged.~~ In January, 1943, a similar scale of flying produced but eleven sightings, all inside the Mediterranean, and again mostly by Leigh Light aircraft. Eight indecisive attacks were made. Losses off the Algerian coast during these two months were three ships in December(3) and one in January.

(x) November and December in the North Atlantic

The provision of strong surface escorts to all the convoys and naval forces employed in the Torch Expedition and its subsequent build-up inevitably detracted from the protection available for the Atlantic trade convoys. While they were under air cover this did not matter so much but in the air cover gaps, particularly the Greenland Gap, the danger increased rapidly. The mounting of Torch made no difference as far as shorebased air cover in the Atlantic was concerned. No. 120 Squadron, still the only V.L.R. Squadron in existence, continued to operate in emergency at extreme ranges. No. 15 Group had ample medium range squadrons to afford consistent air cover to both Torch and trade convoys out to 400 miles from British bases. But the logical solution of the Greenland Gap problem by using carrier borne aircraft was definitely postponed by operation Torch. In October 1942 there were four British and four American auxiliary carriers in commission. Although most of them had only recently become operational, they could in October have been employed

- (1) U.224 was detailed in lieu and sailed on the 3 January 1943. She made the passage of the Strait on the night of the 9/10 Jan. No more boats were sent into the Mediterranean until April 1943.
- (2) 3,702 hours actually on escort or in patrol areas.
- (3) One of these ships was the liner Strathallan - 23,722 tons which was torpedoed 70 miles north of Oran at 0231 hours on the 21 December.

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B.d U. and
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and Jan.
Appendices.

but no U-boats
were sunk
although three
were damaged
sufficiently to
compel an immediate
return to harbour.

in closing the Gap.(1) However, the importance of protecting the Torch convoys made it essential to detail all of them for this task and none became available for the North Atlantic until April 1943. The onus of closing the Gap thus remained a problem of provision and adaption of suitable shore based types to operate from both sides of the Atlantic, complicated in itself by the tardy arrival from U.S.A. of additional Liberators for Coastal Command, the inability to spare any British long range types from the Bomber Offensive against Germany and the absence of any V.L.R. aircraft on the western side of the Atlantic. Owing to these factors it was April 1943 before any additional V.L.R. aircraft became available. In point of fact the Gap was finally bridged consistently only by a combination of shore based and carrier borne aircraft.

(a) Operations by aircraft around convoys

In the opening days of November, the U-boat dispositions were as follows:-

42 boats in the North Atlantic disposed in three lines between Greenland and the Azores.

16 boats, mostly in the eastern Caribbean and Atlantic Narrows area.

7 boats round the Cape of Good Hope.

6 boats in the Cape Verde/Gold Coast area.

10 boats who had been concerned in the attacks on SL 125 and were now dispersed, some homeward bound, some preparing to enter the Mediterranean and others proceeding towards Madeira for refuelling.

6 boats on passage to or from the above operational areas.

22 boats in the Bay of Biscay transit area, mostly inward bound.

Convoy SC 107 had been picked up and reported southeast of Newfoundland on the 30 October. Intermittent U-boat shadowing was carried out during the next two days. The air

(1) H.M.S. Avenger, Biter, Dasher and Archer were ex-American merchant ships rebuilt and adapted to the role of auxiliary carriers in American yards. The Avenger, after convoy work with PQ 18 and QP 14 in September 1942 remained in Scapa Flow with the Home Fleet until detailed for Torch in October.

The Biter did not become operational until September 1942 at Scapa Flow and was then detailed for Torch.

The Dasher was not operational until detailed for Torch in October.

The Archer after operating in the Spring of 1942 with Sierra Leone convoys, had to refit in the U.S.A. until October. She came over with the American Torch convoy UGS2 in November and then had to again refit, this time in the U.K. until February 1943.

The four American escort carriers - Sangamon, Chenango, Suwannee and Santee - had just completed conversion from merchant tankers and while still only half trained were attached to the American task force escorting UGF.1 in the initial landings at Casablanca.

ibid and
Eastern Air
Command R.C.A.F.
Narrative

cover given by the Canadian Eastern Air Command made four sightings in positions well ahead of the convoy. Three attacks were delivered in which U.520 and U.658 were sunk by Digby X/10 and Hudson Y/145 Squadrons respectively. However, on reaching extreme air range, the convoy was intercepted by seven U-boats late on the 1 November. Air escort at this range could only be given for one hour on the 2nd and after dark the U-boat pack closed in. Attacks were pressed home by six boats who sank a total of nine ships. Further attacks were made on the following night and six more ships were sunk. Air escort from Iceland was established from dawn on the 5 November which prevented any of the pack from further shadowing or attack. Four sightings were made by the aircraft and in two cases attacks were delivered, in one of which Liberator H/120 squadron sank U.132. In view of the appearance of air escort, B.d U. broke off the engagement early on the 6 November. In his summing up of the operation B.d U., being unaware as yet of the loss of the two U-boats off Newfoundland, was highly elated at the result claiming 23 ships sunk for the loss of only one U-boat.

No. 15 Group
O.R.B.
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of B.d.U.

On the 8 November, the news of the Torch landings at Oran, Algiers and Casablanca reached the German High Command. The resulting re-disposition of U-boats to the westward of Gibraltar temporarily brought warfare against the North Atlantic convoys to a close. B.d U. still maintained a few U-boats on the Canadian coast, thirteen in the Trinidad Atlantic Narrows/West Africa band and four in the Cape of Good Hope area all of which continued to pay him good dividends in independently routed shipping sunk. The ten boats still in the North Atlantic were stationed well to the south of the transatlantic route while they were re-fuelled and supplied with provisions and torpedoes. In mid-November they were reformed into a searching group and soon afterwards intercepted convoy ON 144 out of reach of air cover. Attacks by them on the 17 and 18 November sank five ships and an escort vessel. One U-boat was destroyed by the surface escorts.

ibid

Meanwhile it had become painfully apparent to Admiral Doenitz that his operations against the shipping supplying the N.W. African expedition were most unprofitable. As recounted in Section [ix(g)] he obtained approval to re-deploy his resources into the North Atlantic and by the first week in December there were two groups of a dozen U-boats lying athwart the England/America route and one of fourteen (Group Westwall) just to the north of the Azores with intentions against the direct American/Gibraltar supply line.

ibid and
No. 15 Group
O.R.B.
Nov. Appendices

The first clash was not encouraging to Doenitz for this renewal of the trade convoy war. Although convoy HX217 was intercepted in the Gap and followed by a pack of 22 U-boats, little was effected by them. A stout defence by the surface escort beat off many attacks on the 7 December and only one ship was sunk. The appearance of three V.L.R. Liberators of No. 120 Squadron from Iceland at the height of the battle some 800 miles from land came as an unpleasant surprise to the enemy. During the night of the 7/8 December, two U-boats collided which resulted indirectly in the loss of U.254.⁽¹⁾ During the 8th these aircraft forced U-boats on thirteen occasions to dive and attacked eleven of them causing contact with the convoy to be lost.

(1) U.221 collided with U.254. The personnel on the latter's bridge seem to have been thrown into the water while the crew below fearing enemy action, dived the boat. U.221 picked up the men in the water and, after further search, reported to B.d U. that there were no more survivors. Later, U.254 surfaced and, soon after dawn on the 8th, was sighted, attacked and sunk by Liberator B/120 Sqdn.

Unhappily, weather conditions at base grounded these aircraft on the 9th and the convoy was re-located and attacked once more. Again the surface escorts managed to limit the loss to one ship. By the 10th, strong air cover by Catalinas, Fortresses and Hudsons was in evidence from Iceland and the British Isles. Continual forced dives caused all except four of the U-boats to lose touch. Six sightings with two attacks were made by the air cover and in one of these the U.S.N. Catalina H/84 Squadron sank U.611. Prospects of even heavier air cover on the following day caused B. d U. to break off the operation at daylight on the 11th. The disengaging U-boats were speeded on their way by a further five sightings and two attacks.

After re-grouping his boats to catch an expected west-bound convoy out of air range, Doenitz was rewarded by a location report of ON 153 at midday on the 15th. The rest of the pack was ordered to concentrate and by the evening of the 16th, six U-boats were in contact. Attacks developed during the night resulting in the sinking of four ships and one destroyer. A gale with very high seas then put a stop to further operations until the 20th. The convoy was not re-located though U.621, which had hung on their trail all through the gale, torpedoed and sank a straggler at 1100 hours. The operation was then abandoned. Meanwhile, further to the south, the Westwall Group of U-boats had no success in their sweep to the west of the Azores and were now recalled to refuel preparatory to taking up positions closer to Portugal.

In his report, on the 19 December, on the renewal of convoy battles, Doenitz stressed the bad effect that the frequent gales had on the necessary refuelling of the U-boat groups in mid-Atlantic. This resulted in shorter cruises apart from hampering shadowing and high speed concentrations. He pointed out to the High Command how vital it was to put even more boats into the Atlantic to offset this drawback and to prevent gaps in the manning of the successful areas off Trinidad and Brazil. He drew attention to the lack of success and consequent waste of the U-boats sent into the Mediterranean, the sterility of those earmarked for maintaining a watch between the Azores and Portugal, the uselessness of those diverted to the Arctic Command in the season of constant darkness and finally to the frequent and unjustifiable requests for operational U-boats to provide escort for blockade runners. He underlined his previous dictum that the tonnage war was the decisive contribution to winning the struggle against the Allies and "this must be carried out where the greatest successes can be achieved with the smallest losses."

These virtual demands by Doenitz for a free hand to direct all aspects of U-boat dispositions were largely agreed to by the Naval War Staff but the consequent redeployments took some time to effect and it was with the same group numbers that convoy ON 154 was intercepted on the 26 December just outside shore based air range. 18 U-boats took part and on the 27th and 28th the convoy lost 15 ships with only one U-boat destroyed by the escorts. Mercifully, bad visibility set in and although one or two boats reported contact during the next two days, the pack could not operate. By the 31 December only five boats had fuel sufficient to continue the search and the operation was accordingly broken off.

(b) Continued difficulty of air escorts to meet their convoys.

In Chapter II (xii) is narrated the introduction in April 1942 of the W/T Homing Procedure to facilitate the

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B. d U. and
Adty. CB.
04050/42

ibid

meeting of air escorts with convoys. This measure went far towards solving the Not Met problem but of course depended on permission being granted for the convoy to break W/T Silence. At the period, April to June 1942, the U-boats were operating almost exclusively on the American Seaboard and were not attacking trans-Atlantic convoys; consequently this permission was freely given and Homing Procedure B. became a standard routine. The Not Met figures fell from 19% in March to 12% in April and by June 1942 to the insignificant figure of 5%.

In July 1942 the U-boats appeared once more on the North Atlantic trade routes and it was feared that the homing procedure, particularly the medium frequency (M/F) transmission from the aircraft, would be used by the U-boats to locate the convoy. Permission to break W/T Silence was accordingly only given to those convoys actually being attacked, shadowed or deemed to be in danger from the enemy. At the same time it was made permissible for the aircraft to use high frequency (H/F) for those transmissions on which the ship took bearings as enemy direction finding on H/F Signals was likely to be far less accurate than that on M/F. (1)

From July, therefore, many sorties were made without the aid of homing procedure and the Not Met figures started to rise until by the end of the year they were over 30%. (2) This high percentage, although basically caused by stricter W/T Silence, contained three other contributory factors.

O.R.S./C.C.
Report No. 220
W/T homing
between aircraft
and surface vessels

(i) Ocean air escort was taking place at far greater ranges than those prior to June 1942. Aircraft navigational errors increased in direct proportion to distance from base so that the "Not met" figure for convoys under W/T Silence was bound to rise. (3)

(ii) Winter weather conditions accentuated the difficulties in meeting convoys without the aid of homing procedure. (4)

(iii) W/T homing naturally only succeeded when there was perfect two-way wireless contact between the ship and

(1) The M/F used was 385 kc/s. H/F was 6666 kc/s by day and 3925 kc/s by night.

(2)	1942	Not met percentage	1943	Not met percentage
	June	5	Jan.	25
	July	17.5	Feb.	15
	Aug.	17	March	22
	Sept.	29	April	14
	Oct.	19	May	18
	Nov.	36	June	18
	Dec.	31	July	10

(3) In spite of efforts to raise the standard of air navigation in Coastal Command, it was generally low even at the end of 1942. With the exception of two squadrons (Nos. 120 and 201) little use was made of astro-navigation and the accuracy of wind estimation during sorties left much to be desired. See ORS/CC. Report No. 235 A. & B. Navigation in Air Escorts to convoys.

(4) Homing procedure was not allowed to any of the convoys proceeding to or from N.W. Africa, neither was it in regular use for convoys to and from Iceland and Russia.

ibid

aircraft.(1) In practice it was found that even when homing procedure was ordered, up to 50% of attempts were defeated by failure to establish this two-way contact. Analysis revealed that, apart from the reason in footnote (1), the majority of cases were due to deficiencies in the ship ranging from lack of signal staff to last minute decisions by the S.N.O. convoy not to break W/T Silence.

ibid

By April 1943 the ship deficiencies referred to above had mostly been eliminated. During the month there were, from No. 15 Group, 56 Sorties on escort to trans-Atlantic merchant convoys. Of these, 52 were ordered to use Procedure B Homing and 49 met their convoys.(2) It was, therefore, apparent that so long as W/T silence was not imposed the Not Met problem had ceased to exist.

Of the four sorties which were not allowed to use the homing procedure, three failed to meet which showed that navigational difficulties remained the stumbling block. Further intensified efforts to raise the accuracy of overseas flying are described in Volume IV.

(xi) Efforts to provide more very long range and long range aircraft for the North Atlantic and Outer Bay areas.

AM/S.6457
Encls. 133A
and 135A

The experiences in mid-Atlantic convoy battles since July 1942 had demonstrated the importance of long range air cover and every effort had been made to arrange for a steady flow of American built Liberators and Fortresses with which to re-equip Coastal Command squadrons. Sufficient of these aircraft were in sight(3) in the autumn to take Nos. 224, 59 and 206 Hudson squadrons out of the line for re-arming, the first two with Liberators IIIA and the latter with Fortresses IIA. Another squadron - No. 86 - was reformed ready to re-equip with Liberators IIIA as soon as aircraft became available.(4)

The Liberator IIIA, which was the standard type now in production in America, was a heavy bomber and the proportion allotted to Coastal Command had to be modified at Fort Worth (U.S.A.) for G.R. duties; even then the ratio of bomb to petrol stowage was such that their operational range was not more than 1700 miles compared with the 2400 miles of the six Liberators I in No. 120 squadron. The Fortress IIA with a range of 1250 miles was in the medium class and therefore did

- (1) When initial two-way contact was established, there were between July 1942 and Feb. 1943 still 7% failures to meet. It was found by analysis that most of this resulted when the aircraft used M/F transmissions. In April 1943 it was made obligatory for the aircraft to use H/F on all occasions and failures to meet fell to under 5%.
- (2) Two of the three sorties that failed to meet had to return to base with engine trouble while in the course of homing
- (3) Deliveries of Liberators IIIA were 5 in July, 12 in August and 15 in September.
- (4) No. 86 Squadron Beauforts had gone to the Middle East in August. During this month the squadron was reformed with fresh personnel and affiliated with No. 160 squadron, then equipping with Liberators for the Far East. The opportunity was taken to combine the training of crews, using the latter squadron's aircraft. When No. 160 squadron went overseas early in November, No. 86 was left fully trained but with no aircraft.

not contribute to the solution of either the Greenland Gap problem or A/U patrols in the outer extremities of the Bay of Biscay.⁽¹⁾

By the end of October, No. 224 Squadron was operational from Beaulieu and No. 59 Squadron partially operational from St. Eval, both being employed on A/U patrols in the Outer Bay in protection of Torch convoys. After a good start, the deliveries of Liberators from the U.S.A. fell away sharply. Only four were expected in November, seven in December and eight in January. From this total had to be provided the aircraft to equip No. 86 squadron and the wastage for the existing three squadrons. The Chiefs of Staff Committee therefore sent a signal to the Joint Staff Mission in Washington on the 6 November, pointing out that the air protection for Torch convoys was causing some anxiety. The Coastal Command squadrons earmarked for this task had been reinforced from Bomber and the U.S. VIIIth Air Force Commands, but, even with the possible use of the U.S.A.A.F. A/S Liberators which General Arnold was sending to England for training, our resources were likely to be strained to the limit during the phase of Torch build-up convoys. The Joint Staff Mission was asked to approach the U.S. Chiefs of Staff with a view to the authorisation of an immediate release of 15 to 20 Liberators which would enable the already trained No. 86 squadron to come straight into action.

On the 8 November, a reply was received saying that the request had been put before General Arnold who fully appreciated the issue and had contemplated the provision of 18 to 20 Liberators from U.S. sources. However, he had shown that such provision would be at the expense of heavy bombers now being collected for the Bomber Forces in the United Kingdom and that he had already fallen down on his Liberator commitments in China, Australia and the South Pacific. After discussion, in which Sir John Slessor⁽²⁾ took part, it was agreed that reinforcement could only come from a further call on the U.S. VIIIth Air Force to thicken up the A/U patrols in the Bay.⁽³⁾

Meanwhile the few Mark I Liberators in No. 120 Squadron remained the only V.L.R. aircraft in existence. At the second meeting of the newly constituted Cabinet A/U Committee, held on the 13 November, 1942, it was pointed out that, as there was a shortage of auxiliary carriers among the United Nations, it would be a very long time before one of these or the M.A.C. type of ship⁽⁴⁾ would be able to accompany convoys in the North Atlantic. The V.L.R. shore based aircraft was the only solution in the near future for air protection to mid-ocean convoys. The minimum requirement for this type was 40 on this side of the Atlantic. It was proposed to fit long range tanks to all the Liberators IIIA so as to give them an operational range of

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- (1) No. 206 Squadron was operational from 1 October and was stationed at Benbecula in the Hebrides with No. 220 squadron, already on Fortresses. These two squadrons were employed giving medium range air cover to the North Atlantic convoys.
 - (2) Air Marshal Sir John Slessor was A.C.A.S.(P). He was on the second of his visits to the U.S.A. in connection with the provision of American built aircraft to the U.K.
 - (3) Accordingly, the U.S. VIIIth Air Force added eight Liberators of No. 409 Squadron to the eight of No. 330 Squadron already carrying out A/U patrols in the Outer Bay area.
 - (4) A few grain and tanker type merchant ships were being given a flight deck from which to operate three or four aircraft. They were called Merchant Aircraft Carriers.

ibid
Encl. 146A

ibid
Encl. 148A

ibid
Encl. 149A

ACAS(P) File
No. 35/4 Encl. 1

2,300 miles. Regarding the position on the Canadian side, the range of aircraft there was unsatisfactory and it was recommended that Goose (Labrador) and Gander (Newfoundland) airfields should be developed as bases for shuttle sorties by the United Kingdom V.L.R. aircraft.(1) The pressing requirement for the Bay of Biscay was a minimum of 48 long range aircraft fitted with 10 c.m. A.S.V. so as to counter the enemy's search receiver which rendered the Mark II A.S.V. almost useless.

ibid
Encl. 2

At the third meeting, held on the 18 November, the C.A.S. reported that there were at the moment 39 Liberators in Coastal Command of which only six were V.L.R. He was arranging to modify the 33 into V.L.R. aircraft by the fitting of long range tanks and to concentrate them into two squadrons - Nos. 120 and 224. A contract would be made to carry out this work with a completion date by the end of February, 1943.(2) Regarding the requirement made at the last meeting for 48 long range aircraft in the Bay of Biscay, this was impracticable at present unless priority was given over the provision of V.L.R. aircraft. For some time to come the Bay must be done partly with shorter range aircraft. He proposed the following scheme:-

The Outer Zone - the requirement could be met under two alternatives:-

A.C.A.S.(P)
File No. 35/3
Encl. 1

(1) To hand over now to Coastal Command the 20 Halifaxes in the two Bomber Command squadrons at present reinforcing the Bay patrols and to give a further 10 new Halifaxes, making 30, with which to re-equip two Coastal Command squadrons. The effect of this would be to set back the expansion plan for Bomber Command by about two weeks.

(2) To give Coastal Command 20 new Halifaxes with which to re-equip two squadrons and not to withdraw the two Bomber Command squadrons until these two re-equipped squadrons were operational. This would delay the Bomber Command expansion plan for four weeks but had the advantage of continuing the existing reinforcement to the Biscay patrols.

The loss either way to Bomber Command could only be avoided if the U.S. authorities could be persuaded to release 30 Liberators fitted with 10 c.m. A.S.V. So far they had been unable to do this but had, instead, provided more sorties by day bombers of the VIIIth Air Force.

The Inner Zone - At present this was being done with two squadrons of Leigh Light Wellington VIII fitted with Mk.II A.S.V. and two squadrons of Wellingtons IC with no A.S.V. C.A.S. proposed to re-equip the former with Leigh Light Wellingtons XII fitted with Mk.III A.S.V., delivery starting

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- (1) A telegram was sent on the 23 Nov. from the Prime Minister to Mr. Mackenzie King asking for these facilities to be developed and adding that any extension in the range of R.C.A.F. aircraft would be of great value in reducing the heavy convoy losses in the centre of the transatlantic route. Ref. A.C.A.S.(P) File No. 22/9, Enclo. 16 and A.V.(42)10
 - (2) On the 27 Nov. arrangements were completed for the work to be carried out by the Scottish Aviation Company at Prestwick at the rate of three aircraft per week. Ref. A.M./S.6457, Enclos. 152A and 158A.

in December and complete by the end of February, 1943, (1) and the latter with Wellingtons XI to be completed by the end of January, 1943, but only the old Mk.II A.S.V. could be fitted as no 10 c.m. equipment would be available for them until June 1943.

The Committee decided to draft an appeal to be sent by the Prime Minister to President Roosevelt asking for 30 Liberators fitted with 10 c.m. A.S.V. and if this failed, to adopt C.A.S.'s second alternative for the Outer Zone. They approved the measures for the Inner Zone but invited the interested parties to investigate the clash in priorities between H2S and 10 c.m. A.S.V. with a view to expediting the latter. The problems of providing V.L.R. aircraft for convoys and L.R. aircraft for the Outer Bay were thus reduced to the common denominator of lack of Liberators while the urgent necessity for 10 c.m. A.S.V. in the Bay area complicated the priorities.

The Prime Minister's message was sent on the 20 November addressed to Mr. Harry Hopkins for laying before President Roosevelt. It pointed out that the German Search Receiver had reduced the efficiency of our day patrols in the Bay and defeated the night patrols altogether. There was no solution other than 10 c.m. A.S.V., which could not be detected by the enemy device. While it was possible to fit the Leigh Light Wellingtons with a 10 c.m. A.S.V. adapted from the H2S target locator for the Inner Bay, it required long range aircraft also fitted with 10 c.m. A.S.V. to sweep the Outer Bay in protection of the Torch convoys. Our only long range aircraft, Liberators, were being converted to V.L.R. specifications for protection to mid-Atlantic convoys among which very heavy sinkings were taking place. This left no suitable aircraft for the Outer Bay except by diverting heavy bombers from Bomber Command who were engaged in the air offensive against Germany. Even if this diversion was made, it would be some time before they could be modified and their equipment for A/U duties installed. The Prime Minister was most reluctant to reduce the scale of bombing on Germany and he therefore asked for the immediate allocation of some 30 Liberators fitted with centimetre A.S.V. equipment. These aircraft would be put to work immediately in an area where they would make a direct contribution to the American war effort.

An exchange of signals between RAFDEL(2) and the Air Ministry established that the resources of 10 c.m. A.S.V. Liberators in America were nine in No. 1 U.S.A.A.F. anti-submarine squadron en route to England for training and indoctrination under Coastal Command, twelve in No. 2 Squadron in the process of fitting out but held up owing to shortage of American Army type of centimetre A.S.V. and a British allocation of 28 in various stages of fitting out at Fort Worth, of which 10 should be ready to come over by the end of December but which were dependent on getting sufficient centimetre A.S.V. sets (ASG-1) from U.S. Naval supply. Only 10% of this output was

- (1) Mark III A.S.V. would not be available for the first 20 aircraft but arrangements had been made to fit them with converted H2S sets.
- (2) RAFDEL was the short title given to the R.A.F. Delegation in Washington. The head of the delegation, at this time Air Vice-Marshal D. C. S. Evill, was a member of the Joint Staff Mission. Similarly B.A.D. was the short title for the British Admiralty Delegation. Its head at this time was Admiral Sir Percy Noble, R.N.

A.C.A.S.(P)
File No. 22/9
Encl. 1.

ibid
Encl. 3

so allocated.(1) Deliveries might be hastened if General Arnold gave higher priority to fitting out and Admiral King provided a higher percentage of naval A.S.V. output.

ibid
Encl. 5 and 6

Acting on this information, the British Chiefs of Staff sent a telegram on the 26 November to the Joint Staff Mission in Washington asking them to take up the whole question with the American Chiefs of Staff. The C.A.S. also sent a personal message to General Arnold outlining the situation in the Bay of Biscay and North Atlantic, mentioning the Prime Minister's telegram and asking Arnold to accelerate the fitting of centimetre A.S.V. to the British allocation of Liberators and any further American units destined for work in the Atlantic.

ibid
Encl. 13

There were not, however, the Liberators in existence for any immediate release and on the 2 December a reply to the Prime Minister was received from Mr. Harry Hopkins saying that the nine plus twelve U.S. Army Liberators under orders for A/U duties in European waters should be regarded as all the United States could provide on the Prime Minister's request for 30. It was hoped that the British authorities would arrange with General Eisenhower to employ them in an area and manner best suited to our common interests. They were, however, only to be regarded as a temporary assignment in view of the fact that they had been withdrawn from the A/U defences in Atlantic and Pacific waters where more urgent requirements might arise in the future. As a measure of permanent assistance to the R.A.F., the U.S. Army would if desired provide 10 c.m. A.S.V. equipment for the four Liberators per month now being assigned to the United Kingdom under the terms of the Arnold/Towers/Slessor agreement. It was regretted that shortage of special equipment precluded a greater measure of assistance at this time.

ibid
Encl. 15

A reply of thanks from the Prime Minister was made on the 6 December but regretted the inability of the United States to provide the 30 A.S.V. fitted Liberators and said that Halifax bombers would have to be used instead,(2) meanwhile we would arrange with General Eisenhower for the best use of the 21 Liberators, when they were trained, as suggested. The offer to fit four Liberators per month with American Army Type A.S.V. was welcomed, but if any delay in finding the sets arose we should like the aircraft anyway and the sets when available.

ibid
Encls. 19A
and 20

On the 14 December, the British C.O.S. Committee asked General Eisenhower to agree to the use of the 21 Army Liberators in the Bay of Biscay operating from U.K. bases in consideration of the disposition of U-boats at that time and the threat to the Torch build-up convoys on passage. General Eisenhower promptly agreed to this and to the assignment of future A.S.V. Liberators to U.K. bases.

- (1) The American Navy were taking nine out of every ten ASG-1 sets produced in the U.S.A. for fitting into flying boats destined mainly for the Pacific where, compared to the eastern Atlantic and Mediterranean, there were very few U-boats. Ref. A.C.A.S.(O) File No. 22/9, Encl. 18.
- (2) The Liberators IIIA in No. 59 Squadron were withdrawn for modification at Prestwick and subsequent re-allocation to Nos. 120 and 224 Squadrons in which all V.L.R. aircraft were to be concentrated. Nos. 59 and 86 Squadrons were to prepare to re-equip with new Halifaxes as they became available. Ref. A.M./S.6457, Enclos. 155A and 157A.

ibid
Encl. 16

Meanwhile, regarding the provision of air cover in the Greenland Gap, Mr. Mackenzie King replied on the 3 December to the Prime Minister's telegram saying that they were doing all in their power to extend the range of air protection but the types available - Digbys and Cansos A - precluded such cover reaching more than a possible 550 miles from Newfoundland. In view of the fact that many crews were available now fully trained and experienced on long range patrols, it was perfectly possible to reach out to meet the R.A.F. in mid-Atlantic if suitable aircraft could be provided and he asked if it was possible to supply them with Liberators. In answer Mr. Winston Churchill regretted that none were available at present and until more V.L.R. aircraft were produced, the greatest measure of economy would be effected by increasing the facilities at Goose and Gander for shuttle sorties.

A.C.A.S.(P)
File No. 35/5
Encls. 3 and 4

During the latter part of December there was an exchange of signals concerning the development of servicing and refueling facilities for V.L.R. aircraft at these airfields. In the course of consideration of these at the eighth meeting of the Cabinet A/U Committee held on the 23 December, the Minister of Aircraft Production suggested that aircraft should operate from existing bases in Greenland. This was of course no new idea but the meeting considered that it ought to be investigated afresh in the light of the developments which had taken place in Greenland stage posting airfields since early 1942 when the question of operating aircraft, as contrasted with ferrying them, had been shelved. Such investigation was bound to take time.⁽¹⁾ Towards the immediate solution of the Greenland Gap problem, RAFDEL was asked to make tentative enquiries as to the possibility of an allocation of Liberators direct from the United States to Canada. Before doing so, RAFDEL asked the Air Ministry for a statement of policy. This was sent on 8 January 1943 and stated that, although the Canadians had not been specifically urged to link up with Coastal Command V.L.R. aircraft in mid-Atlantic, it was obviously desirable for them to do so if they had the aircraft. It had been made clear to the Canadian Prime Minister that we could not spare V.L.R. aircraft for them, but that we wanted

A.C.A.S.(P)
File No. 35/4
Encl. 5

- (1) A preliminary report, dated 8 Jan. 1943, revealed that there were four airfields in use for staging purposes in Greenland - Bluie West 8, Murrack Point, Bluie West 1 and Bluie East 2. A subsequent report established that, of these, Bluie West 1 was easily the most promising and in mid-January urgent representations were made through the J.S.M. to the U.S. Government to develop this airfield for operational use. At the end of January it was reported that facilities did exist at Bluie West 1 for operating six V.L.R. aircraft, but local conditions, including the prevalence of silicic dust, were against consistent operational maintenance, moreover, W/T signal conditions were poor at distances of over 400 miles from base. However, the Americans were prepared to operate 12 Fortresses using Gander as the main base with Goose and Bluie West 1 as advanced bases. Coastal Command actually operated four Hudsons of No. 269 Squadron at Bluie West 1 from the 26 January, but conditions in practice were very poor, particularly from the navigational and W/T angle. Two aircraft failed to return from sorties and the other two returned to Iceland on the 10 April. Although Bluie West 1 was reported as ready to accommodate V.L.R. aircraft from the 17 February, it was never so used. References:- A.C.A.S.(P) File No. 35/5, Encls. 5 to 15, Coastal Command O.R.B. Appendices and Forms 540.

the occasional use of Goose and Gander for a shuttle service from Iceland. It had been stressed that anything the R.C.A.F. could do to extend their air cover was of the greatest importance and if there was any way of inducing the Americans to allocate suitable aircraft to the Canadians without cutting into our allocation, RAFDEL should do all in their power to effect it.

ibid
Encl. 7

On the 9 January, the Air Member on the Canadian Joint Staff wrote to General Arnold asking for 15 Liberators and saying that if required a similar number of new Canadian-built Catalinas could be turned over to the U.S. Navy. However, General Arnold was unable to accede for the same reasons as he had given in refusing the request for the 18 to 20 Liberators to Great Britain in early November.

CC/S.7010/2
Encls. 91A and
97A

The decisions made in November affecting the re-equipment of Coastal Command squadrons with Liberators and Halifaxes underwent changes during December. Early in the month it was decided that the first Halifaxes available should go to re-equip No. 58 Whitley Squadron.⁽¹⁾ On the 12th, the A.O.C.-in-C. proposed that No. 86 should replace No. 224 Squadron as the second V.L.R. squadron. No. 224 Squadron still had unmodified Liberators IIIA with Mark II A.S.V. and was due to receive some more unmodified aircraft fitted with 10 c.m. D.M.S. 1000⁽²⁾ which would be of much more use in the Outer Bay Zone. This was approved on the 22 December. Regarding No. 59 Squadron, still without any aircraft at all, it was decided to arm them with Fortresses IIA and in due course they became operational at Chivenor, also engaged on A/U patrols in the Bay of Biscay.⁽³⁾ In January 1943, further adjustments were made. It was decided that the first batch of Halifax aircraft that were to go to No. 58 Squadron should be fitted with the adapted H2S but would not be fitted with long range tanks as they were for employment in the Bay of Biscay. The second batch were to be modified to V.L.R. specification and have the front turret removed. They would go to re-equip No. 502 Whitley Squadron for ultimate employment as a V.L.R. squadron.⁽⁴⁾

CC/S.7010/3/4
Part I
Encl. 45A

This chopping and changing caused the Joint Staff Mission to ask for a statement on the position regarding V.L.R. strength and the date when air cover in the Greenland Gap was likely to become effective. On the 16 January, the London authorities confirmed that 39 Liberators would be completed to V.L.R. specification by the end of February but were still fitted with Mk. II 1½ metre A.S.V. These aircraft were being allotted to the two V.L.R. squadrons as they became available.

A.C.A.S.(P)
File No. 35/4
Encls. 8 and 9

- (1) No. 58 Sqn. was withdrawn from the line in December for this purpose to Holmsley South in Hampshire. They became operational on Halifaxes II from 23 Feb. 1943, but only three had been fitted with 10 c.m. A.S.V. by mid-April. It was not till May that the whole squadron was so equipped. Ref. Squadrons Forms 540.
- (2) These were British allocation Liberators IIIA into which was rushed the best American type 10 c.m. A.S.V. then available at Fort Worth. They did not become effective in No. 224 squadron until the end of February, 1943.
- (3) No. 59 Sqn. started to re-equip and train on Fortresses IIA from 13 Dec. They became operational at Chivenor from 21 Jan. but only had Mk. II A.S.V.
- (4) No. 502 Sqn. was converting to these Halifax II during February 1943 at Holmsley South and became operational on 12 March.

In addition to these two squadrons, it had just been decided to re-equip another G.R. squadron with Halifaxes modified to give 2200 miles range and fitted with 10 c.m. A.S.V. which would probably be ready by the end of February. This squadron was also intended for mid-Atlantic work. Reasonably effective air cover in the Greenland Gap by land type aircraft should be realised by the end of March but it would be unlikely to be really effective until escort carriers were available for all convoys, the date for which depended on priorities in the United States escort carrier assignments.

A.C.A.S.(P)
File No. 37/7
Encl. 22 and 24

At the next two meetings of the Cabinet A/U Committee, held on the 20 and 27 January, the slow rate at which American Liberators allocated to Great Britain were coming into service was investigated. It was stated by the Minister of Aircraft Production that there was usually a two months lag between the date of allocation and their delivery in this country. So far deliveries fell short of allocation and we should only get two aircraft in January as against four allocated. It was anticipated that nine would be delivered in February and fifteen in March. The meeting expressed concern at this delay and invited the Minister to expedite as much as possible the delivery of Liberators to this country and their subsequent conversion for long range duties. A week later, on the 3 February, it was reported to the meeting that the Combined Chiefs of Staff had agreed that long range shore based air cover was a matter of extreme urgency over certain routes in the Atlantic and that the U.S. authorities were sending six Catalinas and twelve Fortresses to operate from Newfoundland. As it was not known under what conditions of control these aircraft were going to operate, the C.A.S. said he proposed to go into the whole question of the control of aircraft based on the Canadian Seaboard and their co-ordination with the air cover provided from this side of the Atlantic. He was particularly anxious that more use should be made of escort carriers on some of the routes so as to reduce the commitments of V.L.R. aircraft to the essential area in the Greenland Gap.

In spite of all the plans made and priorities allotted, the position on the 6 February, when Sir John Slessor took over Coastal Command from Sir Philip Joubert, was that No. 120 Squadron still remained the only V.L.R. squadron operating. It now possessed five Liberators I and twelve Liberators IIIA modified to V.L.R. requirements all fitted with Mk.II A.S.V. The squadron was based at Aldergrove in Northern Ireland with a flight at Reykjavik in Iceland. No. 86 Squadron was non-operational at Thorney Island arming with modified Liberators IIIA as they came from the Scottish Aviation Company at Prestwick. They had received six of these aircraft by this date. No. 502 was at Holmsey South awaiting Halifaxes II modified for V.L.R. and wired for 10 c.m. A.S.V. adapted from H2S. As yet no sets were available.

~~The situation in L.R. aircraft for the Outer Bay~~

~~No. 224 Squadron operational at Beaulieu
twelve ordinary Liberators IIIA, ten
fitted with Mk.II 12 metre A.S.V. and
D.M.S. 1000 (10 c.m.) A.S.V. It was intended
seven more IIIA's with D.M.S. 1000
to re-equip with Liberators V's
the American A.S.G.I. type of 10~~

~~Nos. 1 and 2 A/S squadrons U
operational at St. Eval with a
Liberators IIIA fitted with 4~~

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ibid
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CC/S.7010/2
Encls. 91A and
97A

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A.C.A.S.(P)
File No. 35/4
Encls. 8 and 9

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Nos. 1 and 2 A/S squadrons U.S.A.A.F., not yet fully operational at St. Eval with a total of 21 ordinary Liberators IIIA fitted with the American SCR.515 and

717 types of 10 c.m. A.S.V.(1) No. 59 Squadron, operational at Chivenor on twelve Fortresses IIA, fitted with Mk. II 1½ metre A.S.V.

No. 405 Squadron, loaned from Bomber Command and operational at Beaulieu on bomber type Halifaxes II with no A.S.V.

None No. 58 Squadron, not yet operational at Holmesley South with eleven unmodified Halifaxes II. ~~Only a few~~ of these aircraft had yet got their sets of 10 c.m. A.S.V. adapted from H2S.

(xii) Weapons against the U-boat

The improved tactics of search and final approach coupled with the gradual increase in numbers of aircraft devoted to A/U work had resulted in a gratifying increase month by month since the Spring of 1942 in the number of attacks on U-boats. The insistence on better standards of A.S.V. performance enabled unseen cloud approaches which, aided by the white camouflage, ensured a large proportion of these attacks being delivered on Class A targets i.e. those in which the whole or part of the U-boat was still visible at the instant of depth charge release. Unfortunately the lethality of attack had not risen to anything like the figure hoped for after the introduction of Torpex filled depth charges, the arrival of a pistol which at last gave detonation at 25 feet depth and the increased time devoted to practice attacks. At the end of September 1942 the ratio of kills to attacks averaged only 6% per month. It had been hoped confidently that at least 20% kills would result. Blame for this disappointment followed the same lines as in the Spring - poor weapons or poor aiming. Unhappily the photographic records in general had not been good enough to decide with certainty against the aiming and the usual crop of optimistic rear gunner reports encouraged the belief that the weapon was still at fault. This was resisted by the Operational Research Branch at H.Q. Coastal Command who quoted the widely varying efficiencies in the practice bombing camp returns and argued that in the excitement of actual attack the accuracy of release was likely to be well below that achieved under practice conditions. On the other hand, the opposition claimed that in quite a few cases photographs confirmed a straddle of the U-boat without it suffering any apparent injury. They argued that this showed that the Torpex filled 250 lb. depth charge did not have a lethal radius of anything like the 19 feet claimed by the armament scientists and pressed for priority to the supply of the heavy 600 lb. depth bomb, the development of

CC/S.7050/5
Part III
Encl. 16A

CC/S.7050/8/2
Part III
Encls. 122A
and 124A

ibid
Encl. 125A

ibid
Encl. 136A and
CC/S.7050/5
Part III
Encl. 12A

(1) These Liberators were armed with 10-0.5" Browings and could carry 10-325 lb. U.S. depth bombs or 12-250 lb. British Torpex depth charges. Their operational endurance was 10 hours at 158 knots.
Ref. - CC/S.7010/57/2 encl. 38A.

CC/S.7050/8/2
Part III
Encls. 157A and
158A

which had started in May 1942.(1) However, the 600 lb. bomb had its own troubles, notably a tendency to countermine in a stick even at considerable spacing and, until further development had cured this, the bomb was suspended from operation at the end of 1942.

CC/S.7050/5/1 Encl. 9A
AM/C.S.14561 Encl. 13C
and CC/S.7050/5
Part III Encl. 19A
and 30A

Development in the other direction towards very small contact bombs was still short of any practical trials but an entirely new idea had made its appearance in August 1942, the development of which was becoming extremely promising by the end of the year. This was a rocket propelled projectile with either a solid or an explosive head. It was envisaged that up to eight of these would be carried on rails under the wings and could be fired in pairs or in salvo at a surfaced U-boat at ranges up to 1,000 yards. Final trials at a full scale target were not concluded until February 1943 but it was plain before then that a very useful weapon was being perfected.

C.C. ORB
Feb. App. C

ibid
Encl. 26A

Meanwhile the controversy between the poor weapon and the poor aiming schools of thought had produced a mass of evidence which tended to uphold the weapon's efficiency and cast serious doubts on the standard of aiming in the majority of A/U squadrons. This had the effect of directing attention to the accuracy of records from the practice bombing camps and put a further premium on the production of a reliable low level bomb sight. None of the experimental models under trial during 1942 had given satisfaction and it was clear from further trials that the answer lay in the Mark III Angular Velocity Sight but production to squadrons was unlikely before mid-1943. Once again therefore it was to practice and yet more practice that hopes had to turn. That the solution lay here was supported by the successes scored by certain squadrons and individuals in those squadrons. During the past year, three squadrons were outstanding in numbers of U-boats killed and damaged - Nos. 120, 202 and 500.(2) All these squadrons had good records in practice bombing and all had been heavily engaged with the enemy thereby getting still more practice. The outstanding individual pilots at this time were Squadron Leader T. M. Bulloch of No. 120 Squadron and Flying Officer M. A. Ensor of No. 500 Squadron. Both had a natural eye for bombing (comparable to that possessed by a good shot gun performer) and, aided by painstaking practice, this had resulted in a very high standard of attack. The former had already sunk three and damaged a further three U-boats while the latter's score was one sunk and three damaged.(3)

AM/C.S.14561
Encl. 18B

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- (1) When the 250 lb. D.C. was standardised for aircraft, the 450 lb. D.C. was naturally given up but the school of thought which favoured the "big bang" in attacks on U-boats held on the continued development of the Magnum (1,700 lb. mine with time fuze) as the alternative big depth charge for larger types of aircraft. Snags in air and water ballistics were proving insurmountable and in May 1942 a specially designed anti-submarine 600 lb. depth bomb was made an Air Staff requirement. All efforts to overcome the ballistic and fuzing difficulties of the Magnum were abandoned early in 1943.
 - (2) No. 120 Squadron - 6 kills plus 10 damaged.
No. 202 Squadron - 4 kills plus 5 damaged.
No. 500 Squadron - 4 kills plus 9 damaged.
 - (3) These two officers went on to become anti-U-boat aces.

Coastal Command
Review No. 8
page 17

These results showed clearly that the existing weapon was perfectly adequate to sink U-boats provided the pilot put it in the right place. Every endeavour was therefore made to render the practice bombing training more effective and to bring home to all squadrons the vital importance of good marksmanship.

(xiii) Anti-Aircraft armament in U-boats

Up to the autumn of 1942, it was exceptional for a U-boat to stay on the surface and fight it out with an aircraft. Almost all these exceptions were Italian U-boats and were due to the different attitude of the two nations towards submarine warfare. The Germans were thoroughly submarine minded and preferred to dive in the sure knowledge that they were safe if they got under quick enough. The Italians were not sure of themselves under water and preferred to fight "in the open air".

B.d U.
War Diary

However, the increasing element of surprise which was being introduced by Coastal Command's night Leigh Light squadron and better day tactics of approach forced B.d U. to consider the idea of retaliation if the U-boat was "caught bending" on the surface. In his summing up of the general situation in the North Atlantic on the 19 October he stated that aircraft were the U-boats' greatest danger and that improved A.A. armament was on the way. Early in August some U-boats in the Mediterranean had fitted an additional 20 mm. cannon on the existing bridge platform or two heavy machine guns on the conning tower. In September some of the Atlantic based boats had followed suit but the use of flak against aircraft was very local and depended entirely on the mentality of the commanding officer and the sea conditions prevailing at the time. In anything but a calm sea a U-boat was a wet, cramped, unstable and most unsatisfactory gun platform.

No. 330 Sqdn.
Form 540

It is not surprising therefore that in August, September and October out of 75, 102 and 59 sightings, only four, six and two U-boats respectively fired back at the attacking aircraft. In one of these cases, on the 21 September, the Norwegian Catalina Z/330 Squadron was repeatedly hit on the run in and, after releasing depth charges, was forced to close the convoy QP.14 which was being escorted and ditch alongside H.M.S. Marne who picked up the crew.

A.M.
A.S. 14561
Encl. 20A

During November, two new factors caused a marked increase in the number of return fire incidents. Firstly, a large number of U-boats were operating in the calm waters of the Mediterranean under conditions which encouraged retaliatory action against any aircraft sighted. Secondly, the U-boats on passage in the Bay of Biscay were using their search receivers continuously and had ample warning of the approach of aircraft so that the commanding officers, if flak minded, could pick favourable conditions to man the flak armament instead of diving. There were in November, thirteen cases and in December, eight cases of U-boats firing at aircraft. This was out of 122 and 92 sightings respectively. The majority of these cases occurred inside the Mediterranean and, although no aircraft was known for certain to have been shot down, three Hudsons and two Leigh Light Wellingtons were lost without trace on A/U sorties from Gibraltar.

While at first making pilots pause and delay the depth charge attack until the U-boat decided to dive, it was soon realised that, more often than not, the accuracy of flak fire was not very deadly and depth charge attacks were

CC/S. 7050/5
Part III
Encl. 35A

pressed home at low level in fact of it. It did, however, start a movement for better and additional front gun armament to both day and night types of aircraft. In non-operational and research circles a warning note was sounded that aircraft might soon be forced to attack from altitudes in excess of 1,200 feet and a still further premium was put on the early supply of a reliable bomb sight.

It was noteworthy that, since the one incident in September 1942, ~~few~~ cases of firing at aircraft took place around the North Atlantic convoys. Only in the Mediterranean and, to a lesser degree, in the Bay of Biscay was the tendency marked. When, at the end of 1942, B.d U. withdrew his U-boats from the Gibraltar and Western Mediterranean area, the flak incidents fell to two in January 1943. A slight increase took place in February in the Bay area which became more marked in March. This time the majority of incidents took place in the Bay of Biscay area and were due to an entirely different cause which is described in the next Volume.

(xiv) The Casablanca Conference and the rising storm in the North Atlantic

The year 1942 had been one of continuous and heavy shipping losses. The high hopes, at the close of 1941, that the U-boat menace could be held had evaporated swiftly. The appalling losses off the American seaboard during the first eight months were continued only to a slightly lesser degree in other parts of the Atlantic during the latter months of the year. In round figures, the shipping losses to the Allies during this disastrous year were 8,325,000 tons, of which the U-boats had accounted for over six million tons. Against this, the new tonnage built was 7,180,000 tons thus adding a deficit of over a million tons to the adverse balance already piled up since the outbreak of war.⁽¹⁾ British imports had shrunk from 50 million tons in 1939 to 23 million tons in 1942. Neither could we point to disheartening losses having been inflicted on the U-boat fleet. During 1942, 87 U-boats were destroyed but 240 boats had been built and put into commission. On the 1 January 1943, the U-boat Fleet numbered 400 of which 214 were fully operational.⁽²⁾

These were the unpalatable statistics of the war at sea which confronted the Conference of Casablanca held from the 14 to the 24 January 1943 between the Prime Minister, the President of the United States and the Combined Chiefs of Staff and which governed their future strategic plans. On the 19th, the Conference came to the conclusion that the defeat of the U-boats must remain a first charge on the resources of the United Nations and that there could be no invasion of Western Europe until the Battle of the Atlantic had been won. In point of fact this declaration produced no immediate effect but it brought into sharp focus the first necessity in Allied strategy. On the 21st, the Combined Chiefs of Staff issued a directive which defined the primary objects of the combined bomber offensive. This

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- (1) Between Sept. 1939 and 31 Dec. 1941, 9,600,000 tons of shipping had been sunk but only 3½ million tons of new ships were built.
- (2) From the 57 U-boats in Sept. 1939, the fleet had grown by the 31 Dec. 1941 to 247. For monthly details of the U-boat fleet see Appendix II.

did effect changes in the target programme whereby immediate priority was accorded to the U-boat building industry and to the Biscay operational bases. Details of this action are contained in Chapter IX which deals with Bomber Command operations against naval targets.

B.d U.
War Diary

Tempestuous weather in the most northern parts of the Atlantic and clever evasive routing of convoys materially reduced the January shipping losses in this area(1) but a tanker convoy proceeding from Trinidad to Gibraltar was cut to pieces when out of air range to the south of the Azores between the 9th and 11th. Seven tankers out of the nine in convoy were sunk without loss or damage to the attacking U-boats. On the same date, a convoy of twelve ships off the Brazilian coast lost four ships sunk. Apart from these actions Doenitz was bitterly disappointed at his lack of success in locating the main North Atlantic convoys and observed in his diary that these failures proved the crying need for long range air reconnaissance. In default of this the only solution was more U-boats to lengthen the patrol lines and close the intervals between boats in the lines. This, he wrote, is in itself an uneconomic tactic as submarines were unfitted for this task of searching and it resulted in long, wasteful, fruitless waiting. However, he deployed every available U-boat into the North Atlantic and by the end of January had 37 U-boats stationed in lines on both sides of the Greenland Gap down to latitude 50°N, 11 boats between the Azores and the outer extremity of the Bay area, 25 in the band between the Azores, Canaries and West African coast but only eight in the equatorial and South Atlantic regions. A further 27 boats were on passage either to or from the North Atlantic dispositions making a total of 108 U-boats at sea.

B.d U.
War Diary

The effect of this concentration was soon felt. After a partial interception of convoy HX224 between the 2 and 4 February in which two ships were sunk and one U-boat sunk by Fortress N/220 Squadron, a large slow convoy - SC118 - was picked up on the 4 February. This convoy consisted of 64 ships which had left New York on the 24 January. It was sighted by U.187 in a position 660 miles east of Newfoundland.(2) U.187 was told to shadow and 20 neighbouring U-boats were ordered to operate against the convoy. Prompt action that afternoon by the surface escorts sank U.187 and hindered the concentration of the pack. Soon after dark the convoy made a large alteration of course and, in view of there being U-boats in the vicinity, the signal was made by sound as opposed to radio. The rear portion did not receive it and the convoy became split with some single ships straggling between the portions. On the 5th one of these ships was torpedoed and sunk before the convoy succeeded in reforming.(3) The U-boats coming up one by one were confused as to the position of the main convoy and no attack took place during the night of the 5th/6th. During all the daylight hours of the 6 February, air escort was provided

Admty.
C.B. 04050/43(3)

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- (1) Only one convoy was attacked (HX222) which lost a 14,000 ton ship on the 17 Jan. Eleven other ships, all independently routed or stragglers, were sunk during this month in mid-Atlantic.
 - (2) Just before dawn, one of the ships in convoy fired a snowflake rocket by mistake. This was seen some miles away by U.187 who closed, sighted and reported the convoy to base at 1106 hours.
 - (3) S.S. West Portal - 5,376 tons.

and
B.d U.
War Diary

from Iceland and Northern Ireland (900 miles from base) by four V.L.R. Liberators of No. 120 Squadron. Eight U-boats were sighted round the convoy, of which four were attacked. In one of these attacks U.465 was severely damaged and had to break off from the operation.(1) In the evening U.609, well astern of the convoy was sunk by F.F.S. Lobelia. Later in the night in the very early hours of the 7 February, several U-boats made close attacks and torpedoed seven merchant ships.(2) Again during the daylight hours, air escort and cover were given. Two V.L.R. Liberators of No. 120 Squadron from Northern Ireland and six Fortresses of No. 206 and 220 Squadrons from Benbecula (Hebrides) performed this task. Only one U-boat was sighted (U.624) and this was sunk by Fortress J/220 Squadron. Although eleven U-boats were still operating, only two succeeded in regaining sight of the convoy by the evening. After dark they were joined by a third and, during the night, attacks were carried out and one more ship was torpedoed and sunk.(3) From dawn on the 8th, air escort and cover was again provided by V.L.R. Liberators and Fortresses. U.135 was sighted, attacked and severely damaged by Liberator K/120 Squadron. None of the remaining U-boats were able to regain touch and the night of the 8th/9th was uneventful. As no contact had been made by first light on the 9th, B.d U. ordered the boats to disengage to the westward and while obeying this order U.614 was sighted, attacked and severely damaged by Fortress L/206 Squadron.

ibid

Although pleased with the results, B.d U. in his comments on the operation blames the British air cover for limiting the sinkings to the 14 ships which his U-boats claimed. On the British side, one of the lessons from this action was that even strong and continuous daylight air escort and cover could not prevent some of the pack from catching up with the convoy during the long winter hours of darkness. It therefore became a requirement that, as soon as practicable, the V.L.R. aircraft should be fitted with Leigh Lights so as to afford night protection.

During January, the conflict between Hitler and Admiral Raeder (C.-in-C. Navy) on the subject of Sea Power

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- (1) B.d U's War Diary records that contact was made on the convoy at 1146 hours. Of the other boats approaching, two were damaged by escort vessels but the particularly strong air escort was far more unpleasant for the boats. Eleven reported having to dive for aircraft and four were bombed. One of these - U.465 - had to break off owing to severe damage. The other three - U.135, 438 and 454 were driven off when starting to attack.
 - (2) Ships sunk - s.s. Toward - 1,571 tons, s.s. Robert E. Hopkins 6,625 tons, s.s. Harmala - 5,730 tons, s.s. Henry R. Mallory 6,063 tons, s.s. Kalliopi - 4,965 tons and s.s. Afrika - 8,597 tons. The seventh, s.s. Daghild - 9,272 tons was hit and abandoned. She was finally sunk far astern of the convoy in the afternoon of the 7th by U.402.
 - (3) s.s. Newton Ash - 4,625 tons.

Fuehrer
Conferences on
Naval Affairs
1943

and the composition of the German Navy came to a head.⁽¹⁾ As Raeder refused to modify his opinions he resigned and his position as C.-in-C. Navy was given by Hitler to Admiral Doenitz, the Flag Officer Submarines. This appointment made it clear that U-boat warfare was regarded in Fuehrer circles as the premier weapon against Anglo-Saxon Sea Power. In the first conference between Hitler and Doenitz, held on the 8 February, the whole war at sea was reviewed. The new C.-in-C. Navy explained that during January enemy convoys successfully evaded his U-boat formations in the North Atlantic. Such action could come only from treason or undetected air reconnaissance having located the U-boat lines. In regard to the former, he reported that all necessary steps had been taken but if the latter was the answer then the U-boat groups would have to be scattered more widely. The spotting and engaging of convoys would be much simplified if there was adequate long range reconnaissance by the G.A.F. but failing this the only solution was by a still further increase in the number of U-boats on patrol. This he had recently commenced to do and already a success could be reported. To ensure this rapid increase, priority was required for the submarine war in every direction - in construction, repair and manning. He asked for, and obtained from Hitler, an undertaking that all personnel and material required for any branch of the submarine war should be exempted completely from transfer at any time to the Army. He proposed a plan for decommissioning most of the large ships in order to release officers and men for the U-boat service, the guns for Coastal and flak batteries, and the dockyard workmen so released for the repairing of minor war vessels and U-boats.⁽²⁾ Finally he outlined his scheme for air support to his U-boats at sea. Both these proposals were approved by Hitler.

The stage was now set for what both sides realised would be the decisive struggle for the outcome of the whole war.

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- (1) Admiral Raeder had held this post since October 1928. His disagreement with Hitler on matters of naval strategy and tactics was of long standing. It was brought to a head by the failure of an operation by the Lutzow, Hipper and six destroyers against an Allied convoy bound for Russia. This attack was, on the 31 December 1942, driven off by the gallant action of the escorting force led by Captain R. St. V. Sherbrooke V.C. in H.M.S. Onslow, supported by the six inch gunned cruisers Sheffield and Jamaica, in which one enemy destroyer was sunk and the Hipper damaged. Hitler declared that the larger units of the German Navy were useless and merely tied up men, material and resources which could be better employed elsewhere. He demanded therefore that they should be decommissioned and required Admiral Raeder to submit a programme to this end by the 15 January. Admiral Raeder produced a memorandum on the subject and strenuously resisted Hitler's intentions. This final conflict was the end of Raeder's long sustained attempts to obtain a properly balanced Navy with its own air sea reconnaissance arm.
- Ref. Fuehrer Conferences on Naval Affairs - 1943.
- (2) The modified plan adopted in March decommissioned five ships, relegated four ships to purely training duties in the Baltic and kept in full commission the Tirpitz, Lutzow and Scharnhorst as a task force in Northern Norway for employment against Allied convoys to Russia.

CHAPTER XIII

THE U-BOAT WAR IN THE WESTERN, EQUATORIAL AND SOUTH ATLANTICAUGUST 1942 to FEBRUARY 1943PART I - THE WESTERN ATLANTIC(i) Introduction

Referring back to Chapter III, Section (VI), it may be remembered that by June 1942 a coastal convoy system was in operation from New York to the Gulf of Mexico and by July another branch was forming in the West Indies. Although there was still much independent routeing in the Southern Frontier areas, by mid-July the majority of shipping between Galveston, Cuba and New York was in convoy escorted by surface and aircraft and routed under fairly regular air cover. The operational control and co-ordination in and between the Sea Frontiers was still not good, but it had advanced a long way from the chaotic conditions of February.

A great deal of the credit for this change must go to the work of the two Coastal Command Staff Officers⁽¹⁾ who were transferred in February from Canada, where they had started indoctrinating the R.C.A.F. in Coastal Command procedure. These two remained in the United States until September 1942 engaged on the ambitious task of persuading the American Navy and Army Air authorities to adopt Area Combined Headquarters and a system of operational control similar to that proved in battle on the Eastern side of the Atlantic. The main stumbling block was the independence of the naval Frontier Commanders from any sort of control from the Navy Office and their disinclination to work with the Army Air Command which was the more unfortunate as the Army provided the majority of long range aircraft and crews engaged in the anti-U-boat war.

(ii) The loan of R.A.F. No.53 Squadron to the U.S.A.

In June 1942, the Eastern Sea Frontier had a temporary Area Combined Headquarters working in New York and there was every promise of one in the Gulf Sea Frontier in the near future at Miami. In the Caribbean Sea Frontier, discussions were still going on to persuade the naval commander that better convoy escort and more efficient measures against U-boats would result from having the Navy and Army control under one roof. Although the Army Air Corps had adopted a signal form procedure and station operation room lay-out based on Coastal Command experience which was uniform in all their Sub-Commands, the Navy would not agree to standardising it in the Frontiers so that communications and intelligence were not common to the two Services.

In one of his earlier reports on progress to the Air Officer Commanding-in-Chief, Coastal Command, Wing Commander Canning had suggested that the quickest way to spread up to date attack procedure would be to exchange a few American air crews from the Eastern Sea Frontier with experienced crews from Coastal Command. The idea was taken up in British circles and expanded into a project for the loan to the U.S.A. of a complete squadron. With them it was recommended should go one of the naval staff at Headquarters, Coastal Command, not only as liaison with the U.S. Naval authorities, but to

C.C.
S.7010/17/5/1
Encls. 3A, 3B
and 3C.

ibid
Encls. 16A and
B.

ibid
Encl. 28A.

ibid
Encl. 12A and
B.

ibid
Encl. 13A and
AM/S.6457
Encls. 102A and
103A.

(1) Wing Commanders P. F. Canning and S. R. Gibbs.

facilitate the operation of this squadron on lines of British policy and tactics in furtherance of the ideas already preached by the two Wing Commanders.

C.O.O.R.B.
June Appendices

The scheme had the enthusiastic support of all authorities in the U.S.A. and on the 27 June, a decision was taken to send No.53 Hudson Squadron accompanied by Commander P. B. Martineau, O.B.E., R.N. to Quonset (Rhode Island) for anti-submarine operations in the Eastern Sea Frontier. The squadron consisted of 20 Hudson III aircraft fitted with Mark II A.S.V. and long range tanks. A ground echelon of 60 key personnel left St. Eval on 29 June to go by sea with certain stores such as Torpex filled depth charges and A.S.V. spares. Ordinary engine maintenance, replacement of aircraft and domestic administration were undertaken by the U.S. Naval authorities.

The aircraft flew out in batches, the first leaving St. Eval on 5 July. The route flown was via Prestwick - Reykjavik - Bluie West I (Greenland) - Goose Bay (Labrador) - Montreal - Quonset airfield (Rhode Island).⁽¹⁾ By the 19 July, six aircraft had arrived and the first operational sortie took place on the 23rd. By the end of the month, 15 aircraft had arrived of which six were operational on tasks covering coastal convoys and sweeps over their standard routes.⁽²⁾

(iii) The U-boats start moving away from the United States seaboard

The coastal convoy system with improved protective measures and more consistent air cover in the Eastern and Gulf Sea Frontiers caused B.d U. in July to start withdrawing his U-boats to seaward. Reports from his captains had indicated much unguarded shipping still sailing along the north coast of South America and across the Atlantic Narrows from West Africa. Accordingly he directed his long endurance Type IX boats to these areas while deploying most of the 500 tons Type VII boats into the North Atlantic prior to re-opening the ocean convoy war. While these redispositions were taking place the shipping loss figures off the American coasts were at last substantially lower.

War Diary of
B. d U.

Appendix XXXV

In view of the lightness of U-boat attack in the Eastern Sea Frontier during July and the continuance of shipping losses in the Caribbean area, it was decided at the end of the month by the U.S. authorities to move No.53 Squadron to Trinidad. This decision was taken partly because the Caribbean frontier was very short of aircraft, and partly because it was considered an excellent opportunity to demonstrate the British methods in an active area and thereby influence a Sea Frontier commander who was not yet convinced. On 3 August, the squadron commenced leaving Quonset for Trinidad via Cherry Point (Virginia) - Miami (Florida) -

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- (1) The first three aircraft left on 5 July. The first one of these to arrive at Quonset was flown by Wing Commander J. R. Leggate, the C.O. of the Squadron. He landed on 9 July.
 - (2) Four sweeps and four convoy escort sorties were completed by 29 July. Two aircraft had become casualties on the flight out from Great Britain, one at Goose and the other in Newfoundland. The final three aircraft of the Squadron arrived at Quonset on 4 August.

Guantanamo (Cuba) - San Juan (Puerto Rico) - Waller Field Trinidad.⁽¹⁾ During the transit, operational sweeps were carried out between the above staging points⁽²⁾ and sorties from Waller Field were started on 10 August, being stepped up in intensity as aircraft arrived.

War Diary of
B. d U.

Adtv.
BR.1337

The full improvement in shipping losses so noticeable in July was not held in August. Consequent upon the withdrawal of some seven U-boats into the North Atlantic the losses between New York and Panama were trifling but the deployment of nineteen others along the north coast of South America, resulted in the sinking of 46 ships in the Caribbean Sea Frontiers with particularly heavy loss amongst tankers in the eastern approaches to Trinidad while seven Brazilian ships were sunk off their own coast. This latter had the immediate effect of bringing Brazil into the war against the Axis Powers.

War Diary of
B. d U. and
Admty.
BR.1337

Canadian
E.A.C.
narrative.

In the Canadian zone, conditions followed the pattern of previous months. B. d U. continued to send U-boats into this area as long as a reasonable dividend was returned. After the successful penetration of the St. Lawrence estuary in July⁽³⁾ only two U-boats were off the Canadian coast during most of August. However, three fresh boats arrived in the last week to take up stations to the north of Newfoundland. A total of six ships were sunk during the month, four off the south or east coast of Newfoundland and two in the Straits of Belle Isle. Only two air attacks were made, both by Hudsons of No.113 Squadron in the first week of August, and both south of Cape Race. In neither case was any damage inflicted.

Most of the August sinkings in the Caribbean zone were occurring amongst shipping out of convoy in two areas - one, 500 miles to the west of Trinidad around Curacoa, the other a focal point of incoming traffic about 500 miles eastward of

- (1) Six aircraft left on the 3rd, three on the 5th, four on the 7th and five on the 12th. Two became casualties during the flight.
- (2) A total of 391 hours were flown on these A/U sweeps. Ref: No.53 Squadron Form 540.
- (3) During July, four U-boats were stationed in Canadian waters. Of the six ships sunk during the month, four were in the St. Lawrence estuary. To meet this threat the disposition of Canadian squadrons, by early August, was as under:-

Nova Scotia	Dartmouth	- {No.5 Sqdn. (Cansos A) - No.11 Sqdn. (Hudsons) - No.116 Sqdn. (Cansos).
	Yarmouth	- {No.113 Sqdn. (Hudsons) - No.162 Sqdn. (Cansos).
Cape Breton Is.	N. Sydney	- No.117 Sqdn. (Cansos)
	Sydney	- No.119 Sqdn. (Hudsons)
St. Lawrence	Mount Joli	- Detachment of No.119 Sqdn. (Hudsons)
	Gaspe	- Detachment of No.117 Sqdn. (Cansos)
Newfoundland	Botwood	- Detachment of No.116 Sqdn. (Cansos)
	Gander	- No.10 Sqdn. (Digbys)
	Torbay	- No.145 Sqdn. (Hudsons)
	Argentia	- U.S.N. Catalinas and Hudsons
Labrador	Goose Bay	- Occasional shuttle sorties from Gander and Botwood.

CC/S.
7010/17/5/1
Encls. 38B, C
and D.

Trinidad. One of the first things achieved by Commander Martineau was the employment of all available aircraft in sweeps over the worst spots⁽¹⁾ by persuading the American authorities that close air escort to convcys in other areas where there were no U-boats was a waste of valuable aircraft. In the second half of August, No.53 Squadron made six and U.S. Army B.18s. made five attacks on U-boats in the area east of Trinidad, while other Army B.18s. delivered four attacks in the Curacao area. In no case was a U-boat destroyed but damage was inflicted in several of these attacks. The U-boats reported the increasing interference from air patrols and early in September moved their operational areas further to the eastwards. The number of U-boats operating along this coast dropped to eight and the losses during September were consequently lower in the Caribbean area at 26 ships but rose in the Atlantic Narrows and to the westward of Africa. The Caribbean Sea Frontier sinkings were now occurring almost entirely well to the eastward of Trinidad among ships engaged in the valuable bauxite trade.⁽²⁾ Reinforcements of Army B.18s. were flown into the area and offensive air sweeps were redoubled.⁽³⁾ Again no U-boats were destroyed but harrying attacks still further hampered U-boat operations.

(iv) Doenitz exploits soft spots in the Canadian defences

War Diary of
B. d U. and
Admty. BR.1337

In the Canadian zone there were three U-boats operating continuously in the first half of September. Two of these - U.165 and U.517 - penetrated into the St. Lawrence River and between them sank eight ships. The other boat - U.513 - remained close off St. Johns where two ships were sunk. During the latter part of the month two more U-boats were sent into the coastal area. Canadian aircraft delivered seven attacks but no U-boats were damaged.

In his summing up on results for September, Admiral Doenitz said that, as the Canadian defences proved comparatively weak, further boats were being sent out to make the most of this condition. On the east coast of North America and in the Gulf of Mexico the strong air patrols made it inadvisable to operate further in these areas. In the Caribbean Sea itself, air escort and patrols have lessened the chances of success but the

- (1) In order to give more effective cover to the easternmost of these bad places, three aircraft of No.53 Squadron were detached to operate from Zandery Field in Dutch Guiana. In September a similar detachment was made to Atkinson Field in British Guiana.
- (2) This trade along the north coast of South America was still not in convoy. At the end of August the main convoys ran both ways between Key West and New York and between Guantanamo and New York. To the former were hooked-in the Gulf of Mexico convoys and to the latter by mid-October were attached convoys from Trinidad. Convoys eastward from Trinidad were not organised until the end of 1942.
- (3) Scale of effort by No.53 Squadron

Month	Hours on Escort	Hours on Sweep or Patrol	U-boats		Remarks
			Sighted	Attacked	
August	5	836	7	7	No U-boats were sighted by convoy escort aircraft.
September	92	905	4	3	

area well to the eastward of Trinidad was still favourable as no convoys had been yet observed and the air patrolling was less though constant changes in ship routeing made success somewhat patchy. However, together with Freetown, this area would continue to be the focal point for the large U-boats. Medium size boats would also be employed provided refuelling from U-tankers was possible.

War Diary of
B. d U.

B. d U. War
Diary and
Canadian
E.A.C.
narrative.

October saw the lowest shipping losses in the Western Atlantic since the opening of the campaign in January. Only 20 ships were sunk. Of these, three were in the Canadian area, all in the St. Lawrence estuary. During the month four U-boats were operating and in the last week an additional two arrived off the Straits of Belle Isle. A group of six boats was located about 200 miles E.N.E. of St. Johns to take advantage of any convoy reconnaissance obtained by the inshore billets. Canadian aircraft obtained five sightings of U-boats off Newfoundland and attacked four of them. Two of these attacks took place on 30 October well to the eastward of St. Johns and resulted in the destruction of U.658 and U.520 by Hudson Y/145 Squadron and Digby X/10 Squadron respectively. In spite of this rebuff, B. d U. considered operations inshore still worthwhile, particularly in the St. Lawrence, and further U-boats were despatched. Fifteen of the remaining October losses were in the Caribbean Sea Frontiers and one in the Brazilian area. These were the work of five U-boats in these areas and were also the lowest figures for many months. They encouraged hopes that the frequent alterations in the traffic routes east of Trinidad would, combined with a forced retirement by the U-boats out of air range, bring to an end the losses in this last of the American soft spots.

Admty.
BR.1337

Canadian
E.A.C.
narrative.

November provided an unpleasant surprise. Thirty-four ships were sunk off the Brazilian and Caribbean Frontier coasts. These heavy sinkings by seven U-boats were mostly among independent shipping and the increase over October largely the result of unlucky interceptions of re-routed traffic outside consistent air cover.⁽¹⁾ In the north, four ships were lost close off the Canadian coast and thirteen more from convoys and stragglers some 200 to 300 miles north east of Newfoundland. Six U-boats operated in the coastal zone and up to twelve were grouped in the latter area. Canadian aircraft sighted five during the month and four attacks followed, but no damage was inflicted. These latter sinkings proved to be the final flurry for some months in the Canadian area. The landings in North West Africa and the subsequent efforts by U-boats to interrupt the expedition's supply line drained the North Atlantic of most of the medium size boats and limited overseas anti-shipping operations to the large types of U-boats stationed in the equatorial latitudes of the Atlantic.

(1) Scale of effort by No.53 Squadron

Month	Hours on escort	Hours on patrol or sweep	U-boats		Remarks
			Sighted	Attacked	
October	58	697	2	2	No U-boats were sighted by convoy air escorts.
November	41	495	4	3	

(v) Return of No.53 Squadron to the United Kingdom

November also saw the end of the operations by No.53 Squadron in American waters. The transfer of two of Coastal Command's anti-U-boat Hudson squadrons (Nos.500 and 608) to the new Mediterranean Air Command based at Algiers made it impossible to spare No.53 Squadron any longer in the U.S.A.; moreover their job was done. They had served their purpose admirably in demonstrating British methods. Although their fifteen attacks had not destroyed a U-boat, their speed of approach with accompanying surprise aided by their white camouflage was reported on with disfavour by several U-boat captains and they contributed much to the move of U-boat operations from the Caribbean to the Brazilian coast of Equatorial Atlantic where the threat from sudden air attack was not yet a serious factor.

On the 20 November, operational flying ceased and the Squadron prepared to move up to Quonset in readiness to leave for the United Kingdom by the 15 December. At the end of November, the ten surviving aircraft left Trinidad for Norfolk (Va). The ground personnel left by sea and arrived in the United Kingdom on the 30 December. Spare flying crews proceeded from Norfolk by rail to Montreal for Ferry Command from where they flew Lend/Lease aircraft to England. The Squadron flew back to England by stages, delivering their aircraft to Gosport. After giving leave, they re-formed at Davidstow Moor and ultimately re-armed on Whitley aircraft in February 1943 at Bircham Newton for operations against E-boats in the North Sea.

(vi) The search for better co-ordination of action against U-boats in the North West Atlantic

During November, there commenced serious searchings of heart amongst Canadian authorities following a report by Commander Martineau⁽¹⁾ on the absence of co-ordination in A/U operations around convoys and off the coast in the Canadian zone. This report stated that the Canadian Eastern Air Command was a very long way behind the places he had visited either in Western Canada or the United States. His main criticisms were:-

(A) The absence of any single authority in the North Western Atlantic to direct the A/U war. At that time the E.A.C. had to deal directly or indirectly with nine different authorities.⁽²⁾

(B) The poor telecommunications between the headquarters in London, Ottawa, Halifax and St. Johns whereby submarine tracking room information went for nothing.

(1) Early in October, Martineau had reported to H.Q., Coastal Command that A/U policy and tactics were developing on sound lines in both U.S. Navy and Army Air circles. He was then directed to Canada where, it was feared, co-ordination was still conspicuous by its absence.
Ref: CC/S.7010/17/5/1. Encl. 38E.

(2) Canadian authorities - Naval Service H.Q. in Ottawa, Commanding Officer Atlantic Coast in Halifax, Flag Officer Newfoundland at St. Johns.
American authorities - Cominch in Washington, C.-in-C. Atlantic and Commander Eastern Sea Frontier in New York, Commander Task Force 24 in Argentina (NF).
U.K. authorities - Admiralty and H.Q. Coastal Command.

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Form 540

CC/S.7010/7/5/1

Encl. 38G

(C) The attempt that was being made to slavishly air escort all convoys irrespective of where U-boats were actually operating.

(D) The poor standard of training among pilots in methods of escort, patrol and attack.

ibid
Encl. 38H

ibid
Encl. 38J

CC/S.17434.
Part I
Encl. 73A

Martineau put in a memorandum to the Canadian Staff in Ottawa containing suggestions for improvement based on what had been found essential in Home waters. Two meetings, held in Ottawa in November, decided that a unified Allied Command was not attainable but recommended that the Canadian naval and air forces must be recognised as a single organisation operated from a central point, which should be Halifax, at which place must be constructed a combined operations room with adequate communications to the existing Area Combined Headquarters at St. Johns and to Ottawa, with particular reference to the Submarine Tracking Room situated there.⁽¹⁾ A number of immediate amendments were made in the local operation orders affecting details of air escort, forms of patrol and co-operation with surface craft, but the main recommendation for better co-ordination was not proceeded with until the whole question was taken to a higher level in February 1943 by the A.O.C.-in-C., Coastal Command. He made further proposals embodying co-ordination not only among the Canadian authorities, but to include the United States independent commands. However, it was found that no real solution was possible apart from the larger and ever-recurring problem of unified control of all Allied A/U forces in the North Atlantic. This came to a head in March with the critical situation on the Atlantic supply line and is dealt with in the succeeding Volume IV.

-
- (1) There was also discussed at these meetings a memorandum by Commander C. Thompson, R.N., who, besides being an escort Group Commander, had extensive experience as an observer in the Fleet Air Arm. He pressed the view that the moment was ripe to infuse the Royal Canadian Air Force with naval personnel in those squadrons engaged in the sea war. While admitting that complete substitution was impracticable he recommended the infusion of 50% Pilots, 100% Observers and Telegraphists, while leaving the ground personnel unchanged. He listed the successes of the Fleet Air Arm in the sea war against what he described as the mediocre performance of the R.A.F. in operations against enemy major naval units, merchant shipping, U-boats and reconnaissance. He maintained that this weakness was inherent in an independent air force which expected flexibility of role for its aircraft without being able to ensure adequate specialist training in a warfare so essentially different from operations over land. He finally quoted in support the use of naval shore based aircraft by the Japanese in sinking the Prince of Wales and Repulse and by the Americans in their victory at Midway contrasted with the failure of the only other independent air force - the G.A.F. - to achieve anything against Allied major naval units, or in co-operation with the U-boats against merchant shipping. Nothing more was heard of this local effort to resuscitate the controversy of 1940/41, but it represented, and still does, the conviction of many practical naval officers.
Ref: CC/S.7010/17/5/1, Encl. 38J 3.

(vii) Efficiency attained in the United States zone

CC/S.7010/17/5/1
Encls. 28A and B.
35B and C.

ibid
Encls. 29A and
34A, and 37A.

ibid
Encl. 42A

The pioneer in educating American service opinion on A/U aircraft policy and methods - Wing Commander Canning - finally left the U.S.A. for home in October. His last report, dated 19 October, dealt almost entirely with the new Army Air Anti-Submarine Command and his final talks with their first Commanding Officer, General H.M. McClelland. The latter asked particularly for a relief to Canning to be attached as liaison officer to his new headquarters. This was approved and Wing Commander J. H. Greswell, from No.172 Leigh Light Squadron was appointed with acting rank of Group Captain. A Progress Report from him, dated 4 February 1943 after a tour of Sea Frontier Headquarters and Stations, stated that the American organisation for operational control from the A.C.H.Q. down to Stations level left nothing to be desired. All operation rooms were modelled and staffed like those in Coastal Command. In the Caribbean Sea Frontier, Admiral Hoover had built the finest operation room yet seen in the States despite his original opposition to Canning's proposals. One of the few points for criticism was on the subject of submarine tracking. Except for the Trinidad area, where information was available from British Admiralty signals, no notice was taken by the Frontiers of the U-boat position prediction issued by the U.S. Navy Department in Washington. The fault was thought by Greswell to lie partly in the delays in the arrival of the daily signal in the Sea Frontiers and partly to the fact that the tracking department was not considered to be a whole time job for one man. Suggestions had therefore been made by him to the Navy Department that it should be made of comparable importance to the British Admiralty Submarine Tracking Room which was regarded as the kingpin section in the direction of all A/U operations in the British zone.

Technically, the report went on, the American A/U Air Forces were very up-to-date. All the B.18s (Digby) Squadrons were fitted with 10 cm. A.S.V. Torpex was being used in the U.S. depth bombs with shallow firing pistols. Magnetic Air Detectors (M.A.D.) were fitted though no tactics in its use had yet been worked out, neither had the experimental retro-bomb system been adopted as the weapon to go with it. Expendable sono-buoys with which to listen for submerged U-boats were being supplied. AYD radio altimeters were standard fitments in the latest flying boats and the U.S.N. were expecting early delivery of a much improved 10 cm. A.S.V. model ASG-I. Finally Liberator aircraft were to be given to all A/U Squadrons as soon as possible and the programme envisaged 46 of these aircraft by the end of March.

(viii) U-boats in the Western Atlantic - December 1942 to March 1943

Consequent upon the re-grouping of his U-boats by B. d U. to the westward of Gibraltar, only one ship was lost in Canadian waters during December. Canadian aircraft made only two sightings and in neither case was an attack delivered. Off South America, the sinkings fell to eight ships in the Caribbean area but rose to thirteen off the Brazilian coast where air cover was thin as yet.

In January and February, single scouting U-boats crept back to the eastern coast of Newfoundland acting as reconnaissance for the benefit of the growing packs in mid-ocean. Losses off this coast were two and four ships respectively. In the continued inability to provide V.L.R. Liberators for the Canadian Air Force, the Cansos of No.5

R.C.A.F.
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Squadron based at Gander were stripped of all superfluous weight and made into long range aircraft. During February they operated up to 650 miles into the Atlantic on sweeps and convoy escort making four sightings all of which were attacked but with inconclusive results.

Sinkings in the South American zones by the large U-boats dwindled to eight in January and two in February. In March they rose to thirteen but subsequent losses never exceeded five per month for the whole American seaboard.

PART II - THE EQUATORIAL AND SOUTH ATLANTIC - August 1942 to February, 1943

(i) Intensification of U-boat effort off West Africa

Casting back to Chapter III, Section (ix), the situation in African waters at the end of July 1942 was that five U-boats (U.130, 201, 572, 582 and 752) were operating between the Cape Verde Islands and Freetown. Early in August, two of these boats (U.201 and 582) were homeward bound just west of the Canary Islands while two fresh boats (U.125 and 506) were southbound north of the Cape Verde Islands and a third (U.109) to the southwest of these islands.

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They cruised in billets at least 600 miles from the West African air bases and between the 6 and 11 August sank five large independently routed ships, all well out of air range from Freetown or Bathurst. On the latter date B. d U. formed Group Bluecher of five new boats to operate out of air range against the SL and OS convoys between Madeira and the Azores. As these latter operations did not come into the existing scope of the West Africa Air Command only occasional mention will be made of them at this stage of the narrative.

Another operation initiated by him at this time will receive attention as it affected both West and South Africa. This was known as Operation Eisbaer and was planned as a surprise attack on shipping at Capetown. It consisted of four Type IX C 750 ton U-boats (U.68, 156, 172 and 504) accompanied by a supply U-boat (U.459). They sailed from French Biscay ports between the 18th and 20th August and initially had orders to attack no shipping in the South Atlantic prior to arrival at their destination in order to preserve the element of surprise.

ibid

Meanwhile another independent ship had been sunk, on the 13 August, this time somewhat closer to Freetown as the four boats in the area had been told to close in to between 300 and 500 miles southwest of this port. As no further ships were intercepted during the next four days, the boats were instructed to get in closer still until traffic was sighted. One of these boats - U.506 - intercepted and sank the City of Wellington - 5,733 tons - only 160 miles S.W. of Freetown on 21 August. Although lightly escorted by surface craft, no air escort was being given and the subsequent search of the area by numerous sorties failed to locate the U-boat responsible. After a further four blank days, B. d U. directed two of the boats into the Gulf of Guinea.

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The flying effort of the West Africa Squadrons - Nos.95 and 204 on Sunderlands and No.200 on Hudsons - was used almost solely to provide escort to convys which were invariably routed close to the coast line round the bulge of Africa and for A/U patrols along this inshore traffic lane. Few opportunities came, therefore, to the aircraft for sighting U-boats

except on the occasions of their raids into the inshore waters in search of traffic. These raids were always carried out by lone U-boats and A/U searches were consequently conducted on rather a cold scent after an independent ship had been torpedoed. Convoys in these waters were left severely alone by the U-boats. The month ended with two further sinkings of independent ships, both by U.130 and both about 150 miles S.W. of Freetown. In neither case did the subsequent air search locate the offending U-boat.(1)

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In the last week of August, one of the Group Bluecher boats picked up the north bound convoy SL 119 when N.W. of Madeira. By this time the southbound Eisbaer boats were in this vicinity and were ordered to join the operation against the convoy. However, those Eisbaer boats which managed to contact the convoy were driven off by the surface escorts and the Group was told to continue their journey.(2)

On the 1 September, the U-boat dispositions were as follows:-

In the Gulf of Guinea	- <u>U.109</u> and <u>125</u>
Off Freetown	- <u>U.506</u>
West of the Canaries	- <u>U.130</u> homeward bound
N.W. of Madeira	- <u>U.159</u> and <u>179</u> (3) southbound
North of the Cape Verde Islands	- Group Eisbaer southbound.

During the first twelve days of September the three U-boats off the coast between Freetown and Cape Palmas sank five ships including the Tuscan Star of 11,449 tons. Again no U-boats were sighted by the air patrols although all the attacks were made within 300 miles of the coastline.

On the 12 September when Group Eisbaer boats were north-east of Ascension Island, U.68 ran across and sank an independent ship and U.156 sighted, attacked and sunk S.S. Laconia - 19,695 tons with 1,500 Italian prisoners of war on board. B. d U. ordered the other boats of the Group together with the neighbouring U.506 and 507 to go to the scene immediately. U.156 picked up 193 persons including 21 British and collected the ship's lifeboats. Arrangements were made by the German High Command for Vichy ships in Dakar to meet the U-boats and take over survivors. The three U-boats with survivors on

ibid

(1) West Africa Air Command flying for August 1942.

<u>Hours on</u> <u>escort</u>	<u>U-boats</u> <u>sighted</u>	<u>Hours on</u> <u>patrol</u>	<u>U-boats</u> <u>sighted</u>
309	Nil	518	Nil

- (2) The Bluecher boats carried on the chase to the northeastward and sank two ships and a straggler from the convoy before reaching effective air support from Gibraltar and the U.K.
- (3) U.179 was the first of the 1200 ton U-Kreuzer class (Type IX D/42) to be on operations and was under orders to proceed to the Cape to join Group Eisbaer en route.

board and lifeboats in tow moved up towards Dakar.(1) The rest of Group Eisbaer were then instructed to continue their southward passage. On the 14th, U.68 intercepted and sank another lone ship to the N.E. of Ascension Island.

(ii) Air cover gradually forces the U-boats further from the coast

During the latter half of September, finding few targets out of convoy near the coast, the four U-boats in the West African area moved further away and seven independent ships were found and sunk at distances of 350 to 600 miles from Cape Palmas and Bathurst. The situation was following the same line as on the other side of the Atlantic. Being unable to use packs of Type VII U-boats on account of the distance from base and limited refuelling facilities, B. d U. employed single Type IX boats operating outside consistent air cover, avoided convoys and aimed for the numerous large independently routed ships traversing the Equatorial Central Atlantic. The efforts of the West African Squadrons were sufficient to safeguard the convoy route stretching round the coast but were unable to reach out into the Narrows or guard against occasional sorties into the coastal waters.(2) Similarly the U-boats in the West Indies were being slowly forced out into the Atlantic or down the north coast of Brazil till they too found the Narrows between Pernambuco and the bulge of Africa the safest place from air pursuit and where they could also take toll of the independently routed shipping.

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Another raid into West African coastal waters was, however, about to occur. Group Bluecher, on watch for SL and OS convoys, had been replaced between Madeira and the Azores on the 6 September by a fresh Group Iltis of six boats. They had cruised southwards outside the Canaries fruitlessly until the 24th, when they were dissolved, told to refuel from the supply boat U.460 just north of the Cape Verde Islands and then to carry out independent operations in a sector off Freetown.

October opened badly, for another large ship - S.S. Andalucia Star of 14,943 tons was sunk on the 6th by U.107 some 230 miles S.W. of Freetown. However, on the same night but closer in, U.333 was located by H.M.S. Crocus and attacked

- (1) On their way to the rendezvous with the French ships, aircraft were sighted by the three U-boats, and U.156 was attacked. No damage resulted but B. d U. told the boats to take no unnecessary risks in rescue work and to make sure that boats containing English or Poles were cut adrift from the tows. The aircraft concerned were from an American Squadron newly based on Ascension Island from which U.S.A.A.F. heavy and medium bombers were operating on A/U tasks from mid-August 1942. The transfer of survivors to French ships was ultimately effected according to plan. In view of the delay and long detour, U.156 was detached from Group Eisbaer and her place taken by U.159.
- (2) West Africa Air Command flying for September 1942

<u>Hours on</u> <u>escort</u>	<u>U-boats</u> <u>sighted</u>	<u>Hours on</u> <u>Patrol</u>	<u>U-boats</u> <u>sighted</u>
365	Nil	624	Nil

Ref: Squadrons Form 540.

with depth charges and gunfire. One officer and four ratings were killed, the captain and another officer wounded and the boat so badly damaged that a return had to be started straight away. By the 8 October there were nine U-boats disposed on an arc of 450 miles radius from Freetown - a handsome complement to the threat from the air. These billets were occupied until the 14th with only moderate success though one of the three ships sunk was the Oronsay of 20,043 tons. Two of the boats, U.126 and 161, were then detached to cruise into the Gulf of Guinea and down as far as Banana in the Congo. Nothing more was effected for the rest of the month except that a ship was sunk by a homeward bound boat on the 29th, when N.W. of the Cape Verde Islands. Slightly more flying time was done by the Command during the month and No. 200 Squadron was rewarded by five sightings of which four were attacked.⁽¹⁾ As U-boat documents disclose no reports of these attacks it is unlikely that any damage was inflicted but the air activity decided B. d U. to withdraw his U-boats once more further still from the coast.

ibid
and
Admty.
B.R.1337

It was otherwise in the Cape area. Group Eisbaer arrived off Capetown on the 6 October, having finally filled up with fuel and provisions from U.459 when half way between St. Helena and the Cape. Capetown roads were found to be empty so that a spectacular surprise killing of ships at anchor was not realised. In lieu the boats were given freedom to attack anywhere along the southern coast and during the remainder of October they sank 25 ships between Capetown and Durban. Most of these ships were well over 5,000 tons and included the Orcades of 23,456 tons. A bright spot was the destruction, 80 miles N.W. of Capetown, of the U-Kreuzer 179 by H.M.S. Active on 8 October.⁽²⁾

Off N.W. Africa, another group was formed on the 20 October to try and intercept the North/South convoys in an area out of air range. This was Group Streitaxt of eight U-boats sweeping southwards from positions between Madeira and the Azores. By the 27th, they were in an east/west line 150 to 200 miles west of the Canaries. Here at last they were successful in sighting and shadowing convoy SL 125. Action was joined and all neighbouring U-boats on passage were told to join in the operation which continued to the northeastward until the 1 November. Heavy casualties were suffered by the convoy. Details of this and the effect on the safety at sea of the Torch assault force have been given in Chapter XIII Section (ix)(e).

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By the 1 November, most of the U-boats off Freetown and Cape Palmas had reached the end of their endurance and were homeward bound leaving only two in the Freetown Sector and two off Libreville moving out again from the Gulf of Guinea. In his summing up at the end of October, B. d U. noted that successes had fallen off in the Freetown area after the first half of the month and he concluded that the English had, at last, managed to include most of the independent ships in the convoy system. Attacks on convoys off Freetown were extremely difficult, he said, on account of air and surface patrols which prevented near approach to convoys. Operations off the Congo coast had brought no success so that the heavy

(1)	Hours on escort	U-boats sighted	Hours on Patrol	U-boats Sighted	U-boats Attacked
	495	Nil	676	5	4

Ref: Squadrons Form 540.

- (2) Others of this class of U-boat were by now in active commission. U.177, 181 and 178 were on their way to the Cape. On the 10 October, U.178, then N.E. of Ascension Island, sank the Duchess of Atholl of 20,119 tons.

traffic reported in this area by the German Intelligence Section was not confirmed. Regarding the zone of the Canaries/Cape Verdes/Atlantic Narrows, only the relatively few Type IX boats could operate profitably as supply boats were insufficient in numbers to allow continuous employment of the Type VII's. The infrequent SL convoys only justified an occasional Type VII operation and then only when, failing an interception, they could be refuelled and detailed temporarily to waters off Freetown. The successes in the Capetown to Durban area were gratifying and, in his opinion, justified a relief expedition when the present forces were nearing the end of their endurance.

These successes off South Africa continued unabated in November when another 23 ships were sunk between Capetown and Lourenco Marques in the entrance to the Straits of Madagascar. Two other ships were sunk between the Cape and St. Helena by the early Eisbaer boats now on their homeward journey. The South African Air Force had few aircraft to cope with the 1,200 mile coastline, but such as they had were used on local coastal convoys and the approaches to the main ports. The U-boats reported on this air activity but of course had plenty of sea room in which to keep out of air range and lie in wait for the large independent ships on ocean passage hundreds of miles off shore.

(iii) The effect on U-boat operations of the landings in N.W. Africa

In the West African area, the two U-boats working out from Libreville managed to sink four ships and one of the two U-boats off Freetown sank one ship during the first eight days of November. Thereafter the pattern of events and dispositions was governed by the Torch landings and the subsequent effort of the U-boat Command to strangle the build-up and supply shipping to the expeditionary force. Almost all the available Type VII boats in the Atlantic together with many of the Type IXs southbound for West Africa or the Narrows were concentrated to the westward of Gibraltar. No more ships were attacked in the West Africa Command. The only losses occurring in the equatorial region were by the existing Type IXs stationed to the west and south-west of the Cape Verde Islands some 600 to 800 miles from the nearest air base. Four such sinkings took place in the second week and one in the last week of November. During the second half of the month the devastating air attacks from Gibraltar forced B. d U. to withdraw his concentration off Gibraltar further to the westward and outgoing Type IX boats were directed to billets in the Atlantic Narrows between Pernambuco and the limit of air range from West Africa where three ships were sunk. Under these dispositions, little or no U-boat threat existed off the coast of West Africa and no sightings were made by the A/U flying. As part of the plan for long range sea reconnaissance in aid of the Torch expedition, 415 flying hours were devoted to sweeps up the coast from Bathurst towards the Canaries and covering the Channel past Dakar between the Cape Verde Islands and the mainland.(1)

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ibid

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(1)	West Africa Command flying for November		
	<u>Hours on escort</u>	<u>Hours on A/U patrol</u>	<u>Hours on special</u>
			<u>Recce</u>
	127	84.1	415
	No U-boats were sighted		Plus 27 on search
			for two German
			blockade runners.

ibid.

Similar dispositions of U-boats continued in December, the line in the Narrows being maintained by from five to ten boats with a thickening at the Pernambuco end. They accounted for 10 independent ships during the month. Only one boat - U.175 - was employed in West African waters and she was stationed off Dakar from the 14th until the 26th when, having seen nothing of importance, she was directed to cruise off Freetown. It is not surprising, therefore, that the West Africa Squadrons, now reinforced by a squadron of Catalinas, again drew a blank as regards U-boat sightings.(1)

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At the Cape, the endurance of the last arrived boats of Group Eisbaer (U.177, 178 and 181) was expiring and by mid-December all had started their homeward journey having sunk only five ships. However, B. d U. had the relief operation in hand under the cover name of Group Seehunde. This consisted of four Type IX C boats with the supply boat U.459. They sailed on various dates between the 14 and 20 December and were to be re-inforced by another two U-Kreuzers as soon as possible.

(iv) Institution of continuous air support between Freetown and Gibraltar

ibid.

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The withdrawal of the Type VII boats further and further westward from Morocco and Gibraltar, and the formation of them into groups in the Azores/Madeira region has been dealt with in Chapter XII, Sections (ix)(g) and (xiv). B. d U. made still another effort to intercept the SL and OS convoys(2) on the 19 January, 1943 by detailing five boats to form Group Rochen stationed abreast of Port Etienne. At the end of the month this group was increased to nine boats and moved northwards to block the channel between the Canaries and the mainland while the existing Azores area Group Delphin of 14 boats was positioned to block the passage of shipping between the Azores and the Canaries. It was during this very month of January that aircraft of the West Africa Command started to operate from Dakar and Port Etienne(3) and the Gibraltar Command sent detachments to Port Iyautey, Casablanca and Agadir.(4) Continuous shore-based air cover was thus, at last, established between Freetown and Gibraltar. No sightings of Allied shipping by U-boats occurred until the 7 February when one of the Rochen boats reported a small northbound convoy in the Canary Islands. The rest of the Group together with five boats of Group Delphin were ordered to operate against it. All boats reported strong air

- (1) During December, No. 270 Squadron of six Catalina flying-boats joined the Command and were based at Jui-Freetown. Operations were started from the 15th:-
West Africa Command flying for December:-

<u>Hours on escort</u>	<u>Hours on patrol</u>
310	548

- No U-boats were sighted.
- (2) In point of fact the SL and OS convoys had been discontinued while the Torch operation was going on. They were not resumed until late in February. There were, however, occasional small convoys running between Gibraltar and Freetown.
- (3) On the 13 January, two Sunderlands, a Catalina and some Hudsons went to Port Etienne and Dakar. Operations were started on the 15th and on the 20th. With the arrival of further aircraft, the force at Port Etienne were officially listed as a detachment of No. 295 Wing.
- (4) From the 11 January, Hudsons of No. 233 and I/L Wellingtons of No. 179 Squadron used Port Iyautey and Casablanca on shuttle sorties from Gibraltar. From the 21 January, a detachment of Hudsons and I/L Wellingtons was based at Agadir.

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patrols and, although five of them contacted the convoy, great difficulty was experienced in holding any contact for long. Wild shots were fired by three of the boats on the 8th without hitting any ships. Counter-attacks by the surface escorts and still heavier air cover finally forced the pack to break away to the west. B. d U. commented in his diary that extensive operations in this area were no longer possible owing to the strong air patrols. The Roehen boats were withdrawn to the westward of Madeira and the Delphin group to positions between the Azores and Portugal.

(v) The end of the U-boat menace in equatorial latitudes

ibid. and
Squadron
Form 540

During January 1943, the U-boat campaign in the equatorial latitudes of the Atlantic dribbled away into an affair of isolated Type IX boats disposed in scattered billets of opportunity resulting in the sinking of only four ships in the Narrows for the loss of two U-boats to the U.S. aircraft operating from Brazil. One boat only - U.175 was still off the West African coast and she was constantly harried from the air. She reported dogged air searches from the 1 to the 3 January when off Freetown. This referred to an attack on the former date by Catalina B/270 Squadron and the subsequent 48 hours air hunt which forced U.175 to retire further seaward. She was again sighted on the 19th when endeavouring to attack a large merchantman. The escorting aircraft, G/270 Squadron, forced her to dive and break off the attack but was unable to drop depth charges. By the 21st, U.175 had moved round to Cape Palmas and here on the 22nd she managed to sink an unescorted independent ship before having to start her homeward journey on the following day. When passing northwards some 300 miles west of Bathurst on the 30 January she was located on the surface by G/270 Squadron engaged on A/U patrol. An accurate attack was delivered which seriously damaged the U-boat causing such loss of fuel as to necessitate special refuelling arrangements before she reached home. So ended the operations of U-boats in the coastal waters of the West Africa Command for a considerable period.(1)

In the Cape area the relief Group Seehunde arrived on the 9 February having sunk an independent ship on the way when south of St. Helena. The comparatively easy successes of operation Eisbaer were not repeated and only four ships were sunk up to the end of the month. In March a further nine ships were accounted for before these boats had to leave on their homeward journey.

In none of these areas were U-boat operations ever resumed on any large scale, adequate air cover being the major deterrent. Occasional losses were suffered from sporadic singleton U-boats while the main battle developed in mid-North Atlantic during the following three months. The resultant effects of this will be narrated in Volume IV.

(1) West Africa Command flying hours for January and February 1943.

	<u>Hours on</u> <u>escort</u>	<u>U-boats</u> <u>Sighted</u> <u>Attacked</u>	<u>Hours on</u> <u>Patrol</u>	<u>U-boat</u> <u>Sighted</u> <u>Attacked</u>
Jan.	281	2 Nil	664	2 2
Feb.	410	- Nil -	656	- Nil -

CHAPTER XIV

FIGHTER DEFENCE OF ALLIED SHIPPING IN HOME WATERS(i) Introduction

AHB.6/VII/26

During the Spring and early summer of 1941, Germany developed the fourth and fifth phases of the air war against England, (1) including a vigorous offensive, largely directed by the newly created Fliegerfuhrer Atlantik, against the Allied supply lines to and from the United Kingdom.

The role of the German Air Force in this part of the campaign was to attack Allied shipping in key areas comprising the convoy route from England to the Mediterranean, the eastern part of the shipping route from England to America and the convoy lanes off the East, South and West coasts of England. In the ocean areas, operations were carried out in close co-ordination with the C.-in-C. U-boat Fleet.

It is with the campaign in coastal waters, (i.e. within 40 miles of the coast), however, that this chapter is chiefly concerned. (2)

AHB.6/VII/28

(ii) The German Anti-Shipping Offensive

German air operations in the West during the second half of 1941 and throughout the year 1942 were undoubtedly overshadowed by events in the East.

No longer could the Luftwaffe concentrate its activities on the fighting of a single campaign, but was now forced to divide its strength between a number of theatres of war. This inevitably caused a reduction in striking power in each sector, and resulted, with the exception of the V.1. and V.2. campaign in 1944/45, in the abandonment of strategic air warfare in favour of close support operations for the German Army and Navy.

As a result of a change of policy engendered by the preparations for the campaign in Russia the German air striking force which had stood opposite Great Britain since the beginning of the Battle of Britain was largely withdrawn.

On 22 May 1941, Luftflotte 3 assumed command of all units remaining in the West and disposed only two

-
- (1) The Air war against England was split up into five overlapping but distinct phases:-
 - (1) The attack on the Royal Air Force.
 - (2) The siege of London.
 - (3) Attacks on industrial towns.
 - (4) Attacks on ports and industrial towns, and merchant-shipping.
 - (5) Attacks made at long intervals on the most important port targets and merchant shipping and to mine river estuaries. Reprisal raids for propaganda purposes.
 - (2) Within this region the commencement and development of the enemy's offensive up to the opening of the campaign in Russia has already been dealt with in Volume II, Chapter X. It remains to narrate the concluding phase of this campaign, which had virtually ceased to be effective by the summer of 1942.

Kampfgeschwader⁽¹⁾ and two Küstenfliegergruppen,⁽²⁾ apart from the fighter element, for all operational purposes. This limited force⁽³⁾ was chiefly to assist the German Navy in its battle against the British supply lines by:-

- (a) Attacking the more important ports.
- (b) Mining of sea approaches.
- (c) Destruction of shipping in the sea areas around England and in the Atlantic.

Admty.
BR.1337.
and
A.M. Pamphlet
No. 248
Chapter 4.
Para. 75

In regard to the last named commitment, the attacks on Allied shipping in coastal waters from July 1941 onwards were not nearly so effective as they had been during the early phase of the offensive.⁽⁴⁾ Conditions were then in favour of the attacking aircraft against a defence not yet fully developed. The basis of these early shipping attacks by the G.A.F. had been a low level approach to the beam of a target, followed by the release of bombs to hit the vessel below the waterline. When the defensive armament of shipping was sparse and of small calibre, this low level technique had presented little difficulty or danger. Considering the fact that the forces of Fliegerführer Atlantik were not fully organised nor were aircraft available in sufficient quantity during the first three months of existence, the effect produced by the small number of aircraft employing this low level technique was at times serious; it was indeed out of all proportion to the size of the force operating.

ibid.
Para. 75

When larger numbers of aircraft did become available to Fliegerführer Atlantik, the Allied defences, both air cover over and armament in merchant ships, had reached such an improved state of efficiency that by June 1941 operations by the Luftwaffe had become difficult and successes were almost wholly confined to dawn and dusk periods or at night.

The disposition of the enemy's anti-shipping forces in North West Europe by mid-summer 1941 was almost equally divided between bases in Holland and Brittany. From these airfields. He. 111s, He.115s, Ju.88s. and Do.217s, concentrated upon shipping passing along the East coast, the English and Bristol Channels and the Irish Sea. The He.115s occasionally operated with torpedoes. The Ju.88 and Do.217 suffered some casualties to fighter aircraft and ships' armament but not to the same extent as the slower He.111s. and He.115s. A restriction to dawn and dusk attacks did curtail the aircraft losses but at the expense of fewer attacks being delivered, consequently the avowed object of the rapid destruction of coastal shipping in

-
- (1) A Bomber Geschwader (K.G.) with I.E. of 96 aircraft. A mobile formation normally commanded by the equivalent of a Group Captain or Wing Commander.
 - (2) A Coastal Forces Gruppe with I.E. of 27 aircraft, normally commanded by the equivalent of a Squadron Leader or Flight Lieutenant.
 - (3) In August 1941, the average daily operational strength of this formation was 186 aircraft, of which 13 were available for reconnaissance, 23 for bombing operations and 150 for fighter duties. For individual attacks in force, bomber units would be temporarily withdrawn from other theatres of war.
 - (4) During the four months, March, April, May and June 1941, enemy aircraft sunk 63 ships of 173,534 gross tons within 40 miles of the United Kingdom coast line.

merchant/

United Kingdom waters was not being accomplished.

ibid.
Para. 78

In October 1941, the attitude of the German General Staffs towards the Anti-Shipping campaign was made abundantly clear by their failure to appoint a successor to Generalmajor Harlinghausen (Fliegerfuhrer Atlantik) when he was wounded whilst taking part in an air attack on a convoy escort vessel in the British Channel. A deputy filled the post until early in 1942, and when Generalmajor Kessler, an officer who had only occupied obscure posts in the Luftwaffe, was appointed to the command, it was evident that little further importance was attached to this aspect of the supply line campaign.

In spite of continued protests by Fliegerfuhrer Atlantik that all anti-shipping operations in British Coastal waters should be under his control, the German aerial minelaying forces continued to operate independently under FliegerKorps IX,⁽¹⁾ and to an ever increasing extent were diverted to bombing operations over Great Britain through lack of other bombing units in the West. This tendency became even more marked towards the end of 1941 when German public opinion was demanding the bombing of the United Kingdom in reprisal for the rising scale of R.A.F. night attacks on Germany.

The staff of Luftlotte 3 protested to all higher formations and even to Goering himself against this mis-employment of anti-shipping forces, but the protest was ignored.

ibid.
Para. 84

As 1941 drew to a close, the British and American supplies to Russia by the Arctic route began to assume an ever greater target importance for the Germans, and the focus of anti-shipping operations gradually shifted to the Arctic supply routes. Nevertheless, certain of the anti-shipping units as well as the minelaying force, amounting to a combined strength of some 130 Ju. 88s. and Do.217s., remained to operate against Great Britain during 1942.

After the transference of the main anti-shipping operations to the Arctic shipping routes FliegerKorps IX, operating under Luftlotte 3, remained to continue with minelaying and was given the added tasks of shipping attack along the East coast and daylight bombing over England.

During the whole of 1942, activity by such forces as remained to Fliegerfuhrer Atlantik was at a lower level than in 1941⁽²⁾ and consisted of reconnaissance attacks on coastal shipping off the south and west coasts of England during bad weather, when fighters could not intervene.

The total number of aircraft disposed against coastal shipping was continually varying, and good use was made of those units which had been brought from Northern Norway for refitting or conversion to torpedoes. They were temporarily stationed in Holland and South Norway and such crews as had completed their courses were utilised on anti-shipping operations pending their return to the Arctic.

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- (1) The original minelaying units had, by July, been withdrawn to the Russian and other fronts and some of the He.111 units of Fliegerfuhrer Atlantik had been seconded to FliegerKorps IX to continue the minelaying operations. Meanwhile a bomber unit K.G.2 was converting to the Do.217 and appeared in minelaying operations by the late summer.
 - (2) The total number of sorties despatched during 1942 was **7,418** of which **256** attacked, whereas in 1941, the totals were **14,662** and **947** respectively.

ibid.
Para. 79-83

(iii) The G.A.F. and Torpedo development

Although the employment of torpedo carrying aircraft was part of the Luftwaffe's pre-war plans, they were incredibly backward in developing torpedo bombing.

German air theory believed in combined attacks by bombers and torpedo bombers as offering the greatest measure of success in direct attack on ships. The lack of equipment, however, made this theory rather empty.

From the outbreak of war up to the autumn of 1941, the German Fleet Air Arm maintained two seaplane units⁽¹⁾ - a total of some 24 aircraft - which were spasmodically engaged in torpedo operations against British shipping off the Scottish coast and south western approaches. Results were poor and, hampered by a shortage of torpedoes, development, showed little progress in launching methods since trials in 1939.

It was not until the full implications of the campaign against the Allied supply lines to the United Kingdom were realised in mid-1941 that energetic measures were taken by the Luftwaffe to rectify the omission of an alternative method to bombing in direct attack against merchant shipping.

Due to the increasingly effective defensive armament being developed by the Allies, the Luftwaffe turned afresh to the torpedo as a weapon which could reduce aircraft losses.

The efforts of the G.A.F. in the field of torpedo development were, however, strenuously resisted by the Naval High Command. Data on development of aerial torpedo practice accumulated at naval establishments was consistently withheld from the Technical Office of the G.A.F.; and any independent development in collaboration with private firms was deliberately hindered.

Later in 1941, direct requests by the Air Force to take over the aerial aspect of torpedo development were flatly refused by the Navy.

On its own account the Luftwaffe began exhaustive torpedo trials at the Bombing school at Grossenbrode in the Baltic, and in spite of the lack of torpedoes proved that the He.111, at least, was a highly suitable aircraft for such work.

Matters came to a head in December 1941, when the subject of torpedo development was raised at a Technical Office conference and reported to Goering. A direct demand was made that the Luftwaffe should take over aerial torpedo development in both Germany and Italy, that it should open experimental establishments with the inclusion of such naval staffs as had already been engaged in the aerial branch and finally, that a special Commissioner should be appointed to control Air Force torpedo development, supply, training and operations.

Within a month the G.A.F. had been granted these facilities⁽²⁾ and, with the whole field of the airborne torpedo now in its hand, forged ahead with organisation and development with the utmost energy. Plans for conversion of existing Air Force units to form a torpedo force with a strength of about 230

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- (1) Consisting chiefly of He.115 floatplanes.
(2) Generalmajor Harlinghausen, the former Fliegerfuhrer Atlantik was appointed Commissioner for Torpedoes.

aircraft(1) were immediately put in hand.

With the onset of winter, the Air Force bomber school at Grossenbrode, where the first trials and conversion courses had taken place, was found to be unsuitable for torpedo development and training, so the whole establishment was, therefore, moved to Grosseto on the west coast of Italy, where winter training could proceed apace, and a close liaison could be maintained with the Italians, who were progressing on the same lines.

Trials at Grosseto with all types of German aircraft confirmed that the He.111, capable of carrying two torpedoes, and the JU.88 - with a better performance as to speed - were the most suitable aircraft. One of the two original anti-shipping units, I/K.G.26, was the first to undergo conversion and batches of crews were withdrawn from Northern Norway for the three weeks course. By the end of April 1942, some twelve crews of the unit were ready for operations and were based at the newly constructed airfields of Banak and Bardufoss in north Norway. By June, the whole Gruppe, with a strength of 42 He.111s was completely trained, and another Gruppe, III/KG.26, was undergoing the same course armed with JU.88s. A month later, the Luftwaffe possessed a strength of 77 torpedo aircraft, the He.111s in Norway and the JU.88s at Rennes. The latter made the first massed torpedo attack on a convoy off the Scilly Isles on 3 August, 1942 but only after having first been mis-used in a series of reprisal bombing raids on Birmingham. By September, the whole of the torpedo force was being employed against the Anglo-American convoys taking supplies to the northern Russian ports.

(iv) The protection of shipping in coastal waters

ID/12/145

The defence of shipping was, in the main, the responsibility of the Royal Navy and Coastal Command, but, as outlined in Volume II, Chapter X, the security of communications in Home Waters, i.e., within forty miles of the United Kingdom coastline, was delegated to Fighter Command.

The renewed German anti-shipping offensive within this sphere had, since its inception in March 1941, made heavy demands on our fighter defences to the extent of an average monthly expenditure of some 45 per cent of the total Fighter Command operations up to June 1941.

Fighter Command had been quick to react to the enemy's challenge in March 1941, and by May had confined the enemy's successes in ships sunk, to the periods at dawn, dusk or at night.

By the summer of 1941, the enemy's continental policy, in particular the Russian campaign, had made grave inroads on his air forces in the West which was promptly reflected in the effort which could be devoted to the continuation of the supply lines campaign. As the enemy reduced his effort so Fighter Command scaled down its sorties accordingly, but the nature of the enemy's tactics of spasmodic thrusts at any point along the United Kingdom coastline made it necessary to retain the majority of the Command's total defensive effort on shipping protection. The total figures for this effort thus appear to be out of all proportion to the small enemy force employed.

(1) This figure was never reached as the Allied invasion of North Africa and then Italy intervened and upset the training plans.

FC/S.23328

Even so, Fighter Command could not furnish constant 24 hour standing patrols or even constant patrols during daylight hours, without devoting an even larger majority of its strength solely to this task. Instead, degrees of protection were afforded, based on the importance of the units passing along the front of each Fighter Group.⁽¹⁾

Each Group was responsible for providing protection to the shipping that came into its coastal sector, but support could be obtained from neighbouring Groups should the scale of enemy effort be so great that the individual Group could not meet the demand, or should weather conditions make it impossible for its own aircraft to operate.

FC/S.23310
Encl. 30A

There were four degrees of protection which could be afforded at the discretion of the Group Controllers:-

- (a) Fighter escorts⁽²⁾
- (b) Fighter sweeps or patrols⁽³⁾

-
- (1) Category I: Units of exceptional value such as a damaged capital ship or a merchant ship with irreplaceable equipment.
Category II: Most important units such as capital ships, troop convoys or convoys of special importance.
Category III: Important Units such as cruisers, routine convoys or minesweepers engaged on work which could not suffer interruption.
Category IV: Valuable units such as group sailings, minesweepers on routine work, destroyers or independently routed merchantmen.
Category V: Minor units such as minesweepers on passage, motor launches or small craft.
 These estimates were provided by the Naval authorities. Categories I and II normally were always provided with fighter escort. Categories III and IV were left to the discretion of the Group Controller; Category V was not normally provided with an escort.
 - (2) Fighter Escort - A specified number of aircraft were maintained in close vicinity of the convoy for a definite period. Aircraft were not flown directly over the convoy in order to avoid mistakes in identification by the ships gunners. Aircraft were on no account to leave a convoy for the purpose of pursuing the enemy. The height of the escort was maintained at 3,000 to 5,000 feet. The escort terminated at dusk, the withdrawal being signalled to the convoy by the fighter leader approaching from seaward at 5,000 feet giving short flashes on his landing lights. Any aircraft approaching the convoy after the signal would be treated as hostile.
 - (3) Fighter sweeps or patrols - A specified number of aircraft maintained in a shipping lane or focal area for the general protection of shipping, as in the Thames Estuary for example. In this area No. 11 Group provided patrols from the Barrow Deep Lightship to the Sunk Lightship, and occasionally a wing swept the area from Sheppey to Southwold with the triple purpose of providing additional protection to shipping, "showing the flag", and facilitating training. During the hours of darkness aircraft engaged on fighter patrols kept clear of convoys for the reason given above.

(c) Fighter protection(1)

(d) Fighter cover(2)

Contact between fighters and escort vessels was maintained by VHF/RT and to a degree fighter aircraft were dependent upon surface direction until such time as the development of C.H.L. low-looking equipment enabled sufficient warning to be obtained of the swift strikes of low-level raiders.

FC/S.23680
Encl. 39A

The problem of how to counter effectively the low level raider was constantly under review, and of equal importance for immediate future development, especially in view of the rise in the number of enemy attacks on shipping at night, was how to provide increased protection for convoys after dark. The benefit derived from the provision of a standing patrol had always appeared doubtful; however, experiments in this direction were made in June 1941, only to be abandoned in the following month as it was found that the presence of a standing escort at night conferred little benefit and tended to embarrass the convoys' A.A. defences. It was, therefore, recommended that fighter escorts should always be withdrawn at night and that after dark the convoys should rely on their own A.A. weapons and on the protection given indirectly by night fighters in their attempts to intercept the enemy aircraft responsible for the attacks. In spite of the instructions in favour of withdrawing fighter escorts at dusk, in practice this was not always done, but neither this direct protection, nor improved A.A. defences, nor new methods of interception provided a complete answer to the problem; and so for the rest of the year 1941, attacks at dusk, especially off the coasts of Northumberland, Durham and East Anglia, continued to cause anxiety.

ibid.
Encl. 49A

The demands of the Russian campaign during 1942, however, resulted in a gradual falling away of the enemy's effort against coastal shipping in Home waters.

(v) Measures of defence against enemy minelaying

Even more difficult to combat than the direct air attack on shipping was that of aerial mine-laying.(3)

S.2713

At a meeting held at Fighter Command Headquarters on 22 December 1941, between representatives of the Admiralty, Fighter Command, A.A. Command and Balloon Command, measures to counter enemy mine-laying aircraft were discussed. Particular attention was given to the Thames Estuary as the area to which the larger part of German sorties was directed.

The Commander-in-Chief, Fighter Command pointed out that total prevention could not be expected, the most which could

- (1) Fighter protection - This was much more general in its implementation. Aircraft were maintained at readiness at forward airfields in the Sector past which the shipping was proceeding, the number of aircraft maintained at readiness being at the discretion of the Group Controller.
- (2) Fighter cover - No aircraft were detailed for special protection but note was taken by the Group Controller of the ships should an attack develop in the area.
- (3) Losses of Allied merchant ships by enemy mines during the period July 1941 to February 1943, was 80 ships totalling 137,616 gross tons. So far i.e. September, 1950, it has not been possible to assess the proportion of this total which can be directly attributed to air laid mines.

be done was to make mine-laying so difficult that it would be comparatively unprofitable to the enemy.

This general conception of the problem was accepted by all and with this end in view the Admiralty, A.A. Command and Balloon Command accepted the responsibility for carrying out certain measures, including redistribution and additions to existing forces, in order to implement the plan of campaign.

Fighter Command itself undertook:-

- (a) to have the restrictions on unseen fire relaxed as far as possible in the affected area, and
- (b) to press on with the provision of C.H.L. Stations which would offset the existing difficulty of tracking enemy aircraft flying below 5,000 feet.

No. 11 Group undertook:-

- (a) to arrange fighter areas clear of gun zones in the Thames Estuary, and
- (b) to arrange on exceptionally suitable occasions "fighter nights" in consultation with other Commands.

ibid.
Encl. 156A

By 26 February 1942, a fair amount of progress was reported; twelve paddle steamers were in process of conversion, mounting the maximum amount of close range armament, searchlights and radar; a Maunsell Fort had been sunk off Harwich and four new types were in the process of being sited in Liverpool Bay: H.A.A. guns and searchlights had been redispersed; all of which was sufficiently comprehensive so long as the enemy aircraft came within range, but more positive measures were needed if the Commander-in-Chief's intention to make minelaying unprofitable was to be fulfilled. Such action could only be taken by Fighter aircraft and the tactics adopted by Nos. 11 and 12 Groups, in whose areas the major portion of enemy mine-laying operations took place, are worthy of further mention.

ibid.
Encl. 157A

No. 11 Group, while still using A.I. equipped aircraft to intercept enemy minelayers in the Thames Estuary, also sent fighter aircraft some distance out to sea under C.H.L. control in order to make interception while the enemy aircraft were still flying a steady course at a reasonable height. The efficiency of "intruder" operations against the enemy bases was improved by co-operation with No. 2 Group (Bomber Command) even though it was short lived through postings overseas.

No. 12 Group
Op. Instr.
Nos. 32 and
35.

To combat enemy mine-layers operating from Flamborough Head to Yarmouth up to a distance of 50 miles out to sea, No. 12 Group instituted from the beginning of 1942, two operations - "Parchment" and "Subject" - both designed to intercept enemy aircraft by night en route to and over their minelaying areas. The first was carried out by single-engined aircraft, in co-operation with searchlights on the coast during the period of effective moonlight while the second was with Havoc aircraft accompanied by a single-engined aircraft intercepting by means of silhouette detection against the water during the non-moonlight period.

At best, however, these were but temporary expedients until such time as technical improvements in the sphere of raid reporting should provide the necessary amount of warning to enable defending fighters to locate and destroy the enemy. As in other fields of night defence, the solution to the

problem of the aerial minelayer had to wait upon technical developments.

(vi) Defensive measures against E-boats.

Difficult as it was to catch the aerial minelayer, an even greater problem was created by the use of E-boats in the dual role of sinking ships by torpedo attacks or mine-laying. Their activities illustrated both the difficulties confronting Fighter Command to provide an effective antidote and the limitations of its existing equipment.

Admiralty
NID/15/X.237

Constructed of wood with light metal covering fore and aft, these vessels were vulnerable enough if they could be hit, but their speed and manoeuvrability made this an accomplishment all too rare.

BR.1337

The number of E-boats employed against shipping in Home waters during the period under review was seldom more than twenty, but between July 1941 and February 1943 they managed to sink by torpedo attack, forty-four ships totalling 75,484 gross tons. The three fatal casualties among E-boats at this time was not due to any British air activity.⁽¹⁾

FC/S.26966
Encl. 1A

The difficulty of bombing accurately such small targets was recognised, but their vulnerability to cannon fire was also appreciated. In December 1941, No. 12 Group, Fighter Command put into effect Operation "Marksmen" designed to attack E-boats returning to base in daylight or damaged vessels which were unable to reach base under cover of darkness. The use of single-engined cannon fighters of No. 12 Group or even Beaufighters of No. 16 Group (Coastal Command) were used for this purpose. To overcome the difficulties of navigation and location by the fighter aircraft, Coastal Command aircraft led the fighter types to the target area. If the exact location of the E-boats was unknown or Coastal Command aircraft were not available, sweeps by cannon-fighters over the Texel, IJmuiden and Hook of Holland areas were undertaken.

No. 174 Sqdn.,
O.R.B.

A limited number of sorties under Operation "Marksmen" were flown by Fighter Command and an occasional shooting-up of E-boats as secondary targets by other anti-shipping aircraft of the Command was carried out, but with little or no success.⁽²⁾ Indirectly, the action of Fighter Command against enemy air reconnaissance hampered the E-boat operations and made anything but swift anti-shipping strikes hazardous.

(vii) Operations - July 1941 to February 1943

The similarity of tactics employed by enemy minelayers and long range bombers on anti-shipping sorties made it somewhat difficult at times to differentiate between their respective activities. An added complication was the practice adopted by the enemy, on occasions, of combining the two operations when attacking coastal objectives, thus permitting, only an arbitrary distinction to be made.

Unfortunately it has been found impossible, so far, to check the figures used in this chapter for direct attack at sea and minelaying sorties by reference to existing German records, the scanty nature of which will not permit any presentation by type of operations. Consequently, the figures relating to enemy sorties, attacks and casualties, are contemporary estimates derived from R.D.F. tracking, "Y"

(1) The causes were:-

S.41 on 19.11.41 - Foundered in tow after action with British M.T.Bs.

S.53 on 19.2.42 - Foundered after collision with another E-boat.

S.111 on 14.3.42 - Sunk in action with British M.G.Bs.

Ref. Admiralty NID/FDS. - X.237/48

- (2) Between January 1942 and February 1943, aircraft of Fighter Command flew ~~40~~¹⁹⁸ sorties specifically against E-boats at sea and made 57 attacks. In addition, 36 attacks were made by aircraft engaged on other duties which fortuitously sighted E-boats. On five occasions, casualties to personnel and damage to boats was inflicted, but no E-boat was lost. (Ref: Fighter Command Form Y and Admiralty NID/FDS. X.237/48).

service interception of enemy radio traffic, and claims by the defending forces.

Appendix XXXVI shows monthly totals of enemy sorties directed against coastal shipping in Home Waters with the number of attacks delivered and the Allied shipping sunk. Sorties flown by Fighter Command in aid of protection to shipping from direct attack have also been tabulated, with own losses and claims for casualties inflicted on the enemy both by fighters and ships guns.

Monthly totals of sorties flown by enemy minelayers are also shown, but in this case, it has not been possible to include results, as so far, differentiation between ships sunk by mines laid from the air and those laid by surface craft or U-boat, has not been completed.

FC/S.23680
AHB/IIG/98
Encl. 80A

July 1941

In reviewing the enemy's activities against shipping in Home Waters for the month of July, there are two items of special interest. First, there was a considerable all-round decrease in the number of enemy sorties and in the number of attacks made when compared with the previous month.⁽¹⁾ This was brought about, undoubtedly, by the withdrawals of enemy forces from the West for operations on the Eastern Front. Secondly, there was a further increase in the number of attacks delivered by night, a tendency already observed during the two previous months. From the latter it could be deduced that the enemy desired his depleted forces to avoid the attentions of Fighter Command aircraft and thereby reduce his losses, replacements for which were not easily forthcoming at this time.

There was a total of 79 attacks during the month of which 68 took place at night. The main enemy effort was directed off the Northumbrian and Durham coasts and the north coast of Norfolk. Eight ships totalling 6,888 gross tons were sunk by enemy aircraft of which five were accounted for during the hours of twilight or darkness.

9269/

Fighter Command's total protective effort for the month amounted to ~~400~~ sorties with but one casualty through enemy action. Claims by Fighter Command for casualties inflicted on enemy aircraft attacking shipping were:-

	<u>Destroyed</u>	<u>Probably Destroyed</u>	<u>Damaged</u>
By Fighters	4	2	1

The weather during the month of July was generally good for flying; on an average 80% of the days were fully operational.

Ibid.
Encl. 81A

August 1941

A further decrease in the total enemy effort was evident during August⁽²⁾ though the night activities, i.e. 450 sorties, was slightly in excess of the previous month. Two thirds of the total attacks took place during the hours of twilight or darkness and enemy successes were reduced to only two ships though their total tonnage of 6,662 gross tons nearly equalled

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- (1) June - Day 789 - Night - Not available.
July - Day 495 - Night 425.
(2) July - Day 495 - Night 425.
Aug. - Day 380 - Night 450.

last month's figure. Again, the major part of the enemy's effort was made in the areas off the coasts of Northumberland, Durham and Norfolk.

Either the gliding approach with engines throttled right back or the low beam approach at sea level continued to be used by the enemy in making attacks with but one exception. At 1530 hours on 2 August off Orfordness several bombs were dropped from above cloud base near a convoy, which was being shadowed by a second aircraft flying up and down the eastern horizon at 100/200 feet.

There was a slight reduction in the number of fighter sorties this month i.e. ~~8,168~~ compared with ~~9,269~~ for July, and the casualty rate rose to three aircraft of which one was due to enemy action and two to other causes not attributable to the enemy. Fighter Command's claims in enemy casualties also showed an increase over the July figure.

They were:-

	<u>Destroyed</u>	<u>Probably Destroyed</u>	<u>Damaged</u>
By Fighters	7	2	1

The weather during the month of August was very good; an average of 83% of the days were fully operational.

The problem of tackling the dawn and dusk raider was carried a step further during this month for at dusk on 29 August from Happisburgh, the first successful interception under C.H.L. control was accomplished.

ibid.
Encl. 82A

September 1941

During the month of September there was a slight increase in the number of enemy sorties against our shipping, both by day and night.⁽¹⁾ This appeared to be in part, due to the type of weather experienced and to the fact that the enemy made increasing use of the twilight hours for his attacks. There were 63 attacks during the month, of which 47 took place during the hours of twilight of darkness. Enemy successes rose to seven ships totalling 20,246 gross tons, all of which were sunk during the darkest periods. The major part of the enemy's effort was again off the East and North East coasts, but there was also a noticeable increase in the number of night attacks off the Western coastline, chiefly by enemy seaplanes. Of the total attacks, thirty-nine were directed against shipping in convoy.

The enemy's methods of attack was much the same as in previous months, but he continued to experiment. Several times during the month V.H.F./R.T. communication between three enemy aircraft attacking convoys was intercepted. This intercommunication was obviously used to assist in timing and concerting attacks in conditions of poor visibility. A torpedo attack was made off Flamborough Head by an He.111 in daylight on 9 September. This was the first attack of this kind recorded near the shores of Britain for some considerable time. From G.A.F. training activity it was evident that an increase in such attacks was to be expected in the future.

(1) August - Day 380 - Night 450.
September - Day 390 - Night 500.

SECRET

562

The weather during September was on the whole very good; an average of 82% of the days were fully operational; unfavourable coastal weather and sea mists hampered our fighters on occasions but appeared to have aided the enemy.

Fighter Commands total protective sorties i.e. ~~5971~~ ⁵⁹⁷¹, were the lowest recorded since the previous March, which as explained above was partly due to brief periods of unfavourable weather experienced at many of the coastal aerodromes.

Losses among our fighters only amounted to two aircraft, one of which was not due to enemy action. There was also a slight decrease in the claims for enemy casualties:-

	<u>Destroyed</u>	<u>Probably Destroyed</u>	<u>Damaged</u>
By Fighters	5	2	2

October 1941

ibid.
Encl. 83A

Due to the fact that I/KG.26, which usually operated off the Northumberland and Durham coasts, was inactive between 4 and 24 October, there was a marked decrease in the number of enemy sorties made against our shipping during the month of October, both by day and night.(1)

It became known that a third of this enemy unit had recently moved to the Russian front.

The estimated total enemy night effort on direct attack was smaller than the previous month, but an increased amount of minelaying was recorded. It was thought probable that this minelaying would be further developed during the winter as an alternative to the direct attack, because further G.A.F. units other than those who had always specialised in minelaying were now able to carry mines when required.

There were 41 attacks during the month, of which 33 took place during the hours of twilight or darkness. Twenty-two attacks were delivered against shipping in convoy.

Twenty-five incidents took place while fighters were patrolling in the vicinity of the shipping (13 by night, five by twilight and seven by day); of these, six (one by night, one by twilight and four by day) occurred while aircraft were actually patrolling the ship or convoy concerned.

On the traffic traversing the east and north east coasts fell the major part of the enemy's effort though there was a slight increase in the number of attacks on the West coast, all of which took place during the hours of darkness.

In the enemy's method of attack, increasing use of shadowing aircraft for reporting convoy positions was in evidence. The new Do.217 long range German bomber made more frequent appearances in shipping attacks during the month, Number II Gruppe/K.G.2. which was active on the East coast was now known to be wholly equipped with these aircraft. The use of R/T between enemy aircraft when attacking convoys, referred to above was also considerably developed during the month of October.

-
- (1) September - Day 390 - Night 500.
October - Day 280 - Night 320.

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Anti-shipping operations by direct attack and minelaying represented about 70% of the enemy's total night effort for the month. Six ships totalling 18,168 gross tons were sunk by enemy aircraft attack.

Protective sorties made by Fighter Command showed a further reduction i.e. ~~4,756~~ for October as compared with ~~5,971~~ ~~4,400~~ for September, while casualties remained at the low figure of two. Claims for casualties inflicted on the enemy were much the same as the previous month:-

	<u>Destroyed</u>	<u>Probably Destroyed</u>	<u>Damaged</u>
By Fighters	5	Nil	3

The weather was very good with an average of 84% of the days fully operational, though sea mists again hampered the efforts to intercept low flying shadowing aircraft.

ibid.
Encl. 84A

November 1941

An increase in the enemy's day effort and a substantial rise in the number of attacks were the outstanding features of operations against our coastal shipping during November. Though the enemy's night effort showed a decrease of 30% compared with October, this was counterbalanced by a corresponding increase in the number of minelaying aircraft.

There were 61 incidents during the month, of which 38 took place during the hours of twilight or darkness. Sixteen incidents occurred while fighters were patrolling in the vicinity of shipping (five by night, two by twilight and seven by day) of these, four (all by day) took place while aircraft were actually patrolling the convoy or ship concerned. Thirty nine of the total attacks were made against ships in convoy.

The north east coast appeared to bear the brunt of the enemy's effort. The most vulnerable areas were from the Naze to Happisburg and Mablethorpe to Flamborough. The area between Cromer and the Wash was strangely untenanted.

An increasing number of attacks were carried out without any adequate R.D.F. warning, which rather confirmed a long suspected theory that the German anti-shipping units were instructed to fly at sea level until a convoy was sighted and then rise to a height sufficient to make a dive or glide attack and release their bombs from 2,500 feet.

Air attack was again made on two convoys while passing one another, and on that occasion the enemy aircraft were warned by their control of the presence of a fighter escort. The enemy aircraft waited to seaward of the convoys for half an hour until our fighters had withdrawn, before carrying out their attack. Five ships totalling 10,262 gross tons were sunk during the month as a result of enemy aircraft attacks.

Defensive patrols by Fighter Command were somewhat curtailed by sea mists and coastal fogs, and in consequence sorties were reduced to a total of ~~4,366~~ for the month. No fighters were lost by enemy action, but there were two casualties through other causes. For the first time during the period under review there were no claims by Fighter Command aircraft of enemy casualties under the headings of destroyed or probably destroyed; only seven were claimed as damaged.

The weather during November was good inland with an average of 75% of the days fully operational, but as already mentioned, coastal fogs curtailed operations to some extent.

December

ibid.
Encl. 86A

During the month of December there was a considerable decrease in the scale of enemy effort against our shipping in Home Waters as compared with the previous month. Attacks carried out in the twilight period, however, showed an increase of some 16% over those in November.

The total number of direct attacks in December was 33, and represents the lowest figures since February 1941. Only one ship of 570 gross tons was sunk during the month. This was offset, however, by the loss of 17 ships of 58,065 gross tons by enemy minelaying of all kinds in Home Waters.

Of the thirty three incidents, 27 took place at twilight or at night. Seven attacks occurred while fighters were patrolling in the vicinity of shipping (five by night and two by twilight), but there were no attacks while aircraft were actually patrolling convoys or ships. Sixteen of the total attacks were directed against shipping in convoy.

Most of these attacks were directed against shipping off the North East coast between Montrose and Rattray Head, and off the West coast, between St. David's Head and Bardsey Island.

The high percentage of attacks without R.D.F. warning clearly showed that the enemy continued to adopt a sea level approach to the convoy's position. Aircraft approaching the coast at 50 to 100 feet could not generally be detected by C.H.L. Stations, and the enemy was no doubt taking full advantage of this weakness in our R.D.F. cover.

In good weather conditions Fighter Command put-up ~~7,000~~ 4,128 protective sorties and lost only one aircraft by enemy action. Casualty claims on the enemy was also small amounting to two aircraft destroyed.

ibid.
Encl. 87A

January 1942

Although there was a slight decrease in the total enemy effort of direct attack during January, activities by day showed a substantial increase on that of the preceding month.⁽¹⁾ A considerable diminution in the number of minelaying sorties was also recorded.⁽²⁾

The total number of direct attacks (32) was only one below the figure for December (33) but successes were greater and amounted to three ships of 9,262 gross tons. Enemy mining also accounted for eleven ships of 10,079 gross tons during the month.

There was a total of 32 attacks during January, of which 20 took place during the hours of twilight and darkness. Nineteen incidents occurred without adequate warning and eighteen while fighters were patrolling in the vicinity of shipping (three by night, ten by twilight and five by day); of these, two (one by twilight and one by day) occurred while aircraft

-
- (1) Sorties for December 1941 - Day 244 - Night 230 = 474.
Sorties for January 1942 - Day 314 - Night 138 = 452.
 - (2) Minelaying sorties - December 1941 - ~~2000~~ 400.
Minelaying sorties - January 1942 - ~~2000~~ 180.

were actually patrolling the convoy or ship concerned. One attack was reported as being delivered by torpedo carrying aircraft which dropped bombs but no torpedoes, and masters of merchant vessels also reported that enemy seaplanes had alighted on and took off from the water in the South-Western Approaches. Thirteen of the attacks were made on ships in convoy and the remaining 19 against independents.

Fighter Command flew 3,260 defensive shipping sorties by day and 324 by night, during which claims were made for one enemy aircraft destroyed and one damaged. Own losses amounted to only one aircraft not due to enemy action.

The weather during January was good on the whole, but the prevalence of cloud allowed hostile aircraft too often to escape.

February 1942

ibid.
Encl. 89A

During February, the enemy's effort both by day and night showed a substantial increase on that of the preceding four months.(1) This increase was mainly accounted for by the resumption of the moderately large scale attacks off the East Coast. On five separate days during the month the enemy took advantage of low cloud cover to operate comparatively large numbers of aircraft (15 to 35) in quick succession.(2) Although the weather was operational for fighters, it was particularly favourable for attacks on shipping which took place between 1,200 hours and 1600 hours, and were carried out by units which normally acted as mine-layers by night. Even aerial minelaying during daylight was carried out on occasions.

There were 41 attacks during the month, of which eleven took place during the twilight and dark periods. Seventeen incidents occurred without adequate warning of the presence of enemy aircraft. While fighters were patrolling in the vicinity of shipping, twenty-nine incidents took place and of these, twelve (three by twilight and nine by day) occurred while aircraft were actually patrolling the ship or convoy concerned. Attacks were almost equally divided between ships in convoy (20) and independents (21).

There was a noticeable change in enemy reconnaissance tactics during the month in as much as aircraft no longer flew up and down the convoy lanes, but instead appeared to prefer flying parallel to and up to 100 miles from the coastline with only occasional deviations towards the convoy lanes.

The enemy's increased effort did not bring a corresponding increase in Allied shipping losses in Home Waters, for only two ships totalling 3,700 gross tons were sunk during the month.

Protective sorties by Fighter Command showed an identical increase, 4,246 sorties by day and 442 sorties by

-
- (1) Sorties for:-
- | | | | | | |
|--------------|-------|-----|---------|-----|-------|
| October 1941 | - Day | 280 | - Night | 320 | = 600 |
| November " | - " | 334 | - " | 216 | = 550 |
| December " | - " | 244 | - " | 230 | = 474 |
| January 1942 | - " | 314 | - " | 138 | = 452 |
| February " | - " | 491 | - " | 153 | = 644 |
- (2) On 2 February (35 A/C), 5 February (25A/C), 6 February (25 A/C), 17 February (15A/C) and on 18 February (25A/C).

night. Again our losses only amounted to one aircraft which was not due to enemy action; on the other hand claims for enemy casualties inflicted by Fighter Command aircraft were six destroyed and eight damaged.

ibid.
Encl. 90A

March 1942

While maintaining the previous month's increase in effort the enemy changed the area of attacks from the east to the south coast with but poor results. Only two ships totalling 884 tons were sunk. The day effort (465 sorties) was notable for a decrease in the use of twin-engined aircraft and for the extensive use of Me.109 bombers which flew in at sea level and thus avoided detection by R.D.F. The total effort included a considerable increase in the enemy's night activities (220 in March as compared with 153 in February).

Thirty-one attacks were delivered during the month of which eighteen occurred either at night or during the twilight periods. Nineteen incidents took place without adequate warning of the presence of enemy aircraft. Only one attack by day occurred while aircraft were actually patrolling the convoy concerned, but eleven incidents took place while fighters were patrolling in the vicinity of shipping. Thirteen of the total attacks were made against ships in convoy, the remainder on independents.

Fighter Command flew 3,370 protective sorties by day and one 389 by night and although many contacts with the enemy were made there were but few combats, mostly owing to cloud conditions. Total losses among the aircraft engaged on this commitment amounted to six but only one was due to enemy action. The enemy appeared to have had a respite this month by way of casualties as there was only one claim for damage.

April 1942

ibid.
Encl. 91A

Attacks against coastal shipping in April were fewer than for many months. This was partly due to lack of suitable cloud cover; for although the number of enemy sorties flown during daylight (486) were a little more than in March (465) many aircraft did not come near the coast. A decrease in the enemy's night effort coincided with an increase in his reprisal raids overland during the second half of the month. On the south coast low flying Me.109 Bombers continued their activity with little material success.

There were ten attacks during the month of which one took place at night and one at twilight. Nine incidents occurred without adequate warning of the presence of enemy aircraft. No attacks took place while aircraft were actually patrolling convoys or ships, but two incidents occurred while fighters were patrolling in the vicinity. Attacks were equally divided between ships in convoy and those sailing independently. No ships were sunk in coastal waters by air attack during this month, but five ships of 9,710 gross tons were lost by mine.

Fighter Command flew 3,994 sorties by day and 448 sorties by night claiming two enemy aircraft destroyed, one probably destroyed and one damaged. Own losses, only amounted to two, of which one was due to enemy action.

May 1942

ibid.
Encl. 92A

More favourable weather conditions during May allowed the enemy to increase his effort both by day and night (515 sorties by day and 133 by night) and attacks also reached the average level, i.e. about 30 (24 by day, four by night, two by twilight).

No attacks occurred while aircraft were actually patrolling convoys or ships, but nine incidents took place while fighters were in the vicinity of shipping. Twenty-six attacks were delivered without adequate warning of the presence of the enemy. Of the total attacks, twelve were against shipping in convoy, the remainder against ships sailing independently. For the second month in succession no Allied ships were lost by enemy air action in coastal waters and only three ships totalling 364 gross tons were sunk by mines.

Fighter Command flew 3,680 defensive shipping sorties by day and 208 by night and claimed seven enemy aircraft destroyed, two probably destroyed and six damaged. Own losses totalled four, all of which occurred through causes other than enemy action.

June 1942

ibid.
Encl. 94A

Enemy activity declined sharply by day during June but increased a little by night (419 sorties by day 170 sorties by night). The movement of enemy units and a change of tactics to land bombing appeared to be the main contributions towards the reduction of effort. Devoting the major portion of the anti-shipping effort to the Arctic convoys, the attacks on shipping in Home Waters were made mostly by Me.109 Fighter-bombers.

There were twelve incidents during the month of which two took place at night and five by twilight. Three attacks occurred while aircraft were actually patrolling the ship or convoy concerned and nine took place while fighters were in the vicinity. Five of the attacks were delivered without adequate warning of the enemy's presence. Eight attacks were made on shipping in convoy the remainder against independents. Only one ship of 345 gross tons was the victim of air attack during the month but four ships totalling 2,310 gross tons were lost by mines.

Fighter Command flew 4,066 sorties by day and 269 by night. Moderate success was claimed - two enemy aircraft destroyed, two probably destroyed and four damaged - but fighter bombers took full advantage of cloud cover to get away quickly. Own losses totalled five, of which two were by enemy action.

July 1942

ibid.
Encl. 95A

In July the enemy's total effort against coastal shipping was the highest of the year (628 sorties by day and 200 by night).

Attacks increased by 100% over June, most of which occurred in the Channel area. The enemy's fighter-bombers appeared to have been reinforced and managed to sink two ships totalling 1,460 gross tons. Lack of warning of low flying aircraft was still a great handicap in the successful interception of these raids. Patrolling fighters found considerable difficulty in spotting the fast low flying fighter-bombers (Me.109s and F.W. 190s usually in pairs or fours) who were well camouflaged and hard to detect in hazy conditions. Long range bombers made their attacks from 2,000 feet.

There were twenty-four attacks during the month of which one occurred at night and four by twilight. Nineteen incidents took place without adequate warning. Four attacks occurred while aircraft were actually patrolling the ship or

convoy concerned. Of the total attacks, seven were made against ships in convoy, the remainder on independent shipping.

Fighter Command flew 4,009 sorties by day and 173 by night, claiming six enemy aircraft destroyed and two damaged. Own losses totalled five, of which only one was due to enemy action.

August 1942

ibid.
Encl. 98A

Although the enemy stepped-up his total effort still further in August (649 sorties by day and 238 by night), increased success did not materialise. Fighter-bomber sorties appeared to decline but those of the long range bombers increased, due largely to the temporary return of III/K.G.26 from Norway to Western France. Good defensive fire power of the ships and the inaccuracy of the attacks resulted in no ship sinkings for the month. Neither were there any losses by mine.

Only eleven attacks were made during the month of which three took place at twilight. One occurred while aircraft were actually patrolling the convoy concerned. Lack of adequate warning of the presence of the enemy occurred on seven occasions. Shipping in convoy was subjected to four attacks; the remainder were made against independent ships. As in previous months attacks were limited to the south coast.

Fighter Command flew 3,054 sorties by day and 144 by night but without success; nor suffered any casualties.

September 1942 - February 1943

ibid.
Encl. 99A - 105A

With the exception of October, the enemy's total effort against coastwise shipping underway within Home Waters from September onwards, gradually declined.⁽¹⁾ Although a total of seventy-three attacks (69 by day and 4 by night) were made during this five-monthly period, there were no further ships sunk.

The enemy's attention appeared to be transferred to concentrations of vessels in harbours such as Dartmouth and Poole with limited success.

Aerial Minelaying was continued on a very modest scale until the end of the year but was stepped-up to 95 and 98 sorties respectively for the first two months of 1943.⁽²⁾

Fighter Command continued to fly protective sorties by day and by night, the latter only up to the end of the year, but decreased their effort in accordance with the demands.⁽³⁾ Their encounters with enemy aircraft also declined and only during two months of this period were there any claims of success

(1)	Enemy sorties were:-	Sept.	by day	480	-	by night	187
		Oct.	" "	574	-	" "	122
		Nov.	" "	417	-	" "	40
		Dec.	" "	340	-	" "	33
		Jan. 1943	" "	362	-	" "	41
		Feb.	" "	323	-	" "	25

(2) Losses of Allied merchant ships by all forms of enemy mine-laying for the period September 1942 to February 1943 was seven ships totalling 2,816 gross tons.

(3)	Fighter Command sorties:-
	Sept. 1942 by day 2737 - by night 108
	Oct. " " " 2178 - " " 63
	Nov. " " " 1879 - " " 94
	Dec. " " " 1549 - " " 47
	Jan. 1943 " " " 1384 - " " Nil
	Feb. " " " 1599 - " " Nil

(November three destroyed. February 1943 - four destroyed two probably destroyed). Our losses during the period amounted to eight aircraft of which only two were due to enemy action.

(viii) Conclusion

With the exception of the first four months of the enemy's renewed offensive against shipping in Home Waters, (1) the campaign as a whole must be regarded as a failure.

When an advantage against Allied shipping could have been gained, the necessary air forces were not available for this commitment and the chance of any decisive success was allowed to slip away through preoccupations in other spheres.

Training of new aircrew for anti-shipping operations was poor - with the exception of the torpedo arm in 1942 - and to this must be added the constant wastage of experienced crews by their diversion to land bombing by night.

The possibilities of success in Home Waters, especially in torpedo-bomber attacks, were never realised for two reasons. Firstly because the torpedo carrying aircraft were transferred to Norway after their initial operation, and secondly, because available anti-shipping aircraft were often frittered away on land target bombing operations.

The G.A.F., therefore, with its wide commitments on the Russian and Mediterranean fronts, no longer had the power of concentration, and continued losses of experienced anti-shipping crews and material on other operations led to a steady decline in their striking power which existing training facilities appeared unable to overcome.

There is no denying the fact that this campaign led the Home Command to concentrate a substantial fighter force for the protection of shipping in Coastal Waters. As can be seen from Appendix XXXVI Fighter Command flew approximately 80,000 sorties during the period on this commitment alone, which appeared to be far in excess of those needed to combat the limited German force left in the west.

The problem of intercepting and destroying enemy raiders especially the very low level fighter-bomber and aerial mine-laying remained unsolved, but it appeared to be answerable by the technician, rather than the tactician. Once the development of low-level scanning was successfully accomplished, the major difficulties of the defending fighters would be largely mitigated.

Until such time, however, it seemed that the only alternative was a surfeit of preventative sorties, which, although monotonous to the forces concerned appeared to be justified by the failure of the G.A.F. to make any but a slight impression on the amount of shipping maintained in coastal waters.

(1) From March to June 1941, enemy aircraft sunk ^{63 merchant} ~~something~~ ships totalling 173,534 gross tons in Home Waters ^{within} 40 miles of our coasts.

SECRET

~~562~~ 570

Fighter
Command
Form "Y"

It was not until January 1942, that aircraft of Fighter Command participated in a planned offensive against German E-boats. Prior to this date fighter aircraft during the course of other duties attacked these small targets with machine gun and cannon fire whenever they were encountered. Between January 1942 and February 1943, the enemy was attacked on fifty-three occasions by aircraft of Fighter Command employed specifically on Anti-E-boat operations, and on thirty-six occasions by other fighter aircraft, but failed to inflict anything more serious than damage to some of the boats and casualties among the personnel.

Admiralty
NID/FDS
X.354/50
and
X.237/48

The Senior Officer E-boats in his report to higher authority dated June 1942, commented for the first time on the presence of enemy air forces. He stated:- "The strength of the enemy air forces compels E-boats to operate more and more in the dark hours". In a subsequent report dated October 1942, a further comment on the same subject stated:- "Torpedo attacks by E-boats cannot be carried out during the periods of full moon in the Dover Strait owing to the presence of enemy night fighters equipped with radar".

From these two remarks, plus the fact that no fatal casualties were inflicted on E-boats, it thus appears that while fighter aircraft did not, so far, constitute any major threat to E-boat operations, they had nevertheless driven the E-boats to confine their activities to the darkest periods of the month.

SECRET

571

(ix) E-boat operations and R.A.F. Counter-measures -
July 1941 to February 1943

War Diary
of
F. d S.

ibid

During the last five months of 1941, the Germans commissioned three new flotillas of E-boats (5th, 6th and 8th). This, together with the release of the 1st, 2nd and 3rd Flotillas from Baltic operations, led F. d S. to hope for a much greater scale of attack on British coastal shipping but the High Command decreed otherwise. Hitler insisted on the transfer of flotillas to Northern Norway and to the Mediterranean. Consequently the 4th Flotilla continued alone during August, first from Boulogne when one ship was sunk out of convoy CW.45 off Dungeness on the night of the 11th and then from Rotterdam after mid-August when a ship was sunk from convoy FN.507 off Cromer on the night of 20 August. During September the 2nd Flotilla joined up at Rotterdam. Two convoys were attacked during the month, both off Cromer, in which three ships were sunk and one damaged. For a while the 4th Flotilla was moved to Cherbourg in October but by the end of the month both flotillas were operating from Rotterdam again. Only one convoy was attacked successfully, this being FN.531 some 20 miles east of Cromer on the 12th when two ships were sunk. November was the E-boats' best month since March. Four convoys were attacked on different nights between Cromer and Southwold resulting in seven ships of 17,715 tons being sunk.

During one of these convoy actions (19/20 November) S.41 was severely damaged by destroyer gunfire. She was taken in tow by another E-boat but foundered soon afterwards to the northeast of Yarmouth. Although several E-boats have been claimed as sunk during these 1941 attacks on east coast shipping, this constituted the only loss suffered by them during the whole year.

H.Q.C.C.
Narrative
and
No. 16 Grp.
O.R.B.

F.C.
S.26966
Encl. 1A

Air patrols in the southern part of the North Sea at dawn, dusk and on moonlight nights continued during the last half of 1941 but on a diminishing scale. A total of 89 sorties were despatched but only resulted in one inconclusive attack. There were, however, 51 attacks made by Fighter or Coastal Command aircraft on other tasks who fortuitously sighted E-boats. None inflicted any damage. In December 1941, No. 12 Group Fighter Command introduced an operation designated "Marksmen" whereby single engined cannon fighters were used on occasions to sweep at dawn for E-boats returning to base late or in a damaged condition and unable to make harbour under cover of darkness.

C.C.
S.15206
Encl. 12A

The end of year E-boat activity was of considerable concern to both Air and Naval authorities. The matter had been raised at the 29th meeting of the Admiralty Trade Protection Committee but there had by the end of December been little progress towards solving the problem of interception and attack. The convoy route off East Anglia was of necessity so far distant from the shore that warning of the approach of these small craft could not be relied upon by shorebased radar in time to enable naval forces to intercept. Regarding the employment of aircraft, the foggy nights so often utilised by E-boats invariably had either grounded the air forces or made any form of low level attack impracticable.

In the Dover area, a Type 271 10 c.m. radar station had enabled many naval interceptions to take place and it was, therefore, suggested by the R.A.F. Liaison officer at Dover

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that a similar scheme be tried off the east coast but using a Whitley aircraft fitted with long range A.S.V. instead of the shore radar.⁽¹⁾ If this aircraft could be in V.H.F. communication from a C.H.L. station, the information which it provided could be converted into a running plot and utilised for controlled interception by light naval forces. This scheme was tried in co-operation with M.G.Bs based on Yarmouth between 8 and 14 February 1942 and showed great promise.

ibid
Encl.27A

In further examination of the possibilities and to discuss any other suggestions the A.O.C.-in-C. Coastal Command held a conference at his headquarters on 19 February which was attended by representatives of the Admiralty, Air Ministry, Coastal Command, the Nore Naval Command, No. 10 Group Fighter Command and T.R.E. After much discussion, it was agreed that the best method of control under existing circumstances was direct between the A.S.V. aircraft, No. 16 Group Coastal Command and the Nore Command. To assist the aircraft in determining its exact position a system of A.S.V. beacons was suggested and adopted with a request that this be put to the Air Ministry as an operational requirement. After the A.S.V. aircraft had located E-boats, a sighting report was to be sent to No. 16 Group from whence it would, through the Nore Command, be used to direct M.G.Bs already positioned in waiting groups lying 25 to 30 miles off shore. It was estimated that the M.G.Bs would receive directive orders within five minutes of the aircraft's first report. As additional means of guiding the M.G.Bs to the position it was agreed that the aircraft should carry flares and lay a line from the target towards the advancing M.G.Bs which would not only provide a final visual indication but illuminate the target itself.

ibid
Encl.32A

The conference stressed that the above scheme was made as simple as possible but refinements could be introduced in the light of actual experience. The scheme was known as operation "Hoden" and issued to all concerned on 1 March 1942. The details followed closely the lines suggested in the conference with the provision that, as well as surface craft, Beaufighters or Hudsons could be used for offensive action. The reconnaissance A.S.V. aircraft were given a patrol area between 5200N and 5310N latitudes extending from East Anglia to the Dutch coast.

No.16 Grp.
O.R.B.
from March
to June 1942.

The first sorties on Operation Hoden were flown on 10 March 1942 but owing to the acute shortage of A.S.V. aircraft only 22 sorties were subsequently despatched up to the end of June and no E-boats were located. This lack of result was not only due to the tiny effort employed but to the fact that E-boat operations off the East Coast were at a low ebb during the first half of 1942 and late in June were transferred entirely to the Western Channel.

The year 1942 opened with only the 2nd and 4th Flotillas totalling 12 boats operating from Rotterdam. The 8th Flotilla was in Northern Norway, the 3rd Flotilla en route to Sicily

-
- (1) The long range A.S.V. was expected to give the following results:-
- (a) On low coast lines - land returns up to 40 miles.
 - (b) On E-boat groups - contacts at 20 miles.
 - (c) On A.S.V. beacons for fixes - up to 100 miles.
 - (d) On navigational buoys - no recognisable contacts.

War Diary
of
F. d S.

via the Rhine canal system, the 6th Flotilla still under training, and the 1st and 5th Flotillas refitting and under trials at Kiel. The G.A.F. was by now caught up in the Russian Campaign and very little reconnaissance co-operation was available so that with the E-boat strength at its lowest figure it is not surprising that few attacks were made between December 1941 and June 1942, and only one merchant ship was sunk.⁽¹⁾

However, the slender E-boat force was not idle. As direct attack was difficult in default of G.A.F. location reports, increased minelaying was undertaken both off our east coast and along our English Channel coast. During this same period there were 214 sorties on this task in the course of which 1,244 mines were laid. The approximate positions of these lays are known by reference to the E-boat Command War Diary and it is possible to allocate about 12 merchant ships of 27,000 tons as victims to these mine fields out of the total of 24 ships lost on mines around our coasts during the first six months of 1942.

F.C.
No.174 Sqdn.
O.R.B.

Air countermeasures were undertaken almost entirely by Fighter Command there being only 29 sorties by Coastal Command with no attacks. Under Operation Marksmen Fighter Command despatched 57 sorties of which 31 attacked and on 22 other occasions attacks were made by aircraft on other missions. No damage was inflicted on any E-boat.

Many engagements took place between our own light naval forces and E-boats resulting in numerous claims to have sunk E-boats. In fact only two were lost. S.53 was scuttled following a collision with S.39 during an action off Yarmouth on 19/20 February and S.111 after sustaining damage in action east of Cromer was intercepted early on 15 March 10 miles west of Ymuiden and sunk by M.G.Bs.

War Diary
of
F. d S.

On the 28 June 1942, the available E-boats, totalling not more than twelve, were moved to Cherbourg for mining and torpedo operations against our south coast convoys. Convoy WP.183 was attacked early on 9 July when 25 miles southwest of Portland Bill. Five merchant ships and an armed trawler were sunk with no loss to themselves. August saw a redistribution of the E-boats back to Dutch ports and both minelaying and some torpedo operations took place off the East Coast during this month and September. However, no success against merchant shipping was scored either by mine or torpedo. During these three months, Fighter Command despatched 27 sorties against E-boats. Four attacks were made and in addition there were 14 more by aircraft on other missions. No damage was inflicted.

C.C.
S.15213
Encl.117A

The appearance of E-boats in the Channel early in July had prompted the Admiralty to place on trial some Albacores of the Fleet Air Arm to supplement, particularly at night, the Fighter Command sorties in the Dover Strait area. Being already fitted with V.H.F. radio these Albacores, armed with 100 lb. bombs, were eminently suited for vectoring on to a target by the Ground Control Interception in this area under

(1) This was S.S. Horseferry (Br.) - 951 tons to the N.E. of Yarmouth on 11 March 1942.

No. 11 Group Fighter Command. However, no interceptions were made during July and as recounted the E-boat flotillas were moved back into the North Sea in August.

From October 1942 there was much increased E-boat activity occasioned by the arrival from Germany of the 5th and 6th Flotillas where they had been refitting and training. Half the force operated in the Western Channel and half in the North Sea. During the last three months of 1942 four convoys were attacked in the Plymouth area resulting in the sinking of four cargo vessels, one destroyer and three armed trawler escorts and between Lowestoft and Cromer four convoys lost nine cargo vessels sunk and three seriously damaged. Two M.T.Bs were lost in action against these E-boats. In the period Fighter Command aircraft carried out 54 sorties and made 18 attacks. Coastal Command despatched 41 sorties but only two attacks resulted. In no case, either by air attack or in the frequent engagements with naval light forces, was any E-boat sunk although there were some cases of slight damage.

War Diary
of
F. d S.

O.R.Bs of
No.16 Grp. C.C.
and
No.174 Sqdn.
F.C.

During the first two months of 1943 E-boat activities slackened off because of bad weather in January and the protracted escort up Channel during February of a returning surface auxiliary raider. There was also a reappraisal of E-boat tactics. In his War Diary, F. d S. noted that the time had passed when groups of E-boats could lie at night waiting near navigational marks for convoys to appear. The increasing use of radar in British escort vessels had now made this impossible. Instead, E-boat strikes had to leave harbour at high speed direct for a pre-conceived target and all sorties must leave at nightfall and return before daylight owing to the British air patrols. Attacks by these aircraft had not so far been lethal but it was stupid to go on offering them daylight targets and expect continued immunity. Moreover such sightings when sorties were setting out gave the British gratuitous warning of the intended operation.

War Diary
of
F. d S.

O.R.Bs of
No.12 Grp. F.C.
and
No.16 Grp. C.C.

No attacks were made by E-boats during January and only one success occurred in February. This was an attack in Lyme Bay on convoy WP.300 in which one merchant vessel and two escorting armed trawlers were sunk. Coastal Command flew 16 sorties during the two months for one attack and Fighter Command 60 sorties for four attacks. No damage was inflicted. Several naval claims were made but only S.71 was sunk. This was in a destroyer action on 17 February near No. 4 buoy east of Lowestoft.

COASTAL COMMANDORDER OF BATTLE15th June, 1941

Benson No. 1 Photographic Reconnaissance Unit Spitfire/Blenheim

No. 15 Group H.Q. Liverpool

Aldergrove		No. 254 Squadron	Blenheim F.
"	x	No. 233 Squadron	Hudson
"		No. 143 Squadron	Beaufighter
Limavady	x	No. 502 Squadron	Whitley
"	x	No. 224 Squadron	Hudson
"	x	No. 221 Squadron	Wellington
Nutts Corner		No. 120 Squadron (forming)	Liberator
Lough Erne	x	No. 209 Squadron	Catalina
"	x	No. 240 Squadron	Catalina
Hooton Park	x	No. 48 Squadron (Part)	Anson
Oban	x	No. 210 Squadron	Catalina
Port Ellen,	x	No. 48 Squadron (Part)	Anson
Islay			
Bowmore, Islay//		No. 119 Squadron	C. and G. flying boats
Iceland		No. 98 Squadron	Battle/Hurricane
"	x	No. 204 Squadron	Sunderland
"	x	No. 269 Squadron (Part)	Hudson
"		No. 330 Squadron Norw. (forming)	Northrop

No. 16 Group H.Q. Chatham

North Coates		No. 22 Squadron	Beaufort
"		No. 86 Squadron	Beaufort
Bircham Newton		No. 206 Squadron (Part)	Hudson
"		No. 248 Squadron	Blenheim F.
"		No. 500 Squadron	Anson/Blenheim G.R.
"		No. 1403 Met. Flight	Blenheim
Detling		No. 59 Squadron (Part)	Blenheim G.R.
"		No. 816 Squadron F.A.A. (Part)	Swordfish
Thorney Island		No. 59 Squadron (Part)	Blenheim G.R.
"		No. 816 Squadron F.A.A. (Part)	Swordfish
"		No. 404 Squadron R.C.A.F. (forming)	Blenheim F.
"		No. 407 Squadron R.C.A.F. (forming)	Blenheim F.

No. 18 Group H.Q. Pitreavie Castle

Sullom Voe //		No. 201 Squadron (Part)	Sunderland
Wick //		No. 269 Squadron (Part)	Hudson
" //		No. 220 Squadron	Hudson
" x		No. 612 Squadron	Whitley
"		No. 1406 Met. Flight	Spitfire
"		"C" Flight P.R.U.	Spitfire/Blenheim
Invergordon //		No. 201 Squadron (Part)	Sunderland
Dyce		No. 235 Squadron (Part)	Blenheim F.
Leuchars		No. 42 Squadron	Beaufort
"		No. 320 Squadron Dutch	Hudson/Anson
"		No. 114 Squadron B.C. (on loan)	Blenheim G.R.
Thornaby //		No. 608 Squadron	Blenheim G.R.
Stornoway x		No. 48 Squadron (Part)	Anson
Hatston		No. 812 Squadron F.A.A.	Swordfish
Sumburgh		No. 235 Squadron (Part)	Blenheim F.

No. 19 Group H.Q. Plymouth

St. Eval	//	No. 217 Squadron	Beaufort
"		No. 53 Squadron	Blenheim G.R.
"		No. 236 Squadron (Part)	Blenheim F.
"	//	No. 206 Squadron (Part)	Hudson
"		No. 1404 Met. Flight	Blenheim
"		"B" Flight P.R.U.	Spitfire/Blenheim
Pembroke Dock x		No. 10 Squadron R.A.A.F.	Sunderland
Carew Cheriton x		No. 236 Squadron (Part)	Blenheim F.

No. 200 Group Gibraltar

//	No. 202 Squadron	London/Catalina/Swordfish
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West Africa

Freetown	x	No. 95 Squadron	Sunderland
Bathurst	x	No. 200 Squadron	Hudson

Note:- x Signifies Squadrons almost exclusively employed on A/U duties.

// Those intermittently so employed.

Establishment, Strength and Average Daily Availability during June

	<u>I.E.</u>	<u>I.R.</u>	<u>Serviceable</u>	<u>U/S</u>	<u>Average Availability</u>
9 Flying boat Squadrons.	65	7	45	19	17
26 G.R. and Fighter Squadrons.	495	25	408	110	281
	560	32	453	129	298
2 F.A.A. Squadrons	18	-	16	2	7
TOTALS	578	32	469	131	305

3 Met. Flights of total I.E. 5 plus 3 I.R. and 2 P.R.U. Flights of total I.E. 8 plus 4 I.R.

N.B. No. 120 Liberator, No. 404 Blenheim, No. 407 Hudson and No. 330 Northrop Squadrons were forming. (Total I.E. 61 plus 8 I.R. and strength 26 aircraft).

References { C.C. Location Statement
Air Ministry Operational Squadron States. Vol. 4.
Air Ministry Daily Strength. Vol. 6.

COASTAL COMMANDORDER OF BATTLE15th June, 1942

<u>Benson</u>		No. 1 Photographic Reconnaissance Unit	
<u>Gibraltar</u>	x	No. 202 Squadron	Catalina/Sunderland
	x	No. 233 Squadron (Part)	Hudson
		No. 1 P.R.U. (Part)	Spitfire/Mosquito/Maryland
<u>Iceland</u>			
Kaldadarnes	x	No. 269 Squadron	Hudson
Reykjavik	x	No. 612 Squadron	Whitley
"	x	No. 330 Squadron Norw. (Part)	Northrop/Catalina
"		No. 1407 Met. Flight	Hudson
<u>No. 15 Group H.Q. Liverpool</u>			
Aldergrove	x	No. 206 Squadron	Hudson
"		No. 1402 Met. Flight	Hudson/Spitfire/Gladiator
Tiree	x	No. 224 Squadron	Hudson
Lough Erne		No. 119 Squadron (re-forming)	Catalina
"	x	No. 201 Squadron	Sunderland
"		No. 422 Squadron R.C.A.F. (forming)	Catalina
Nutts Corner	x	No. 120 Squadron	Liberator
"	x	No. 220 Squadron	Fortress
Oban	x	No. 228 Squadron	Sunderland
"		No. 423 Squadron R.C.A.F. (forming)	Sunderland
Stornoway	x	No. 500 Squadron	Hudson
<u>No. 16 Group H.Q. Chatham</u>			
Bircham Newton		No. 235 Squadron	Beaufighter
"		No. 407 Squadron R.C.A.F.	Hudson
"		No. 320 Squadron Dutch	Hudson
"		No. 1401 Met. Flight	Hudson/Mosquito/Spitfire/Gladiator
"		No. 279 Squadron	Hudson Air/Sea Rescue
North Coates		No. 59 Squadron	Hudson
"		No. 415 Squadron R.C.A.F.	Hampden
Wattisham		No. 236 Squadron	Beaufighter
Thorney Island		No. 233 Squadron (Part)	Hudson
"		No. 489 Squadron R.N.Z.A.F. (forming)	Hampden
"		No. 143 Squadron	Blenheim/Beaufighter
Detling		No. 280 Squadron (forming)	Anson Air/Sea Rescue
<u>No. 18 Group H.Q. Pitreavie Castle</u>			
Dyce		No. 254 Squadron	Blenheim F.
"		No. 404 Squadron R.C.A.F.	Blenheim F.
Leuchars		No. 144 Squadron (training)	Hampden
"		No. 455 Squadron R.A.A.F. (training)	Hampden
"		"H" Flight P.R.U.	Mosquito/Spitfire
Sullom Voe //		No. 210 Squadron	Catalina
Sumburgh		No. 248 Squadron	Beaufighter
Wick //		No. 608 Squadron	Hudson
" //		No. 48 Squadron	Hudson
" //		No. 86 Squadron	Beaufort
" //		No. 1406 Met. Flight	Hudson/Spitfire
" //		"C" Flight P.R.U.	Mosquito/Spitfire
Woodhaven //		No. 330 Squadron Norw. (Part)	Catalina amphibian

No. 19 Group H.Q. Plymouth

Mount Batten	x	No. 10 Squadron R.A.A.F.	Sunderland
"		No. 461 Squadron R.A.A.F. (forming)	Sunderland
St. Eval	x	No. 502 Squadron	Whitley
"	x	No. 53 Squadron	Hudson
"	x	No. 58 Squadron	Whitley
"		No. 1404 Met. Flight	Hudson
"		"B" Flight P.R.U.	Spitfire/Blenheim
Chivenor	x	No. 172 Squadron	Wellington Leigh Light
"	x	No. 51 Squadron B.C. (on loan)	Whitley
"	x	No. 77 Squadron B.C. (on loan)	Whitley
Talbenny	x	No. 311 Squadron B.C. Czech (on loan)	Wellington
Dale	x	No. 304 Squadron B.C. Polish (on loan)	Wellington

Note:- x Signifies Squadrons almost exclusively employed on A/U duties.

// Those intermittently so employed.

Establishment, Strength and Average Daily Availability during June 1942

	<u>I.E.</u>	<u>I.R.</u>	<u>Serviceable</u>	<u>U/S</u>	<u>Average daily Availability</u>
6 Flying boat Squadrons.	48	7	32	22	28
31 G.R. and Fighter Squadrons including those on loan.	484	114	356	134	201
	532	121	388	156	229
5 Met. Flights	34	17	21	19	15
No. 1 P.R.U.	58	15	59	12	40
1 A.S.R. Squadron	16	4	12	10	
4 Flying boat Squadrons forming	30	6	3	2	non-operational
1 Torpedo Squadron forming	16	4	15	4	non-operational
1 A.S.R. Squadron forming	16	4			non-operational

References { C.C. Location Statement
{ A.M. Operational Squadrons States. Vol. 8.
{ A.M. Daily Strength Return. Vol. 10.

COASTAL COMMANDORDER OF BATTLE15th October, 1942.

<u>Benson</u>		Nos. 540, 541, 542, 543 and 544 Squadrons P.R.U. (Flights detached at Leuchars, St. Eval and Gibraltar)	Mosquito/Spitfire/ Wellington/Anson
<u>West Indies</u>	x	No. 53 Squadron	Hudson
<u>Gibraltar</u>	x	No. 202 Squadron	Catalina
	x	No. 233 Squadron	Hudson
		No. 544 Squadron P.R.U. (Part)	Spitfire/Wellington/Anson
<u>Iceland</u>			
Kaldadarnes	x	No. 269 Squadron	Hudson
Reykjavik	x	No. 330 Squadron Norw. (Part)	Northrop/Catalina III
"	x	No. 73 Squadron U.S.N.	Catalina III
"		No. 1407 Met. Flight	Hudson
<u>No. 15 Group H.Q. Liverpool</u>			
Aldergrove		No. 1402 Met. Flight	Spitfire/Hudson/Gladiator
Ballykelly	x	No. 120 Squadron	Liberator
"	x	No. 220 Squadron	Fortress
Lough Erne	x	No. 201 Squadron	Sunderland
"		No. 422 Squadron R.C.A.F. (forming)	Sunderland
Benbecula	x	No. 206 Squadron	Fortress
"		No. 279 Squadron A.S.R. (Part)	Hudson/Albermarle
Oban	x	No. 228 Squadron	Sunderland
"		No. 423 Squadron R.C.A.F. (forming)	Sunderland
Stornoway	x	No. 58 Squadron	Whitley
<u>No. 16 Group H.Q. Chatham</u>			
Bircham Newton		No. 320 Squadron Dutch	Hudson
"		No. 254 Squadron	Beaufighter
"		No. 811 Squadron F.A.A. (on loan)	Swordfish
"		No. 812 Squadron F.A.A. (on loan)	Swordfish
"		No. 521 Met. Squadron	Mosquito/Spitfire/Hudson
"		No. 279 Squadron A.S.R. (Part)	Hudson/Albermarle
Langham		No. 280 Squadron A.S.R.	Anson
North Coates		No. 143 Squadron	Blenheim/Beaufighter
"		No. 236 Squadron	Beaufighter
Thorney Island		No. 816 Squadron F.A.A. (on loan)	Swordfish
"		No. 819 Squadron F.A.A. (on loan)	Swordfish
"		No. 59 Squadron (converting)	Liberator
"		No. 86 Squadron (converting)	Liberator
<u>No. 18 Group H.Q. Pitreavie Castle</u>			
Dyce		No. 404 Squadron	Beaufighter/Blenheim
Leuchars		No. 144 Squadron	Hampden
"		No. 455 Squadron R.C.A.F.	Hampden
"		No. 415 Squadron R.C.A.F.	Hampden
"		No. 540 Squadron P.R.U. (Part)	Mosquito
Woodhaven	///	No. 330 Squadron Norw. (Part)	Catalina III
Sullom Voe	///	No. 210 Squadron	Catalina
Sumburgh	///	No. 48 Squadron	Hudson
Wick	///	No. 489 Squadron R.N.Z.A.F.	Hampden
"	x	No. 179 Squadron	Wellington Leigh Light
"	x	No. 612 Squadron	Whitley
"		No. 1406 Met. Flight	Spitfire/Hudson/Albermarle

No. 19 Group H.Q. Plymouth

Beaulieu	x	No. 224 Squadron	Liberator
Mount Batten	x	No. 10 Squadron R.A.A.F.	Sunderland
Pembroke Dock		No. 119 Squadron (re-equipping)	Sunderland
Hamworthy	x	No. 461 Squadron R.A.A.F.	Sunderland
St. Eval	x	No. 502 Squadron	Whitley
"	x	No. 407 Squadron R.C.A.F.	Hudson
"	x	No. 10 O.T.U. B.C. (on loan)	Whitley
"		No. 543 Squadron P.R.U. (Part)	Spitfire
"		No. 1404 Met. Flight	Hudson/Albermarle
Chivenor	x	No. 172 Squadron	Wellington Leigh Light
"	//	No. 235 Squadron	Beaufighter
Talbenny	x	No. 311 Squadron Czech.	Wellington
"	//	No. 248 Squadron	Beaufighter
Dale	x	No. 304 Squadron Polish	Wellington

Note:- x Signifies Squadrons almost exclusively engaged on A/U duties.

// Those intermittently so employed.

Establishments and Strengths on the 15th October and average daily availability

	<u>I.E.</u>	<u>I.R.</u>	<u>Serviceable</u>	<u>U/S</u>	<u>Average daily Availability</u>
8 Flying boat squadrons including one U.S.N. Squadron	72	21	53	47	44
30 G.R. and Fighter Squadrons including one B.C. Squadron	469	111	343	225	180
	541	132	396	272	224

to which must be added 4 F.A.A. Squadrons of 36 A/C on loan

5 P.R.U. squadrons	67	16	59	23	35
1 Met. Squadron and 4 Flights	38	19	24	28	16
2 Air Sea Rescue squadrons	32	8	28	12	

4 Flying boat squadrons forming or converting of total I.E. 24 plus 12 I.R.	} non-operational
2 G.R. squadrons converting to Liberators of total I.E. 18 plus 6 I.R.	
2 G.R. Hudson squadrons under orders to move to Gibraltar	

References { C.C. Location Statement
A.M. Operational Squadrons States. Vol. 10.
A.M. Daily Strength Return Vol. 11.

COASTAL COMMAND

ORDER OF BATTLE

January
15th ~~October~~, 1943

Establishment

<u>Benson</u>		Nos. 540, 541, 542, 543, and 544 (Mosquito - 15 Squadrons P.R.U. (Flights detached at Leuchars, St. Eval and Gibraltar) (Spitfire - 66 Wellington - 2)
<u>Gibraltar</u>	x	No. 202 Squadron Catalina I - 12
	x	No. 210 Squadron detachment Catalina I -
	x	No. 48 Squadron Hudson VI - 16 + 4
	x	No. 233 Squadron Hudson III - 16 + 4
		No. 544 Squadron P.R.U. detach- ment. Spitfires
	x	No. 179 Squadron I/L Wellington VIII - 16 + 4
<u>Iceland</u>		
Kaldadarnes	x	No. 269 Squadron Hudson III - 20 + 4
Reykjavik	x	No. 84 Squadron U.S.N. Catalina III - 12
"	x	No. 120 Squadron detachment Liberators
"		No. 4407 Flight Metcal. Hudson III - 4 + 2
"	x	No. 330 Squadron (Norwegian) detachment. Northrops - 6 + 0
<u>No. 15 Group H.Q. Liverpool</u>		
Aldergrove		No. 1402 Flight Metcal. Spit/Hud/Glad. - 9 + 5
Ballykelly	x	No. 120 Squadron V.L.R. Liberators I and III - 16 + 4
"	x	No. 220 Squadron Fortress IIA - 9 + 3
"		No. 280 Squadron A.S.R. detachment. Anson
Lough Erne	x	No. 201 Squadron Sunderland II and III - 6 + 3
"	x	No. 228 Squadron Sunderland II and III - 6 + 3
"	x	No. 423 Squadron R.C.A.F. Sunderland II and III - 6 + 3
Oban		No. 422 Squadron R.C.A.F. (forming) Sunderland III - 6 + 3
"		No. 330 Squadron (Norwegian) re-equipping. Sunderland III - 6 + 3
Bowmore	x	No. 246 Squadron Sunderland II and III - 6 + 3
Benbecula	x	No. 206 Squadron Fortress IIA - 9 + 3
<u>No. 16 Group H.Q. Chatham</u>		
Bircham Newton		No. 320 Squadron (Dutch) Hudson V and VI - 16 + 4
"		No. 407 Squadron Hudson V and VI - 16 + 4
"		No. 521 Metcal. Squadron Spit/Mosq/Huds/Glad. - 15 + 7
"		No. 279 Squadron A.S.R. Hudson III - 16 + 4
"		No. 280 Squadron A.S.R. Anson - 16 + 4
Docking		No. 53 Squadron (Hudson) re-equipping. Whitleys V.
North Coates		No. 143 Squadron Beaufighter II (F) - 16 + 4
"		No. 236 Squadron Beaufighter IC and VI C(F) - 16 + 4
		No. 254 Squadron Beaufighter VIC (T/F) - 16 + 4
Thorney Island //		No. 415 Squadron R.C.A.F. Hampden (T/B) - 16 + 4
"		No. 833 F.A.A. Squadron (on loan) Swordfish - 9
"		No. 836 F.A.A. Squadron (on loan) Swordfish - 9
"	x	No. 86 Squadron partially operational on V.L.R. Liberator III - 16 + 4

No. 18 Group - H.Q. Pitreavie CastleEstablishment

Leuchars		No. 144 Squadron	Beaufighter VIC (T/F) - 16 + 4
"		No. 455 Squadron R.A.A.F.	Hampden T/B - 16 + 4
"		No. 235 Squadron	Beaufighter IC and VIC (F) - 16 + 4
"		No. 540 Squadron P.R.U. detachment.	Mosquito
Woodhaven		No. 1477 Flight (Norwegian)	Catalina IB - 3 + 0
Sullom Voe	x	No. 190 Squadron	Catalina IB - 6 + 3
Wick	//	No. 489 Squadron R.N.Z.A.F.	Hampden (T/B) - 16 + 4
"	x	No. 612 Squadron	Whitley VII re-equipping to I/L Wellington VIII - 16 + 4
"		No. 1406 Metcal. Flight	Spit/Huds. - 6 + 3

No. 19 Group H.Q. Plymouth

Beaulieu	x	No. 224 Squadron	Liberator II, III and V - 9 + 3
"	x	No. 405 Squadron on loan from B.C.	Halifax 12
Chivenor	x	No. 172 Squadron	I/L Wellington VIII & XII - 16 + 4
"	x	No. 179 Squadron detachment	I/L Wellingtons
"		No. 547 Squadron	Wellington VIII (T/B) - 6 + 2
"	x	No. 59 Squadron	Fortress IIA - 9 + 3
"	//	No. 404 Squadron R.C.A.F.	Beaufighter II(F) - 16 + 4
Talberry	x	No. 311 Squadron (Czech)	Wellington IC - 16 + 2
Dale	x	No. 304 Squadron (Pole)	Wellington IC and X - 16 + 2
St. Eval	x	No. 502 Squadron	Whitley VII - 16 + 4
"	x	No. 10 O.T.U. on loan from B.C.	Whitley - 20
"	x	1st A/S U.S. Army Squadron	Liberator - 12
"	x	2nd A/S U.S. Army Squadron	Liberator - 12
"	x	No. 1404 Metcal. Flight	Huds/Vent./Albermarle - 4 + 2
"		No. 543 Squadron P.R.U. detachment.	Spitfires
Predannock	//	No. 248 Squadron	Beaufighter VIC (F) - 16 + 4
Mountbatten	x	No. 10 Squadron R.A.A.F.	Sunderland II and III - 6 + 3
Pembroke Dock	x	No. 210 Squadron	Catalina I, IB and IIA - 6 + 3
"	//	No. 119 Squadron	Sunderland II and III - 6 + 3
Hamworthy	x	No. 461 Squadron R.A.A.F.	Sunderland II and III - 6 + 3
Holmesley South	x	No. 58 Squadron	Whitley VII/Halifax II - 9 + 3

Note:- x Signifies Squadrons almost exclusively employed on A/U duties.

// Signifies Squadrons intermittently used for such duties.

Establishments and Strengths on the 15th February 1943
and average daily availability

	Total Establishment	Strength	Non-operational or U/S	Available
12 $\frac{1}{2}$ Flying boat squadrons including one U.S.N. Sqdn.	126	118	69	49
18 A/U G.R. Squadrons including two B.C. Sqdns. and two U.S.A.A.F. Sqdns.	304	293	132	161
13 Anti-shipping G.R. and long range fighter squadrons.	238	260	115	145
Total 43 $\frac{1}{2}$ Squadrons fully operational	668	671	316	355

to which must be added 6 Squadrons altogether or partially out of the line:-

No. 422 Squadron R.C.A.F. forming on 6 + 3 Sunderlands.

No. 53 Squadron re-equipping from Hudsons to 16 + 4 Whitleys.

No. 58 Squadron re-equipping from Whitleys to 9 + 3 Halifax.

No. 407 Squadron re-equipping from Hudsons to 16 + 4 L/L Wellingtons

No. 502 Squadron re-equipping from Whitleys to 9 + 3 Halifax.

No. 547 Squadron with 6 + 2 Torpedo Wellingtons undergoing torpedo training.

5 P.R.U. Squadrons	91	85	31	54
1 Metcal. Sqdn. and 4 Flights	68	49	15	34
2 Air Sea Rescue Sqdns.	40	34	8	26

References { C.C. Location Statement
 { A.M. Operational Sqds. States.
 { Vol. 11.

GROWTH OF THE U-BOAT FLEET AND ITS OPERATIONAL DISPOSITIONS

		1941						1942												1943		
		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mch.
Operational	Based in the Atlantic	60	60	70	69	72	68	62	70	80	80	89	90	101	113	131	157	158	154	166	180	195
	Based in the Mediterranean	-	-	4	6	9	18	23	21	21	20	20	19	16	16	15	15	19	24	24	23	19
	Based in Norway	-	-	-	-	-	-	4	10	10	19	19	21	23	23	23	20	26	23	21	15	14
	Based in the Black Sea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3
Total number operational		60	60	74	75	81	86	89	101	111	119	128	130	140	152	169	192	205	203	214	221 224	231
School and training force		42	53	52	54	56	58	58	57	57	57	54	59	59	59	62	62	65	65	64	64	64
New U-boats on test and working up in the Baltic*		52	45	51	73	84	92	100	99	104	107	114	124	132	131	122	107	100	112	122	128	123
TOTAL U-BOAT FLEET		154	158	177	202	221	236	247	257	272	283	296	313	331	342	353	361	370	380	400	413 416	418
Newly commissioned U-boats		5	22	23	21	20	21	13	17	17	16	21	21	22	21	19	25	23	25	22	21	27
On first war cruise from Germany		14	13	5	6	7	14	19	13	14	9	4	13	24	32	32	27	11	14	14	26	20
Average No. at sea in Atlantic		22	39	40	31	30	24	22	54	48	49	61	59	70	86	100	105	95	97	92	116	116
Average No. in operational areas in the Atlantic		20	26	28	25	19	13	6	16	14	10	18	19	22	31	38	45	38	39	42	48	49
U-boats lost from all causes		1	3	2	2	5	10	3	2	6	3	4	3	11	10	11	16	13	5	6	19	15
Planned building output		20	24	24	20	20	20	20	20	20	20	20	20	18	16	17	16	12	22	22	20	25
Actual building output		14	20	18	23	21	22	15	18	16	21	17	23	22	21	19	21	22	24	22	21	25

* The time occupied on test and working up averaged four months during this period.
Reference:- War Diary of B. d U.

SECRET

APPENDIX II

THE FUEHRER DECISION ON NAVY-AIR FORCE CONTROVERSY

(Ref. T413 B. PG 31762 D 28th Feb. 1941.)

Hitler preambled his Order with a paragraph in which he stated that he was acquainted with the differences in opinion prevailing in the Navy and the Air Force, concerning organisation of coastal reconnaissance in the coastal areas and at sea, from the written and oral reports of the Commanders in Chief of these branches.

Both branches agreed on the tasks to be performed but the Navy demanded, on the basis of the agreement reached in 1939, that all coastal air forces set up for the purposes of naval warfare should be placed under its command. The Air Force, however, was of the opinion that only those air forces should be under the tactical command of the Navy which operated exclusively for naval warfare but that for the best possible use of the forces involved the Air Force should have unified command over air forces engaged in operations concerning both aerial and naval warfare.

Regarding these differences of opinion, Hitler made the following statement:-

- (1) The agreement reached in 1939 was based on the supposition that the operations areas of the Navy and of the Air Force would generally be separate. The course of the war had brought out the close interrelation of naval and aerial warfare. The 1939 agreement could not, therefore, be considered binding.
- (2) If all forces needed for carrying out certain tasks were permanently placed under each branch this would be the simplest and most convenient for each branch but it would be extravagant and wasteful from an over-all point of view, particularly at times when all available forces are needed.
- (3) Since only a few air forces can be used against the British Isles in the Spring, they must be utilized as economically as possible.⁽¹⁾ Reconnaissance and bombing missions of the coastal air forces and of the Air Force were largely carried out in the same areas, and therefore must be under the unified command of the Air Force.

The Fuehrer then issued the following orders:-

- I The Navy will remain in charge of reconnaissance north of 52°N in the Skagerrack and the Baltic Sea entrances. In addition to submarine protection in this area, it takes over this function in the English channel as far as Cherbourg.
- II The Air Force takes over reconnaissance off the Norwegian coast and in the Northern North Sea inclusive of the Orkney, Shetland and Faeroe Islands by means of a special "Commander, Reconnaissance Norway". Air escort in this area is also his task.
- III The Air Force will continue to carry out reconnaissance in the Channel area and fighter protection South of 52°N as far as the latitude of Cherbourg, except for submarine escort as in I.
- IV The Commander in Chief Air will be in charge of air reconnaissance and air cover for convoys in the Atlantic. For this purpose he will set up an "Air Commander, Atlantic", based at Lorient. This position should be filled by an Air Force officer familiar with the problems of naval warfare, who will guarantee that the needs of aerial and naval warfare will be met equally. Naval officers are to be appointed to his staff.

(1) This refers to the dispositions necessary for the coming campaign against Russia.

SECRET

APPENDIX III

2

The tasks of the Air Commander, Atlantic are as follows:-

- (a) Reconnaissance for submarine warfare
- (b) Escort and reconnaissance during operations of naval surface forces in the Atlantic and convoy escort in the coastal area.
- (c) Weather reconnaissance.
- (d) Bombing missions against ships at sea in areas to be agreed upon between the Air Force and the Navy.

N.B. The reconnaissance and escort commitments have priority over all purely combat missions.

ALLIED SHIPPING LOSSES DUE TO U-BOAT ACTION

(Ref. Admty. B.R. 1337)

Month	Canadian and American Coasts	The rest of the Atlantic	Arctic	Med.	Far East	Total
1941 July	Nil	4 - 19,282 Mid North 8 - 16,409 N. East 10 - 58,518 W. of Africa	Nil	Nil	Nil	94,209 22 - 94,209
1941 Aug.	Nil	1 - 1,700 Mid North 20 - 71,297 N. East 1 - 7,313 W. of Africa	Nil	Nil	Nil	22 - 80,310
1941 Sep.	Nil	22 - 98,824 Mid North 19 - 48,381 N. East 10 - 54,535 W. of Africa	Nil	2 - 1,080	Nil	53 - 202,820 22 - 98,824
1941 Oct.	Nil	15 - 90,466 Mid North 10 - 38,433 N. East 4 - 22,202 W. of Africa	1 - 3,487	2 - 1,966	Nil	32 - 156,554 22 - 98,824
1941 Nov.	Nil	7 - 32,817 Mid North 2 - 10,437 N. East 2 - 11,914 W. of Africa	Nil	1 - 6,600	Nil	12 - 61,768
1941 Dec.	Nil	10,866 2 - 28,228 Mid North 7 - 35,065 N. East 1 - 6,275 W. of Africa	Nil	8 - 31,964 8 - 31,964	8 - 39,900 8 - 39,900	124,070 26 - 124,070
1942 Jan.	40 - 229,459	7 - 42,201 Mid North Nil N. East Nil W. of Africa	1 - 5,135	Nil	14 - 50,562 14 - 50,562	62 - 327,357 62 - 327,357
1942 Feb.	70 - 416,791 23 tankers	Nil Mid North 2 - 10,942 N. East Nil W. of Africa	Nil	Nil	12 - 45,685 12 - 45,685	84 - 473,418 84 - 473,418
1942 March	76 - 447,874 76 - 447,874 28 tankers	Nil Mid North 2 - 1,256 N. East 9 - 52,857 W. of Africa	2 - 11,507	Nil	6 - 24,496	95 - 537,490 95 - 537,490
1942 Apr.	61 - 360,096 61 - 360,096 19 tankers	Nil Mid North Nil N. East 2 - 11,534 W. of Africa	3 - 18,816	2 - 7,379	6 - 33,839	74 - 431,664 74 - 431,664
1942 May	110 - 531,107 110 - 531,107 30 tankers	7 - 36,284 Mid North Nil N. East 2 - 10,020 W. of Africa	3 - 13,799	1 - 4,216	2 - 11,821	125 - 607,247 125 - 607,247

APPENDIX IV

SECRET

2

Month	Canadian and American Coasts	The rest of the Atlantic	Arctic	Med.	Far East	Total
1942 June	103-527,785 21 tankers	7-39,903 Mid North 5 - 15,858 N. East 4 - 19,997 W. of Africa	Nil	6-10,348	19 - 86,344	144-700,235
1942 July	52-212,189 7 tankers	3 - 18,441 Mid North 2 - 11,096 N. East 21 - 139,146 W. of Africa	10 - 62,058	3 - 5,885	5 - 27,250	96-476,065
1942 Aug.	64 - 310,078 13 tankers	20 - 107,158 Mid North 8 - 48,168 N. East 10 - 60,925 W. of Africa	Nil	3 - 12,321	3-5,760	108-544,410
1942 Sep.	40 - 175,008 3 tankers	877 22 - 130,877 Mid North 5 - 12,148 N. East 15 - 99,317 W. of Africa	6 - 37,198	4 - 813	6 - 30,052	98-485,413
1942 Oct.	20 - 85,003	26 - 184,843 Mid North Nil N. East 18 - 154,543 W. of Africa 25 - 166,234 off S. Africa	Nil	Nil	5 - 28,794	94-619,417
1942 Nov.	52 - 319,584	13 - 68,048 Mid North 6 - 58,024 North East 13 - 69,525 W. of Africa 23 - 122,295 off S. Africa	4 - 24,364	5 - 44,527	2 - 15,338	118 - 721,705
1942 Dec.	23 - 116,811	21 - 124,801 Mid North 7 - 35,548 North East 1 - 3,157 W. of Africa 4 - 17,369 off S. Africa	Nil	3 - 26,807	1 - 6,323	330,816 60 - 179,988
1943 Jan.	10 - 43,985	9 - 61,941 Mid North 4 - 29,332 North East 6 - 46,509 W. of Africa Nil off S. Africa	Nil	6 - 12,134	2 - 9,227	37 - 203,128
1943 Feb.	6 - 27,890	29 - 198,074 Mid North 9 - 50,665 North East 1 - 7,191 W. of Africa 4 - 20,724 off S. Africa	1 - 7,460	9 - 27,973	4 - 19,351	63 - 359,328

WEST AFRICA AIR COMMAND

A.C.H.Q. (Freetown)

No. 295 Wing (H.Q. at Freetown)

No. 298 Wing (H.Q. at Lagos)

Stations

Bathurst area - Half Die (F/B) Jeswang, Yumdum, Brikama.

Freetown area - Fourah Bay (F/B), Jui (F/B), Hastings, Waterloo.

Liberia area - Robertsport (F/B), Marshal or Robertsfield,
Fishermans Lake or Bensonfield,
Cape Palmas or Harper.

Gold Coast area - Takoradi, Accra.

Stations

Nigeria area - Lagos Lagoon (F/B), Lagos Apapa, Lagos
Keja, Port Harcourt.

Free French Equat. Africa - Duala, Libreville (F/B),
Pointe Noire (F/B).

Belgian Congo - Banana (F/B).

Squadrons - No. 95 and 204 Sunderlands
No. 200 Hudsons
and No. 270 Catalinas from mid-December, 1942.

SECRET

SECRET

APPENDIX V

THE LEIGH LIGHT FOR NIGHT ANTI-SUBMARINE OPERATIONS

References - A.M./D.O.N.C. 1/IIB, C.C./S.18326 and 15238.

The Leigh Light was a carbon arc searchlight carried on an aircraft and used in conjunction with A.S.V. to illuminate surfaced submarines at night. The searchlight operator was situated in the nose of the aircraft from where he could control the searchlight beam in both elevation and azimuth. Indicators were fitted which showed the direction in which the beam would shine. The operator was thus able to train the searchlight in approximately the right direction and distance before the light was exposed. A lens giving a spread of 10° in either a horizontal or vertical plane was provided which made searching for the target easier, but some expert operators prefer to use the light without the lens. The maximum effective range in ordinary weather was about two miles.

The arc lamp was fully automatic in operation, the rate of feed of the carbons being automatically controlled. Power for the arc, which ran at 120 to 150 amperes, was obtained from seven 12 volt 40 ampere hour type D accumulators and a trickle charge fitment would maintain them fully charged provided the arc was not run for more than three half minute periods per hour. Fully charged accumulators would maintain the arc for about six minutes without recharging.

There were two types of Leigh Light in service:-

- (1) The Turret type, fitted on Wellington aircraft; in this a 24 inch searchlight was mounted in a retractable under-turret and the controls were hydraulic. The maximum beam intensity was 50 million candles without the spreading lens and about 20 million candles with the lens. Total weight of the installation was 1,100 lbs.
- (2) The Nacelle type, fitted on Catalinas and Liberators; in this a 20 inch searchlight was mounted in a nacelle 32 inches in diameter slung from the bomb lugs on the wing. The controls were electric and the maximum beam intensity was 90 million candles, with the spreading lens and about 17 million with the lens. Total weight of the installation was 870 lbs.

The trickle charging current for the accumulators was obtained from an engine-driven generator on the Wellingtons, windmill driven generator on Catalinas and a motor generator set on Liberators.

The control system on the Wellington was similar to that used for turrets. The turret itself was rotated by a Vane oil motor for movement in azimuth and the projector was moved by a ram inside the turret for movement in elevation.

The maximum speed of rotation when the control column was turned to the limit was 40 degrees per second, the limits of movement were 60 degrees to Port and 180 degrees to Starboard. In the Nacelle type, the control was electric by means of two small motors built into the nacelle. The controller operated in three steps and gave a maximum speed of about 5 degrees per second. The limits of movement were 50 degrees on either side and 48 degrees downwards from the horizontal. On Liberators the nacelle was attached to the wings by a quick release mechanism so that it could be jettisoned by the pilot in an emergency.

Tactical Instruction for Aircraft fitted with Leigh LightsOperational height

The best height to fly on patrol is between 1,500 and 2,500 feet. When the target is picked up on the A.S.V. the height of the aircraft should be noted and the aircraft brought down to 500 feet at a range slightly exceeding one mile to ensure that the aircraft is level when a range of one mile is reached. In order to manoeuvre into this position it is considered that maximum height should not exceed 1,500 feet at three miles. If the height exceeds this figure it is advisable to complete a 360° turn, losing height, but not closing range, in order to avoid missing the target.

Direction of approach

If possible approach into wind. This type of approach has the following advantages:-

- (i) No drift, and it is therefore much easier for the operator to home the aircraft.
- (ii) The sound of the engines is less likely to be picked up by the enemy.
- (iii) It gives more time for the final attack.

On moonlight nights approach, if possible, toward the moon beam. It is not considered advisable, however, that aircraft should make a tour in order to approach up wind, as it is essential that the attack should be delivered without delay.

Allowance for wind

In order to carry out a successful attack it is important that both the Captain and A.S.V. operator have a clear idea of the wind direction and speed. As soon as A.S.V. contact has been made, the navigator, taking into consideration the homing course, should announce the drive over the inter-communication. When attacking down wind the Captain must appreciate the high speed of approach and make the necessary allowance.

When attacking cross wind, allowance must be made for drift. When drifting to Starboard, the A.S.V. operator must keep the target to Starboard and vice versa. It should be noted that the searchlight is situated in the Starboard wing of a Catalina and in line with the pilot's eyes. This will tend to dazzle the pilot if the beam is brought across to the Port side. It will be further advantageous and assist considerably in the success of the attack if the target can be placed dead ahead or very slightly to Port of the aircraft.

Setting of Lens

It has been found that use of the 10 degree vertical diverging lens produces the most successful results on Catalinas.

Use of A.S.V.

The success of the attack depends mainly on the technique developed by the A.S.V. operator. The original corrections should be bold, bringing the aircraft quickly on. The A.S.V. operator should also state the ranges over the inter-communication every quarter of a mile. At a range of approximately three quarters of a mile the light is switched on. Before this the light operator should have ascertained by means of the indicator that it is aiming straight and is depressed to the correct angle - usually 6° . Only a small degree of light movement should be necessary to illuminate the target. Immediately the target is lit up the aircraft should reduce height to 50 or 100 feet and the normal depth charge attack made, dropping flame floats at the same time.

The successful operation of this form of equipment is entirely dependent on crew drill and it is essential that the A.S.V. operator in particular shall have plenty of practice in homing on to targets, even when the sea is rough and sea returns consequently high. A skilled light operator should have little difficulty in illuminating the target within two or three seconds of switching on.

THE TOWED RECONNAISSANCE (AIR/SEA) FLARE

("T.R.F.")

H.Q., C.C. File
C.C./S.7012/10/
14/1 (minutes 1
and 34) and
C.C./S.9065/1

In 1937, a member of the Coastal Command Headquarters Signals Staff submitted a paper on the subject of air/sea night reconnaissance by a "reflected beam method" in which the reconnoitring aircraft found and identified surface vessels by silhouetting them in the reflected beam of a Michelin type parachute flare, which had been laid some two miles beyond the target, and, in which it flew up the beam to attack the target. At the same time he invented an aero-towed air/sea reconnaissance flare device and method, in which observing aircraft, disposed some four miles distant on either flank of the towed flare, searched in its reflected beams.

2. Utilisation of the flare's reflected beam was by no means a new idea, but this paper and the sequel to it was the first time properly co-ordinated searches or strikes by this method had ever been established and systematically and scientifically developed. Hitherto the sky above the estimated point of interception of an "enemy" vessel had been plastered with parachute flares in the hope that one would fortuitously floodlight the target. Floodlighting had been the aim, although very naturally, targets had, in this process, been revealed on occasions on the beam of one of the many flares dropped. As the effective floodlit area of a flare was found to have a radius of merely half a mile, and then only in the absence of haze, and having regard to the drift of the flare in the wind, it can be appreciated that the old floodlight method was virtually useless as a method of search and attack. Indeed dazzle from flares dropped so close to the target was likely to be more of a handicap than a help.

3. The T.R.F. provided for the flare to be towed on a 4,000 foot light steel cable, winched by electric motor, and for a succession of flares to be fed down the cable from the aircraft as required. Illumination could thus be controlled. It was intended for use against surface vessels in areas not patrolled by enemy fighters.

4. R.A.E. made a simplified version of the T.R.F. and trials were commenced by its author in No. 217 Squadron, from Tangmere, over the central English Channel on the 10 May 1938. From the start, all shipping in the areas swept was found and readily identified. The normal rate and extent of the sweep being about 50 square miles per flare per three and a half minutes employing two observing aircraft. On obtaining a contact (signalled by R/T) the towing aircraft immediately dropped a parachute flare, down the beam of which the observing aircraft flew to attack. It was possible to fly down to the surface with safety, visually in the beam.

C.C./S.9065/1
Mins. 116 and 124
and C.C./S.7012/
10/14/1 Min. 1

5. All of these trials were fully reported to H.Q.C.C. and observed by the R.A.E. and a F.A.A. representative. They were, however, never observed by H.Q.C.C. air staff who, in February 1939 first asked for the experiments to be discontinued and for the equipment to be returned, but who shortly afterwards asked the Command Navigation Officer to keep a watching brief over the trials. From thence, however, the T.R.F. was shelved.

6. It appears that the advent of A.S.V. had lulled H.Q.C.C. into a belief that illuminants would no longer be required. This was however a bold assumption at a time when A.S.V. was not yet properly operational, and the lack of properly developed illuminants and tactical methods of use of them was

to cost us dearly during the first two years of War.

7. When War broke out, A.S.V. was becoming operational but in a very elementary form. It came somewhat as a shock that illumination of the target was still as essential as ever during the stage of identification and attack, although A.S.V. now gave a sufficiently precise location of the target to make flare technique much easier and less chancy than hitherto.

8. The case of the T.R.F. - essentially a search device - remained however. In the event of A.S.V. being jammed, or where working inshore, especially amongst islets, when A.S.V. was inoperative an alternative means for night search was essential.

C.C./S.7012/10/
14/1 Encls. 10A
(para. 2)

9. It so happened that in the meantime the F.A.A. had continued development of the T.R.F. in its basic form, but for an entirely different purpose - as a towed target for A/A practice. Thus it came about that during the evacuation of Dunkirk, these target aircraft were hastily improvised for use of the T.R.F. in its originally intended role. Flares were towed up and down the flanks of the lane of shipping and by their aid German E boats and other light craft attempting to attack the shipping, were either attacked or scared off.

10. This fait accompli convinced the A.O.C.-in-C. who, on the 14 June 1940, made a strong case to Air Ministry for resuscitation of the T.R.F., but through most unfortunate misadvice, he envisaged the towing aircraft reconnoitring in the floodlight of its own flare.

C.C./S.7012/10/
14/1 Encl. 24B

11. A small number of hand-made T.R.F. installations with cumbersome hand winches, operator and flare store place dangerously aft of the C.G. safety limit, were hastily driven into action in No. 206 Squadron at Bircham Newton. There, in the absence of adequate briefing, they were used operationally in a manner for which they were not intended - floodlight illumination; the towing aircraft doing its own observing; - and attempting attack without the supplementary aid of parachute flares. Little wonder that the operations were unsuccessful and the method unpopular amongst the crews concerned.

ibid
Encl. 116A

12. Tactical and technical trials had meanwhile been re-commenced by C.C.D.U. on the 10 May 1941, but with very slow technical progress. As a result of trials on the 19 and 20 April, 1942, in which C.C.D.U. omitted to use parachute flares for the attack, having found the target by T.R.F. (thus invalidating the method), that Unit recommended that the T.R.F. "is impracticable as an aid to attacking submarines by aircraft or by surface vessels. The only suitable use for the towed flare is for identification of surface vessels by another aircraft or surface vessel, but no reasonable chances of attack would exist except possibly for fighters against E boats".

13. On the basis of this report, use of the T.R.F. was discontinued. When A.S.V. was almost obliterated by enemy jamming in the Mediterranean in the Summer of 1942 - as it was always liable to be in the North Sea and English Channel - the R.A.F. had no alternative practicable means of night search for surface vessels.

ANTI-SHIPING OPERATIONS ASSESSMENT SUB-COMMITTEE

CG/S.15063
Encl. 4A

In view of the increasing number of attacks against enemy merchant shipping, the accuracy of the claims for vessels sunk and damaged had by the early summer of 1941, become a matter of considerable importance both to the Admiralty and the Ministry of Economic Warfare in the preparation of various plans which involved an estimate of the amount of enemy shipping available for the German war effort.

Inaccurate or misleading reports leading to incorrect assessments, could easily result in our war strategy or plans being misconceived, and in consequence, wrongfully influence, not only the policy of Commanders, but, that of the Government too.

ibid
Encl. 1A

Bomber Command had already devised a method of assessing damage⁽¹⁾ in connection with the attacks being made against enemy shipping by the Blenheims of No. 2 Group, which was submitted to the Air Ministry with the suggestion that this system should be adopted generally for assessment purposes throughout the Royal Air Force.

ibid
Encl. 2A

Coastal Command, however, considered this method of assessment to be rather on the optimistic side, and maintained that it was dangerous to try and do more than record the number of hits and near misses - the latter not with a view to trying to assess the number of ships damaged, but rather as a record of markmanship.

At this time, there were two reasons for this viewpoint:-

(a) It was by no means certain that a ship of 4,000 tons receiving one hit with a 250 lb G.P. bomb would necessarily sink, nor would two hits with the same type of bomb seem to justify a similar claim for a larger vessel.

(1) The method of assessment was as follows:-

Degree of damage		Evidence Required	
1		2	3
(a)	Sunk	Ships of less than 4,000 tons Must be actually seen to sink.	Ships over 4,000 tons Must be actually seen to sink.
	Destroyed or Total Loss	Direct hit by one or more 250 lb bombs.	Direct hit by two or more 250 lb bombs.
(b)	Damaged	Very near miss by one or more 250 lb bombs - implying a strike under the waterline, or detonation below the ship in shallow water.	Direct hit by one 250 lb bomb or very near misses as in column 2.
(c)	Probably damaged	Cases where all the evidence leads to the belief that the conditions necessary for damage have obtained although the bombs have not been seen actually to strike.	
(d)	Machine gunned	Ships machine gunned and not claimed under any of the headings (a)(b)(c).	
(e)	No claim	Results unobserved or bombs falling wide.	

(b) In the case of a near miss, it was felt that a "no claim" only was justified, as by using the 250 lb G.P. bomb (with an 11 second delay fuse) a miss could do no harm, since it was about an even chance whether the bomb exploded at all after striking the water, and even if it did, it would not be until it was some 300 feet down.

The average depth at which enemy shipping was to be found around the Channel and Dutch coasts was 10 fathoms. The bomb should it miss in this depth would explode on the bottom, but at too great a depth to do any harm, as the explosive charge was only small and would not produce anything approaching a depth charge effect.

These remarks also applied to S.A.P. bombs, whose explosive charge was even smaller and the blast effect correspondingly less.

ibid.
Encl. 3A

In these circumstances, it was felt by Coastal Command that if a method of assessment was to be generally adopted, only the following categories should be permissible:-

- (a) Sunk - When the ship was seen to sink.
- (b) Probably sunk Ship receiving one or more hits
or seriously by a 250 lb bomb.
damaged
- (c) No claim When a ship has been attacked by
machine gun fire or, "near missed"
by bombs.

With a view to regularising the position, however, it was decided by the Air Ministry in consultation with the Admiralty and the Ministry of Economic Warfare, to set up within the Air Ministry an Assessment Committee, whose responsibility it would be to collect and collate the reports and any related evidence on the results of anti-shipping operations, and to make an assessment in the light of all the information available. This could then be utilised by the Admiralty and other Government departments concerned in the statistics required for planning.

ibid
Encl. 4A

The Committee, under the chairmanship of the Director of Bomber Operations included representatives of the Director of Naval Co-operation, the Assistant Chief of the Air Staff (Intelligence) and the Statistical Section of the Air Ministry War Room. Two representatives from the operation commands were also associated with the Committee.

ibid
Encl. 7A

At the first meeting, held at the Air Ministry on 31 July, 1941, a discussion took place on the different methods of making assessments as submitted by Coastal and Bomber Commands, and it was eventually decided that four degrees of damage were required.⁽¹⁾ However, before a detailed definition could be given to assessments within these categories it was necessary that consultations should take place with the Admiralty on the extent or character of the evidence necessary, particularly as regards the number and types of bombs which should be required to hit the target before a specific claim for serious damage or loss could be substantiated.

-
- (1) (i) Sunk or Constructive loss.
 - (ii) Seriously damaged.
 - (iii) Probably damaged.
 - (iv) No claim - to be used following attacks where only near misses were seen or no results were observed.

The Committee then discussed the methods by which the Commands should submit their claims and it was finally agreed that a pro forma drawn up by Bomber Command would be very suitable for use by the Committee.

Discussion then turned on the need for confirmatory evidence, apart from the pilots reports, to assist in assessments and to substantiate claims. The Committee agreed that it was desirable for as much evidence as possible to be obtained, particularly from photographic or visual reconnaissance subsequent to an attack, before the final assessments by the Committee were made. It was, therefore, decided to base the work of the Committee on the principle that a week should elapse between the operations and their consideration by the Committee.

ibid
Encl. 14A

At the second meeting held at the Air Ministry on 14 August, 1941, the Admiralty representative explained that he had not yet obtained from the Directorate of Naval Construction suitable information which would enable him to place before the meeting an agreed definition of categories in relation to the different classes of ships, but after examining some four hundred results of anti-shipping operations by Bomber Command he had formulated a system of classification based on the definite results obtained which afforded quite a good "yard-stick".

The damage had been classified under the following headings, which were substantially as agreed at the first meeting:-

- (i) Category I Sunk or constructive loss
 - (a) Must be seen actually to sink, blow up, or be burnt out.
 - (b) Enemy admission after air attack.
 - (c) Subsequent definite confirmatory reconnaissance, i.e. wreck or wreckage seen, crew in lifeboats etc.
 - (d) Hits by sufficient weight of bombs to class as constructional loss.
- (ii) Category II Seriously damaged
 - (a) Beached.
 - (b) Well on fire.
 - (c) Abandoned.
 - (d) Reported well down by stern, bad list etc. but not actually observed to sink.
 - (e) Hits by sufficient weight of bombs to cause serious damage.
- (iii) Category III Damaged
 - (a) Seen to be hit, but not sufficiently heavily enough to be assessed under II above.
- (iv) Category IV No observed result, near misses, no claims.
 - (a) Unobserved results.

- (b) Near misses (to be assessed on their merits)
- (c) Believed hit.

To assist in the allotment of results to one of the four categories mentioned above it was also found necessary to categorise the merchant vessels as follows:-

- (i) Ships of 500 gross tons and below.
- (ii) Ships of 2,001 to 4,000 tons.
- (iii) Ships of 501 to 2,000 tons.
- (iv) Ships of 4,001 to 6,000 tons.
- (v) Ships of 6,001 tons and above.

Regarding the numbers and types of bombs used it was considered that if a ship of 2,000 gross tons or below was hit in a vulnerable part by a 250 lb bomb it could practically always be placed in Category I or II. If a ship of 2,000/4,000 gross tons was hit by 2x250 lb bombs, this would also apply. A ship of 4,000 tons or over would have to be hit by three or more 250 lb bombs before it could be placed in these categories. If 500 lb bombs were used, these figures should be halved. On the other hand, they should probably be doubled for tankers, which, owing to their construction, were not so susceptible to damage as ordinary merchant ships.

With regard to near misses, it was concluded that one of under ten yards (with G.P. bombs) could usually be placed in Category III. There would, of course, be occasions when the evidence enabled a near miss to be placed in Category II, but these would be exceptional. The fact that merchant vessels contained many cast iron fittings susceptible, to damage, was one reason why a near miss of ten yards with a G.P. bomb might well cause a fracture to some vital machinery. Near misses over ten yards away, in the great majority of cases, would cause no damage.

After examining a series of attack reports in the light of the above standards, the Committee decided that the "yard-stick" could be regarded as acceptable, but there was further discussion as to the evidence that was necessary before an attack could be assessed as coming under Category I.

For torpedo attacks, it was agreed that they should only be placed in Category I if the ship was seen to sink or subsequent evidence proved that it had sunk. If the ship was merely seen to be hit by a torpedo, it would be placed in Category II.

In making assessments under the procedure recorded above it was considered necessary to err if anything on the conservative side, as the reason for the formation of the Anti-Shipping Assessment Committee was that it was desirable there should be no question as to the integrity of our claims. As decisions of far reaching strategical importance might well be taken on these assessments, it was essential that every result should be carefully examined before categorisation. Unless, therefore, the quantities of bombs in any particular instance were overwhelming, or the ship was definitely seen to sink, contributory evidence should be regarded as necessary before a result was placed in Category I. The next category was also a most important one, for it meant that the ship in question was likely to be immobilised for a considerable time, if not altogether.

After the Committee had made preliminary assessments under these standards results would be examined by the Director of Intelligence (Operations) so that any additional evidence from intelligence sources might be considered and applied before they were submitted to an Admiralty Assessment Committee for ratification.(1)

ibid
Encl. 19A

At the third meeting of the Anti-Shipping Operations Assessment Sub-Committee held at the Air Ministry on 3 September, 1941, it was stated that a long report on our own merchant shipping casualties, divided into categories, had been received from the Naval Construction Department, but this had produced such conflicting information that it was of doubtful assistance to the Committee, and did not appear to alter the existing procedure of assessment adopted by the Committee to its second meeting.

In order to keep the meetings of the Air Ministry Assessment Committee in line with those being held at the Admiralty, it was agreed that the Committee should meet fortnightly, in future, when results of anti-shipping operations from the three Home Commands and the Middle East would be assessed. After ratification by the Admiralty Assessment Committee a combined report would then be circulated to all concerned.

(1) The Admiralty Assessment Committee was to meet for the first time on 21 August 1941.

THE DEVELOPMENT OF GROUND CONTROL INTERCEPTION
OF ENEMY SHIPPING

In the brief narrative of operations in the Dover Straits area for November, 1941, reference was made to the beginning of a new technique for utilizing aircraft under ground control for the attack of enemy shipping by night and in low visibility by day.

CC/S.7010/7/1
Encl. 10A

The origin of this idea dated back to 31 May, 1941, when the Director of Signals informed Coastal Command of the results being obtained against enemy shipping by the C.H.L. Station at Swingate. It had been ascertained that this station was reliably detecting all shipping over 1,000 tons passing within a radius of 23 miles, while other stations seldom detected enemy shipping within their reliable range except in hot, humid weather conditions when the stations at Fairlight and Beachy Head had found shipping up to ranges of 55 miles.

Although there was not a great deal of traffic passing through the Straits during June, 1941, it had been decided, as already outlined in chapter IV section (a), to make available both Blenheim and Beaufort aircraft of Coastal Command specifically for the job of attacking enemy shipping using these waters. It was the intention, in conditions of bad visibility by day and darkness by night, to direct individual aircraft immediately over the target by means of C.H.L. control, using a technique similar to that practised by Fighter Command.

As Coastal Command, however, had neither air crews nor ground Controllers accustomed to the method of procedure for R.D.F. controlled interceptions, it was necessary to request Fighter Command to provide the facilities for training the personnel in this special duty.

ibid
Encl. 3A

In order not to reveal our intentions to the enemy too early, it was decided to refrain from practice with Swingate, and instead Fighter Command agreed to the use of Foreness for the purposes of training. The lack of V.H.F./R.T. equipment in Coastal Command aircraft made it necessary for special R/T arrangements to be made at Foreness. On the completion of these details, two Coastal Command controllers were sent there for instruction.

CC/S.15080
Encl. 20A

However, before any really useful training had begun, the division of responsibility by areas had been approved by the Chief of the Air Staff, and as the Dover Straits area was no longer the responsibility of Coastal Command, the Beaufort squadron was withdrawn from controlled interception practices, likewise the Blenheim squadron owing to the requirements of re-armament with Hudson aircraft.

ibid
Encl. 10A

Subsequent to taking over the "Channel Stop" in mid-July, 1941, No. 2 (Bomber) Group stated that they were not prepared to train crews for R.D.F. controlled interception.

As the result of this announcement, the A.O.C.-in-C., Coastal Command, decided to concentrate upon this method of attack in order to augment the daylight attacks then being made by the Blenheims of No. 2 (Bomber) Group.

In support of this decision a section of three Beauforts of No. 22 Squadron was again ordered to Manston, one of which was made available for practising the aircrew and ground controllers with Foreness C.H.L. Station. At the same time efforts were made to improve the R/T communication between

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the ground station and the aircraft, and in addition the Naval C.-in-C., Nore, also provided a vessel of 1,900 tons to act as a target. After five days of practice, other operational commitments of a more pressing nature caused the Beauforts to be withdrawn for the second time, thus leaving the technique of R.D.F. controlled interception against shipping at sea still only partially developed.

However, experience so far had shown that it was well within the realm of possibility for a C.H.L. station to direct an aircraft immediately over a ship provided that the ship and the aircraft were both detected by the station.

It was also found that good communication must exist between the ground controller at the C.H.L. Station and the pilot of the aircraft. For this purpose Coastal Command aircraft were fitted with the T.R.9 transmitter and receiver, but this type of set was only able to work on the high frequencies which were readily detected and jammed by the enemy. Atmospheric interference, entertainment broadcasts and this deliberate jamming combined to render the use of H.F./R.T. control impossible by night.

The utilization of W/T had been considered, but owing to its comparative inflexibility delays were bound to occur between the controllers' orders and the pilot's compliance. It was, therefore, essential that if this form of R.D.F. interception was to be successfully developed, it must be conducted by V.H.F./R.T.

Since attempts at ship interception training had begun, an Admiralty Type 271 - 10 cm. set had been installed at Dover where it had detected vessels of the motor-boat type at ranges up to 70,000 yards, but it was not capable of detecting simultaneously, shipping and aircraft. However, it was considered that the shipping plot could be readily transferred to the adjacent C.H.L. Station from which the aircraft could be identified and controlled.

Further disabilities under which the scheme had been labouring so far included the lack of suitable targets in the way of surface craft and the provision of aircraft.

ibid
Encl. 21A

To overcome these difficulties it seemed desirable to form a special unit relieved of other operational duties, and furnish it with the full facilities for practising and developing the desired technique. The nature of the work involved, especially in the experimental stages to come, called for a great deal of training and improvisation, which it was contended could only be achieved by a small self-contained unit whose role it would be to examine the possibilities of the scheme and to develop new equipment.

ibid
Encl. 23A

In the south eastern part of England, the conditions essential for the setting-up of this specialised unit had been found impracticable: it was therefore proposed by Coastal Command, in a directive issued on 10 September, 1941, to detach a small number of aircraft and personnel from No. 217 Squadron to train at Chivenor in the west country. The choice of this station was determined by the fact that firstly it was a Beaufort O.T.U., secondly, the R.N.O., Barnstaple, had certain small craft which could be made available as targets, and thirdly, because Hartland Point C.H.L. Station was adjacent.

The detachment was placed under the command of the Air Staff Officer to Vice-Admiral, Dover, who was charged with the training of the personnel, the development of the technique, and

finally with operating the aircraft under the Air Officer Commanding, No. 16 Group.

In the final stage of training, the detachment was to be stationed at its operational base at Manston, being the aerodrome best located for work with the C.H.L. Stations covering the eastern part of the English Channel, and also most suitable for co-operation with V.A. Dover.

ibid
Encl. 3A

In the meantime the A.O.C.-in-C., Coastal Command, in order to facilitate the training of the Ship Interception Unit, had approached Fighter Command for the loan of V.H.F./R.T. equipment for installation in the aircraft to be used by the unit, also a two channel V.H.F. trailer, and in addition the services of an experienced controller to train the Coastal Command personnel in the ground controller's duties.

ibid
Encl. 27A

Almost immediately the required assistance was forthcoming. The A.O.C.-in-C., Fighter Command, made available all the necessary equipment, and provided one of his most experienced controllers for instructional purposes.

ibid
Encl. 51A

Throughout the remainder of September and the following month, the training syllabus was almost completed in spite of various difficulties encountered. By 1 November, 1941, the Air Staff Officer to V.A. Dover was able to report to Headquarters, Coastal Command, that six aircraft and crews of No. 217 Beaufort Squadron, trained for the interception of shipping under ground control, were established at Manston and ready to undertake operations.

ibid
Encl. 55A

The aircraft would be controlled from Swingate C.H.L. Station by the G.C.I. trained personnel making use of shipping plots obtained from the mobile C.S.I. Station⁽¹⁾ which had been sited at Capel in full working order.

The role of the detachment was defined as:-

- (a) To intercept enemy shipping in the Straits of Dover at night or in poor visibility by day.
- (b) In co-operation with naval forces under V.A. Dover to silhouette by means of flares enemy forces attacking our convoys or approaching the coast.
- (c) To co-operate with naval surface forces in attacking enemy convoys at night.

During daylight hours the availability of the aircraft was to be 1 at $\frac{1}{2}$ hour's notice, and from dusk to dawn 2 at $\frac{1}{2}$ hour's notice, and in addition 1 at 1- $\frac{1}{2}$ hour's notice to be brought to readiness when the other two were ordered off the ground.

Normal bomb load would be 4 x 500 lb. G.P. fused 11 seconds, also 8 x 4.5 flares.

ibid
Encl. 59A

It was essential that the detachment should be used on "Rover" operations in order that the crews should get some

(1) One Admiralty Type 271 set was specially prepared in mobile form with Plan Position Indicator for use by Coastal Command and was known as a Controlled Surface Interception Station. This Station under trials gave improved ranges at which enemy surface vessels could be traced, but there were difficulties in detecting aircraft.

activity during periods when there were no targets or tasks coming within the main role, but the initiative for thus employing the aircraft was only to come from V.A. Dover following discussions with the A.O.C., No. 16 (Coastal) Group, who would in turn put the suggestion to H.Q.C.C. for approval.

At a meeting held at Headquarters, Coastal Command, on 5 November, 1941, for the purpose of discussing the operation and administration of the detachment, the A.O.C.-in-C. ruled that those aircraft fitted for controlled interception of shipping should be brought up to the strength of one squadron so as to permit two flights to operate from separate aerodromes, as a permanent arrangement. It was also decided that all aircraft were to be fitted with A.S.V., Marconi W/T set and either V.H.F. or a T.R.9 R/T set, but later on it transpired that the aircraft could only be fitted with the special A.S.V. if the W/T set was excluded. In those circumstances it was decided by H.Q.C.C. that only the aircraft with the detachment at Manston were to be fitted with the special A.S.V., and in consequence it was necessary to give them special permission to operate, without W/T sets installed, on "Rover" or "Roam" patrols.

Thus the aircraft and crews were ready for operations, but a delay occurred in arranging the control of the aircraft from the ground, which resulted in the special detachment's activities as far as ground control interception was concerned, being confined to two or three isolated sorties, from which nothing of importance emerged.

From the inception of the Admiralty Type 271 set (C.S.I.) which was specially prepared in mobile form for use by Coastal Command, it was hoped that the ground control of aircraft could be effected directly from this mobile station, but as this idea had now proved impracticable, due to the inability of the set to detect aircraft as opposed to surface vessels, control had to come from a C.H.L. Station which could see the aircraft through-out, but generally relied upon the associated C.S.I. Station to provide the position of the target.

For this reason it was found necessary to seek confirmation from Fighter Command of the permission previously given for Coastal Command controllers to direct aircraft from Swingate C.H.L., on the occasions when the sole use of the station was required.

However, in view of the fact that at this time, i.e. November, 1941, Swingate was busy detecting enemy dive-bombers at night, it was impossible to effect its release for the sole use of ground controlled interceptions of enemy shipping; and as alternative arrangements could not be organised immediately, the S.I.U. had the misfortune of not being able to prove its capabilities in its particular method of attack.

This unhappy state of affairs was concluded on 29 January, 1942, when, owing to the shortage of crews specially trained in ground control, and to the operational necessity for employing all available Beaufort aircraft in their normal torpedo bomber role⁽¹⁾, it was found necessary to withdraw the special detachment of No. 217 Squadron at Manston for return to its parent unit.

(1) For employment against the German battle cruisers in Brest. See Chapter V, section (iv)(b).

ibid
Encl. 64A
and 65A.

ibid
Encl. 61A

ibid
Encl. 77A

ibid
Encl. 84A

ENEMY SHIPPING AT SEA - SUNK AND DAMAGED BY AIR ATTACK (R.A.F.) IN NORTH WEST EUROPE

JULY TO DECEMBER 1941

Group	Month	SUNK				DAMAGED				Remarks
		Assessment ^x		Verification [†]		Assessment ^x		Verification [†]		
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	
No. 16 Group (C.C.)	July	-	-	-	-	-	-	-	-	Night offensive - Wilhelmshaven to Cherbourg area. " " " " " " " " " " German convoys commenced movement by night. Coastal Command assumes responsibility for day and night offensive in Wilhelmshaven to Cherbourg area.
	August	-	-	-	-	-	-	-	-	
	September	-	-	-	-	2	13,000	-	-	
	October	2	10,800	1	100	6	26,000	1	6,123	
	November	4	3,981	4	3,821	11	43,276	2	8,919 8,919	
	December	1	8,777	1	8,777	5	17,300	-	-	
		7	23,558	6	12,698	24	99,576	3	15,042	
No. 18 Group (C.C.)	July	3	5,381	3	1,498	7	18,950	-	-	Day and night offensive - Denmark and Norway area. "
	August	-	-	1	125	5	11,000	2	994	
	September	2	10,989	2	5,499	5	18,441	2	6,125	
	October	6	7,290	5	4,969	12	32,479	3	2,959	
	November	1	142	1	142	2	10,100	1	1,468	
	December	3	10,900	3	6,150	7	27,000	1	287	
		15	34,702	15	18,383 18,383	38	117,970	11	11,531 11,531	
No. 19 Group (C.C.)	July	1	3,500	-	-	14	13,500	-	-	Day and night offensive - Bay of Biscay and W. Channel. "
	August	-	-	-	-	1	10,000	1	2,640	
	September	-	-	-	-	-	-	-	-	
	October	-	-	-	-	-	-	-	-	
	November	-	-	-	-	-	-	-	-	
	December	1	12,000	2	8,806	5	7,650	-	-	
		2	15,500	2	8,806	20	31,150	1	2,640	

Notes:-

^x Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.[†] Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners' Association.

Group	Month	SUNK				DAMAGED				Remarks
		Assessment *		Verification †		Assessment *		Verification †		
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	
COASTAL COMMAND	July	4	8,881	3	1,498	21	32,450	-	-	Daylight offensive - Wilhelmshaven to Cherbourg area. " " " " " " " " " " " " " " " " " " Withdrawn from the Anti-shipping role 25/11/41.
	August	-	-	1	125	6	21,000	3	3,634	
	September	2	10,989	2	5,449	7	31,441	2	6,125	
	October	8	18,090	6	5,069	18	58,479	4	9,082	
	November	5	4,123	5	3,963	13	53,376	5	10,085	
	December	5	31,677	6	23,733	17	51,950	1	287	
	Total	24	73,760	22	39,837	82	248,696	15	29,213	
	No.2 Group (B.C.)	July	10	34,840	4	3,923	23	54,098	1		3,845
August	6	9,598	3	1,318	14	50,948	1	2,288		
September	9	16,250	6	5,726	10	44,200	1	4,390		
October	2	2,633	2	2,661	4	14,080	-	-		
November	-	-	-	-	-	-	-	-		
December	-	-	-	-	-	-	-	-		
Total	27	63,321	15	13,628	51	163,326	3	10,523		
FIGHTER COMMAND	July	1	200	-	-	1	500	-	-	
	August	-	-	-	-	1	120	-	-	
	September	1	150	1	20	2	250	-	-	
	October	4	400	-	-	22	7,480	-	-	
	November	2	1,250	2	90	4	1,400	-	-	
	December	-	-	-	-	6	2,200	-	-	
	Total	8	2,000	3	110	36	11,950	-	-	
	GRAND TOTAL	July to December 1941	59	139,081	41	59,575	169	423,972	18	39,736

Notes:-

* Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.

† Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners' Association.

COMBINED NAVAL AND AIR ACTION AGAINST ENEMY SURFACE CRAFT IN THE DOVER STRAITS,
27 JUNE TO 17 JULY 1941

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date 1941	Origin of Report	Number and Type of Surface craft reported	Course and Speed	Time of Report	Action Taken							Assessment	Actual	Remarks
					Operation Code Name	Bombers No. Type - Sqdn.	Fighters No. of Sqdns.	Time of Attack	Armament Expended	E/A Claims	Own Losses			
June 27	C.H.L. and Jim Crow	3,000 ton merchant ship escorted by 5 Trawlers	NE/7 Knots.	1000 to 1113	"Roadstead"	3 Blenheims No. 59 Sqdn.	2 Sqdns. Nos. 92 and 609	1512	6 x 500 lb. S.A.P.	NIL	NIL	Sunk	Not Con- firmed	-
	C.H.L. and A/C	About 16 "R" Boats	-	0955 to 2145			NIL					-	-	Seen visually 5 miles off Calais at 1805 hours.
28	Jim Crow	Two 3,000 ton ships	N.E.	1515	"Roadstead"	3 Blenheims No. 59 Sqdn.	2 Sqdns. Nos. 92 and 258	-	-	-	-	-	-	No C.H.L. plots obtained. Strike force failed to locate.
	Jim Crow	One 1,500 ton tanker	S	1516								-	-	
	C.H.L.	"R" Boat Tender and 7 "R" Boats	-	1000 to 1450			NIL					-	-	Most likely sweeping between Dyck and Inner Ruytingen.
29	A/C	8 Coasters, 3 Trawlers and 1 Tug (including 3 tankers)	-	0755 to 2035			NIL					-	-	No C.H.L. plots obtained. No action taken as three small tankers entered Boulogne and other targets considered too small.
30	-	No movements known	-	-	-	-	-	-	-	-	-	-	-	-
July 1	-	No movements known	-	-	-	-	-	-	-	-	-	-	-	-
2	Jim Crow C.H.L.	5,000 ton ship escorted by 2 Trawlers	W/12	1500 1612-55	"Roadstead"	3 Blenheims No. 59 Sqdn.	2 Sqdns. Nos. 92 and 609	1824	6 x 500 lb. S.A.P.	-	-	Damage	N/C	Seen west of Dunkirk. Near misses with bombs.
					"Roam"	6 Beauforts No. 22 Sqdn.	-	2345	1 Torpedo	-	-	NIL	N/C	Only one Beaufort located the target. P.R.U. could not locate next day.
July 3	-	No reliable reports	-	-	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
July 4	C.H.L.	5 "R" Boats	-	1410 to 1600			Nil							Considered to be sweeping North of Boulogne, which they entered at 1600 hrs.
	A/C	200 ton merchant ship	W.	1640			Nil							123 degrees Dover - close to French coast.
5	C.H.L. Jim Crow	3 merchant ships escorted by 4 R-boats and 1 Flak ship	NE/11 Kts.	0826 to 0958	"Roadstead"	6 Blenheims No. 59 Sqdn.	1 Sqdn. No. 306	1315	12 x 500 lb. S.A.P.	-	-	Seriously damaged	N/C	Two direct hits on a vessel of 4,000 tons in middle position.
	C.H.L.	8 R-boats	-	1125 to 1754										Considered to have been sweeping from Boulogne.
6	C.H.L. L/C (22 Sqdn.)	1 Surface craft of 3,000 tons (approx.)	NE/6 Kts.	0650 to 0708 0900	"Roadstead"	3 Blenheims No. 59 Sqdn.	3 Sqdns. Nos. 609, 74, 308	-	-	-	-	-	-	Poor plot. Strike force failed to locate this doubtful target.
	C.H.L.	2 E-boats	-	2345/6 to 0355/7			Nil					-	-	Sighted off Dungeness by M.Ls. at 0320 hrs. No engagement due to lack of speed of M.Ls.
7	Jim Crow C.H.L.	One 3/5,000 ton ship with 13 escort vessels	NE/10 Kts.	1030 to 1401	"Roadstead"	3 Blenheims No. 59 Sqdn.	-	1524	4 x 500 lb. S.A.P.	-	1	Damaged 1 MV(3,000)	N/C	One direct hit and one near miss claimed.
	A/C and C.H.L.	Number of E or R-boats	-	1537	"Roadstead"	2 Blenheims No. 59 Sqdn.	3 Sqdns. Nos. 306, 222, 402	1537	4 x 500 lb. S.A.P.	-	-	Sunk (1 E or R-boat)		This strike force sighted these vessels off Calais and attacked instead of the target above.
8	A/C Jim Crow	15 large barges and 3 or 4 Tugs	W.	1000 to 1345			Nil						-	Proceeding down the French coast from Ostende to Calais.
	Jim Crow	2 small Coasters	W.	1347			Nil						-	Sighted west of Calais.
9	C.H.L. Jim Crow	6 R-boats and Tender	SW (at 1850)	0255 to 2056			Nil					-		Sighted between Calais and Gris Nez.
10	A/C Jim Crow C.H.L.	6 "M" Class Mine-sweepers (5/600 tons)	NE/14 Kts.	0255 to 1505			Nil					-	-	Poor plot. At 0215 hrs. reported as 6 destroyers off Fecamp. At 0620 hrs. seen between Le Touquet and Boulogne. Target considered too difficult to attack successfully without severe losses.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
July 11	C.H.L. Jim Crow	2 Surface craft plus	NE/6 Kts.	0554 to 0656			Nil					-	-	Probably one dredger and two trawlers seen entering Calais about 0700 hours by Jim Crow.
12	Jim Crow	1 Trawler and 2 E or R-boats	-				Nil					-	-	A/C attacked with cannon. Surprise achieved - no flak.
13	Jim Crow	8 R-boats and 8 small coasters	N	1100			Nil					-	-	A/C attacked with cannon. One R-boat believed damaged.
	Visual	4 small motor vessels		1726 to 1900			Nil					-	-	Possibly sweeping.
14	Visual A/C	2 small vessels, 2 Trawlers, 2 R-boats and 1 Lighter	-	1010 to 1715			Nil					-	-	Seen operating close in to the French coast.
15	Visual	1 Coaster (250 tons)	W	1435			Nil					-	-	-
16	Visual C.H.L.	1 Tanker (6,000 tons) in ballast escorted by 6 Trawlers	S.W./12 Kts.	1540	"Roadstead"	3 Blenheims No. 59 Sqdn.	1/2 Sqdn. No. 54	-	-	-	-	-	-	Two A/C did not locate, but the third reported a ship of 5,000 tons about 1/2 mile off Boulogne breakwater. Too close to attack.
					"Tank)	3 Beauforts No. 22 Sqdn.	-	2113	2 Torps.	-	-	Damaged	N/C	Estimated one hit under foremast Column of dense smoke observed by all A/C.
	A/C	9 E or R-boats	S.W.	1415			Nil					-	-	Sighted off Cap Gris Nez.
	A/C	11 small vessels	S.W.	1840			Nil					-	-	Sighted off Cap Gris Nez.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
July 17	Visual C.H.L.	1 Merchant ship (6,000) and 1 Coaster (1,500 tons) possibly tanker, and 2 Escort vessels	S.W./ 12-14 Kts.	1543	"Roadstead"	6 Blenheims No.59 Sqdn.	2 Sqdns. Nos.485 and 602	1846	2 x 500 lb. G.P. 11 x 250 lb. S.A.P.	-	-	N11	N/C	No results observed apart from a near miss.
					"Roadstead"	3 Beauforts No.22 Sqdn.	2 Sqdns. Nos.603 and 611	2148	3 Torps.	-	-	N11	N/C	No results observed.
	C.H.L. A/C	7 R-boats and reports of barges	-	-			N11							
<div> <div>Bombers</div> <div>Totals 27 JUNE to 17 JULY, 1941</div> </div> <div> <div>Fighters</div> <div>17½ Sqdns.</div> </div> <div> <div>Bombs</div> <div>8.82 Tons</div> </div> <div> <div>Torps.</div> <div>6</div> </div> <div> <div>Wastage</div> <div>1 Blenheim</div> </div> <div> <div>Assessments</div> <div>1 Ship of 3,000 tons SUNK 4 Ships of 18,000 tons DAMAGED</div> </div> <div> <div>Actual</div> <div>None confirmed.</div> </div>														
COMBINED NAVAL AND AIR ACTION AGAINST ENEMY SURFACE CRAFT IN THE DOVER STRAITS - 18 JULY TO 7 OCTOBER, 1941														
July 18	Visual Jim Crow C.H.L.	6,000 ton Tanker escorted by 3 Trawlers	NE/12	0805-1020	"Roadstead"	3 Blenheims No.21 Sqdn.	2 Sqdns. No.222 and 609 Spitfires	1100	12 x 250 lb.	1	3(b) 1(F)	Seriously damaged	N/C	Ship left burning.
	Visual	5 Trawlers		0843			N11					-	-	Believed entering Calais.
19	Jim Crow	5,000 ton Tanker	-	1800	"Roadstead"	2 Blenheims No.21 Sqdn.	1½ Sqdns. Nos.611 and 242, Spitfires		8 x 250 lb.	-	-	Sunk	N/C	Hit claimed. Left in flames. No.242 'Flak' Sqdn. attacked Flak ships in vicinity.
	Visual	9 Trawlers and 2 small coasters	-	1150-1900			N11							Sighted between Calais and Boulogne.
20	Jim Crow Visual C.H.L.	6,000 ton Tanker, escorted by 2 Trawlers	W/12	1040	"Roadstead"	6 Blenheims No.21 Sqdn.	4 Sqdns. Nos.72, 242, 222, 485, Spitfires and Hurricanes	1545	24 x 250 lb.	-	2(B)	Seriously damaged	N/C	Seen off Ostende. Two hits claimed on stern, and one amidships. An attack by two destroyers from Portsmouth called off when it was learnt of aircraft's success. Three MTBs also despatched at dusk, but returned owing to defects.
	Jim Crow	3 Tankers (one of 3,000 tons and two 1,000 tons)	W/-	1040	"Roadstead"	6 Blenheims No.21 Sqdn.	2 Sqdns. Nos.222 and 242	-	-	-	-	-	-	Target not located by bomber force, but part of fighter escort attacked with M.G. and Cannon.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
July 21	Jim Crow C.H.L.	3/4,000 ton merchant ships escorted by 2 Trawlers	NE/-	0705	"Roadstead"	4 Blenheims No. 21 Sqdn. 3 Blenheims No. 21 Sqdn.	2 Sqdns. Nos. 242, 222, 3 Sqdns. Nos. 242, 222, 603. Spitfires		12 x 250 lb.	-	-	Nil	-	Bombs overshoot. Later, ship seen to enter Dunkirk by Jim Crow.
21	Jim Crow	6,000 ton Tanker towed by two Tugs and escorted by 8 R-boats	N/-	0705			Nil					-	-	Seen off Berck. Believed to be tanker attacked on 20 July. Entered Boulogne 1130 hours.
22	Jim Crow	3 ships or 3,000 tons and 10 Flak ships	-	1020			Nil					-	-	Stationary off Calais.
	C.H.L.	1 surface craft plus	SW/6	1120 - 1257			Nil					-	-	Possibly same force as above. Plotted from Calais to Gris Nez.
	Visual	4 small vessels	W	1535			Nil							All available bombers tied up for possible move of SCHARNHORST.
23	C.H.L. Jim Crow	One 3/4,000 ton Tanker with 4 escort vessels	E	0826 - 0930	"Roadstead"	6 Blenheims No. 21 Sqdn.	3 Sqdns. Nos. 242, 610, 145. Spitfires and Hurricanes	-	-	-	-	-	-	Seen off Calais at 0930 hrs. As fighter escort was delayed an attack off Gravelines did not take place.
					"Roadstead"	6 Blenheims No. 21 Sqdn.	3 Sqdns. Nos. 242, 610, 145.		12 x 250 lb.	2	4(B) 2(F)	Damaged	RAU III (Whaler) 354 tons SUNK	Ship seen on fire.
24		6,000 ton Tanker in tow with 4 or 5 escort vessels	-	-	-	-	-	0337	-	-	-	-	N-C	Attacked by MTBs just S. of Berck. 1 E/V believed sunk.
	Jim Crow	same force	W/5	1000	"Roadstead"	6 Beauforts No. 22 Sqdn.	3 Sqdns. Nos. 72, 92, 609.	1223	6 Torps.	1	-	Nil	-	Located off Fécamp. No hits claimed.
	Jim Crow	Small craft	-	1030 - 1700			Nil					-	-	Indefinite reports.
25	-	None of importance	-	-	-	-	-	-	-	-	-	-	-	-

SECRET

APPENDIX XI

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
July 26	Jim Crow C.H.L.	14 Minesweepers	-	1655	-	-	5 Spitfires	-	Cannon and M.G.	-	-	Nil	-	8 seen operating off Boulogne and 6 off Ostende.
27	C.H.L.	1 Destroyer escorted by 6 R-boats	NE/23	1425	-	-	-	-	-	-	-	-	-	Attacked by 4 MTBs and 1 MGB at 1430 hrs. Surprise achieved but no hits claimed. Fighters co-operated.
28	-	Nothing of import- ance	-	-	-	-	-	-	-	-	-	-	-	-
29	-	None known	-	-	-	-	-	-	-	-	-	-	-	-
30	-	No definite move- ments	-	-	-	-	-	-	-	-	-	-	-	-
31	Visual C.H.L. Visual C.H.L.	1,000 ton merchant ship Numerous small craft	W -	1444 - 1510 1420 - 1846	N11									Target entered Boulogne. Including 6 Trawlers and 8 R-boats sweeping between Boulogne and Calais.
Aug. 1	Jim Crow C.H.L.	1,500 ton merchant ship escorted by 2 Trawlers	E/7	0725 - 0935	"Roadstead"	3 Blenheims No. 107 Sqdn.	1 Sqdn. No. 242 Spitfires	1130	4 x 250 lb.	-	2(B) 1(F)	Nil	-	Ship passed Gris Nez 0725 hrs. Straddled but no claims made.
2	A/C	3 coasters (1 of 2,000 tons and 2 of 500 tons)	E/6-7	1536	"Roam"	3 Beauforts No. 22 Sqdn.	-	1536	3 Torps.	-	1(B)	Seriously damaged	N/C	Explosion, after which ship burst into flames.
10	C.H.L. Jim Crow	4,000 ton merchant ship escorted by 2 Flakships and 2 E-boats Same target	E/12 -	0930 - 1406 -	"Roadstead" "Roadstead"	3 Blenheims No. 226 Sqdn. 3 Blenheims No. 226 Sqdn.	1½ Sqdns. Nos. 3 and 242 Hurricanes 4½ Sqdns. Nos. 242, 3, 306, 308 and 315	1200 -	4 x 250 lb. -	1 -	2(B) 1(F) -	Seriously damaged -	N/C -	Sighted off Gravelines. Two hits claimed. Ship left on fire amidships. Flakships also claimed damaged. This strike force did not locate the target, but C.H.L. plotted these vessels proceeding by outer route as far as Bergues Bank.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Aug. 17	C.H.L. Jim Crow Visual ry Service	6,000 ton Tanker escorted by 5 Flakships	SW/12	1220	"Roadstead"	3 Beauforts No. 22 Sqdn.	5 1/2 Sqdns. Nos. 3, 222, 315, 242, 308, 610	1745	3 Torps.	-	1(B)	Damaged	N/C	Passed Gris Nez 1600 hrs. Attacked off Le Touquet - one hit estimated. Vessel towed to Boulogne.
		Same target	SW/11	1645	"Roadstead"	3 Blenheims No. 18 Sqdn.	3 1/2 Sqdns. Nos. 3, 242, 603 and 403	-	-	3	2(F)	-	-	Target found earlier than expected, but task abandoned as fighter escort engaged in combat.
18	C.H.L. Jim Crow	Same target	W/11	2115 - 2245	-	-	-	-	-	-	-	-	-	Weather unsuitable for M.T.Bs or A/C. Vessel left Boulogne at 2115/18 and entered Le Havre a.m/19 according to Jim Crow.
25	C.H.L. Jim Crow	5,000 ton ship with 6 Mine- sweepers and 5 flak ships	E/8-10	0429 - 0720			Nil					-	-	Passed Gris Nez at 0447 hrs. Weather unsuitable for A/C or M.T.Bs.
27	C.H.L. Jim Crow	2,000 ton merchant ship with 2 Escort vessels	E/7-10	0519 - 0728			Nil					-	-	Attack laid on, but cancelled when force entered Calais.
29	C.H.L. Jim Crow	Same target	E/11	0557 - 0728			Nil							Left Calais 0557 hours entered Dunkirk 0915 hours.
30	C.H.L. Jim Crow	Same target	E/-	0650 - 0915	"Roadstead"	3 Blenheims No. 139 Sqdn.	3 Sqdns. Nos. 242, 54, 603	-	-	-	-	-	-	Seen off Dunkirk by Jim Crow about 0650 hrs. Strike force failed to locate swing to poor visibility.
					"Roadstead"	3 Blenheims No. 139 Sqdn.	3 Sqdns. Nos. 72, 611, 242	-	-	-	-	-	-	Task abandoned owing to lack of high fighter cover.
	C.H.L. Visual	6 Escort vessels or 'M' Class Minesweepers	W/8	0653 - 0835	-	-	-	-	-	-	-	-	-	2 Fighter A/C attacked with cannon off Ostende.
	Jim Crow C.H.L.	1,000 ton ship	W/-	0650 - 0915			Nil					-	-	Seen off Dunkirk by Jim Crow. Entered Calais about 0915.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Aug. 31	Jim Crow C.H.L.	2 ships of about 2,000 tons with 2 flakships	W/8	0745 - 1400			N11					-	-	Seen off Dunkirk at 0745 and entered Boulogne 1140. Left Boulogne at 2000 and plotted by C.H.L. up to 55 miles from Beachy Head. Attack laid on off Gravelines was cancelled, due to 2nd Jim Crow failing to locate. Attack off Etaples can- celled due to vessels entering Boulogne.
Sept. 2	C.H.L. Jim Crow	4,000 ton merchant ship with 8 smaller cargo ships and 9 E/Vs Same target	E/-	0030 - 1100	"Roadstead" "Roadstead"	3 Blenheims No. 139 Sqdn. 3 Blenheims No. 139 Sqdn.	4 Sqdns. Nos. 242, 611, 54 and 603 3 Sqdns. Nos. 242, 485 and 452.	- 1100	- 12 x 250 lb.	- 2	- 1(B)	- Seriously damaged	- N/C	Passed Gris Nez at 0140 hrs. Failed to locate convoy. Fired on Coastal batteries. Attacked off Zeebrugge. Merchant ship hit and left burning furiously. 2 Escorts claimed damaged.
4	C.H.L.	4 Surface craft (over 1,000 tons)	E/-	0243 - 0515			N11					-	-	Plotted from Berck-sur- Mer to Boulogne which was entered at 0515 hrs. No MTBs available.
5	C.H.L.	2 Surface craft (over 1,000 tons)	E/-	0406 - 0505			N11					-	-	Entered Boulogne 0518 hrs. MTBs unable to attack owing to approaching daylight.
8	C.H.L. Visual ty Service C.H.L.	2 Maas class . Destroyers One 4,000 ton and one 3,000 ton merchant ships with Trawler and R-boat escorts	E/17-25 E/9	0420 - 0645 2133 - 0200/9			N11					- 1 MV (4000) SUNK 1 MV (3000) DAMAGED	- Trifels (Ge) 6,198 g.r.t. SUNK	Passed Gris Nez 0510 hrs. Conditions of daylight and unlimited visibility unsuitable for MTBs to operate. Passed Gris Nez 2250 hrs. 3 MTBs attacked and claimed 4000 ton M/V sunk, and damaged 3,000 ship. One R-boat also claimed sunk and 1 TLR set on fire.

APPENDIX XI

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sept. 11	Jim Crow C.H.L.	1,500 ton merchant ship with 8 Flakships	W/9	0640 - 0825			N11					-	-	Seen 2 miles off Gravelines by Jim Crow at 0640. Entered Calais 0825. Intended attack cancelled.
12	C.H.L. A/C Jim Crow C.H.L.	1 Surface craft (over 1,000 tons) One 3/4,000 ton ship with Trawler and R-boat escort	W/10 W/15	2108 - 2048 0455 - 0801			N11					-	-	Left Boulogne at 1945. Seen by No. 16 Group A/C off Dunkirk. Passed Griz Nez 0745 hrs. No attack laid on by bombers due to Naval operation 'J.R.' being brought into force.
13	C.H.L.	2 Surface craft (over 1,000 tons)	W/9	0615 - 0840			N11					-	-	Left Calais 0615 hrs. Passed Gris Nez 0745. Entered Boulogne 0840.
17	A/C	One 4/5,000 ton merchant ship escorted by 3 flakships	W/-	0700	"Roadstead"	3 Blenheims No. 88 Sqdn.	2 Sqdns. Nos. 615 and 609	-	-	-	-	-	-	Fighter Command A/C reported this force as 4 miles north of Nieuport. Attacked with M.G. and Cannon. Bombers failed to locate.
18	C.H.L. Jim Crow	4,000 ton Tanker, escorted by 9 flakships	E/-	0330 - 0730	"Roadstead"	3 Blenheims No. 88 Sqdn.	3 Sqdns. Nos. 615, 41, 91		12 x 250 lb.	7	2(B) 3(F)	Seriously damaged	N/C	Left Boulogne 0330 hrs. Passed Gris Nez 0425. Direct hits claimed on tanker. Large explosion-ship stopped. Five naval craft sent to attack had to withdraw owing to collision when about to attack.
18	C.H.L.	2 large, 1 medium, 1 small Surface craft (over 1,000 tons)	W/1072	2010 - 0030/19	-	-	-	-	-	-	-	-	-	Left Boulogne 2010. Composition of force doubtful due to poor visibility. 5 Naval craft despatched but failed to locate.
19	C.H.L. Jim Crow	2,000 ton ship(?) and 1 flakship					N11					-	-	Operating off Calais probably minesweeping. Seen also on 20, 21, 24, 26 and possibly 27.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sept. 24	C.H.L. Jim Crow	2,000 ton merchant ship in ballast with 2 E/Vs	W/8	1225 - 1605			N11					-	-	Left Calais 1225 hrs. Passed Griz Nez 1400. Entered Boulogne 1605. Attack laid on but cancelled when vessel entered port.
27	C.H.L.	4 Surface craft (over 1,000 tons)	W/8-10	1920 - 2104			N11							Left Boulogne 1900 hrs. Target not considered suitable. PRU and Jim Crow stated only small ships.
28	C.H.L.	4 small Surface craft	-	-	"Roadstead"	3 Blenheims No. 88 Sqdn.	2 Sqdns. Nos. 54 and 615	-	-	-	-	-	-	Off Calais. Target not located.
Oct. 1	C.H.L.	One 2401 vessel, One 'M' class Minesweeper 3 Trawlers 3 E or R-boats	W/7	2127/30 - 0123	-	-	-	-	-	-	-	-	-	Passed Gris Nez 0027 hrs. and proceeded to Boulogne. Three MTBs and 2 MGBs sent to attack but unable to make contact on account of moon condi- tions. One MTB fired a torpedo and believed it hit a trawler which sank. MGBs engaged escorts. The 2401 vessel was seen by P.R.U. in Cherbourg on 25th.
			<u>Bombers</u>	<u>Fighters</u>	<u>Torps.</u>	<u>Bombs</u>	<u>E/A</u>	<u>Own</u>	<u>ASSESSMENTS:</u>		<u>Air Action</u>	<u>Actual</u>		
TOTALS 18 JULY to 7 OCTOBER, 1941			80	52½ Sqdns.	12	10.16 tons	17	18(B) 10(F)	1 Ship of 5,000 tons SUNK 8 Ships of 35,000 tons DAMAGED			1 Ship of 354 tons. Nil damaged.		
8 OCTOBER TO 31 DECEMBER, 1941														
Oct. 24	C.H.L. A/C	One merchant ship about 2,000 tons with two escort vessels	W/6	2255/23 - 0330			N11							Picked up 7 miles NNW. of Gravelines. Passed Gris Nez at 0220 hrs. and entered Boulogne about 0330 hrs. Weather unsuitable for MTBs to operate.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Oct. 25	C.H.L.	Two vessels believed to be two destroyers	E/30	0216 - 0325	STRIKE	5 Blenheims No. 500 Sqdn.	-	-	-	-	1(B)	-	-	Passed Gris Nez 0230 hrs. Only two A/C completed patrol but saw nothing.
30	C.H.L.	4 small ships	-	-	"Roadstead"	4 Hurribombers No. 607 Sqdn.	1 Sqdn. No. 615 (7 A/C)	-	-	-	-	-	-	Plotted off Gravelines, but Fighter-bombers did not make contact.
Nov. 3	C.H.L.	One merchant ship about 5,000 tons escorted by 1 'M' class Mine-sweeper and 4 R-boats	W/8-9	2025 - 0105			N11					Seriously damaged	Batavier V 1573 tons SUNK	Passed Gris Nez 2205 hrs. 3MTBs and 2 MGBs engaged this force south of Gris Nez. MV hit by two torpedoes, damaged and beached. A/C detailed to operate but weather unsuitable.
14	C.H.L.	One large surface vessel with 3 small craft	W and E/7	2237 - 0300/15			N11					-	-	Probably large minesweeper. Proceeded from Calais to Wissant. Turned round and last plotted off Gravelines on NE-ly course. Weather unsuitable for attack.
15	C.H.L.	One merchant ship possibly over 1,000 tons with 1 or 2 Trawlers and 6 or 7 R-boats	E/8-9	1835 - 2200	STRIKE	2 Beauforts No. 217 Sqdn.	-		4 x 500 lb.	-	1(B)	N11	-	Left Boulogne at 1835 hrs. Passed Gris Nez at 1955. Attacked off Blane Nez at 2045 by MGBs. Damage and casualties sustained by both sides.
16	C.H.L.	2 Surface vessels believed to be over 1,000 tons	W and E 3-4	2024/16 - 0740/17			N11					-	-	Left Boulogne 2024. Passed Gris Nez 0200/17. Turned round off Gravelines and finally entered Boulogne about 0740 hrs. Weather unsuitable for MTB or A/C attack.
23	C.H.L.	2 Surface vessels over 1,000 tons with 2 Escort vessels	W/7-9	0047 - 0605			N11							First detected 4 miles N. of Gravelines. Passed Gris Nez 0445; entered Boulogne about 0605. Weather unsuitable for MTB or A/C attack.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nov. 25	C.H.L.	1 Large Surface vessel with 4 escort craft	E and W/11	1812 - 2320			Nil					-	N/C	Left Boulogne 1812 hrs. Passed Gris Nez 1840. Proceeded to Dunkirk and returned to Boulogne. 4 MTBs attacked in very low visibility. Main target not sighted but one E/V believed sunk.
27	C.H.L.	One 2,500 ton Merchant ship (laden). One 1,500 ton M/V (in ballast) with 5 Flakships	W/6-8	1220	"Roadstead"	8 Hurri-bombers No. 607 Sqdn.	3 Sqdns. Nos. 603, 65, 41		16 x 250 lb.	2	-	SUNK 1 MV (1,000) 1 E/V Seriously damaged 1 E/V	N/C	Attacked off Fécamp. Ship emitted large volume of black smoke.
28	C.H.L.	One large vessel with 4 escorts	W/8	2005 - 2108			Nil					-	-	Left Boulogne 2005 hrs. Stern chase by MTBs not considered practicable.
28	C.H.L. yt Service	One large surface vessel with escort of Torpedo Boats	E/12-13	0120 - 0450			Nil					-	-	Passed Gris Nez at 0230 hrs. Attacked by 6 MTBs and 2 MGBs. Although escorting screen penetrated main target not located. One T.B. believed damaged.
Dec. 3	C.H.L.	One merchant vessel about 2,000 tons and 3 smaller craft (Believed to be Raider E)	W/10-12	1913 - 2130			Nil					-	-	Plotted from Dunkirk A.W. Buoy. Passed Gris Nez at 2040 hrs. Attacked by 3 MTBs and MGBs in low visibility. Second MTB force did not contact as vessel entered Boulogne 2130.
5	A/C	One merchant vessel of 1,200 tons, one ship about 1,500 tons with 2 E or R-boats	W/-	1145	"Roadstead"	8 Hurri-bombers No. 607 Sqdn.	3 Sqdns. Nos. 65, 41, 32		16 x 250 lb.	1	4(B)	DAMAGED 1 MV (500) 1 MV (150) 1 TLR (150)	N/C	Seen off Fécamp. Main target not located. So attacked small craft off Le Havre.
13	C.H.L. yt Service	One surface vessel about 4,000 tons escorted by 5 Torpedo Boats (Believed to be Raider B)	W/16 and 19	2127 - 0125/14			Nil					-	-	Passed Gris Nez 2305. Stopped one hour off Boulogne then proceeded on southerly course. Weather unsuitable for A/C or MTBs to operate.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dec. 16	C.H.L.	2 merchant vessels believed to be about 1,500 tons each	E/10	1955 - 2330	"STRIKE"	2 Beauforts No. 217 Sqdn.	-	0216/ 17	4 x 500 lb. G.P.	-	-	Nil	-	Left Boulogne 1955 hrs. Passed Gris Nez 2100 hrs. Plot faded 4 miles NE of Gravelines. Only one Beaufort located target by ASV and attacked. No results observed. MTBs failed to make contact due to rough weather.
28	C.H.L.	One merchant vessel about 1,500 tons with one escort vessel	E/14	1750 - 2030	"STRIKE"	2 Beauforts No. 217 Sqdn.	-	-	-	-	-	-	-	Left Boulogne 1750 hrs. Passed Gris Nez 1835. Plot faded 2 miles east of Dunkirk. Moon conditions favoured air attack, but target not located.
	C.H.L.	4 surface vessels, one of which believed over 1,500 tons	N/10	0640 - 0730			Nil					-	-	First picked up about 6 miles SW. of Boulogne, and entered port 0730. No action was possible in available time.
	C.H.L.	One surface vessel about 2,000 tons with one escort	E and W 12	1810 - 2300			Nil					-	-	Left Boulogne 1810 hrs, proceeded to Dunkirk A.W. buoy where it turned round and entered Boulogne about 2300. Moon conditions favoured air attack but no aircraft available.
					<u>Bombers</u>	<u>Fighters</u>	<u>Torps.</u>	<u>Bombs</u>	<u>Wastage</u> <u>E/A</u> <u>Own</u>	<u>Assessments</u>			<u>Actual</u>	
<u>TOTALS 8 OCTOBER to 31 DECEMBER 1941</u>					31	7 Sqdns.	Nil	5.80 tons	3 6(B)	1 ship of 1,000 tons SUNK 5 ships of 5,800 tons DAMAGED 1 E/V - SUNK 1 E/V - DAMAGED			None.	

DAMAGE INFLICTED ON THE BREST GROUP BY AIR ATTACKS

(References -- Admty. N.I.D.24/X.120/47 and

Admiral Fein's Report)

Date	Scharnhorst	Gneisenau	Prinz Eugen
<u>April</u> 1941		<p>6.4.41. Torpedoed by a Coastal Command Beaufort (X/22 Squadron). Repairs estimated to take at least until August 1941</p> <p>10.4.41. Hit by bombs in a Bomber Command attack. Damage increased and would take until the winter of 1941 to make good</p>	
<u>July</u> 1941	<p>24.7.41. Hit by several bombs when at La Pallice in a bomber Command attack. Returned to Brest where it was estimated that repairs would take until December 1941 to make good</p>		<p>1.7.41. Hit by a heavy bomb in a Bomber Command attack. Repairs estimated to take until the winter to make good.</p>
		<p>During the summer it transpired that the torpedo hit necessitated a new propeller shaft which could not be in place before 1.1.42</p>	<p>Damage more serious than at first estimated. Date for completion of repairs put off until the end of the year.</p>
<u>Dec.</u> 1941	<p>18.12.41. A hit on the lock gate during a Bomber Command raid made it impossible to undock the ship before 18.1.42</p>	<p>18.12.41. Bomb explosions on edge of dock during a Bomber Command raid inflicted damage which added to the repair work necessary for sea readiness</p>	
<u>Jan.</u> 1942		<p>6.1.42. During a Bomber Command raid a bomb exploded between the side of the ship and the jetty. The damage was temporarily made good by 21.1.42</p>	
	<p>Ready for Sea 18.1.42</p>	<p>Ready for Sea 21.1.42</p>	<p>Ready for Sea 1.1.42.</p>

See over for details of damage inflicted.

DETAILS OF DAMAGE

5.4.41

The "Gneisenau" had to be taken out of dry dock owing to an unexploded 250 lb. bomb being found in the bottom of the dock. The ship was taken to a buoy in the Rade Abri.

6.4.41

The "Gneisenau" was attacked as she lay at this buoy by a torpedo carrying aircraft. The torpedo hit aft on the starboard side. The chief damage was as follows:-

(1) Structural. The skinplating and the wing bulkhead between Nos. IV and V compartments were destroyed. The starboard torpedo bulkhead was stove in along a length of about 10 ribs and in places was torn away from the armoured deck. One transverse bulkhead was pushed out, causing the longitudinal bulkhead to be torn between No. 1 turbine room and the shaft tunnel at Starboard 3.

(b) Engines. The starboard propeller shaft was badly bent in places. The bearings were damaged or destroyed. Most of the installations of the shaft tunnel at Starboard 2 were destroyed. Nos. 1 and 3 turbine rooms and No. 1 dynamo room were affected by water.

(c) Armament. The after A/A change-over switch and computer room, the after 3-phase current switch room and the transformer room were almost completely destroyed. A number of rooms in compartments III to VI were flooded and there was damage by water and oil. The pedestal mounting of "C" turret was partially affected by water.

The time estimated for repair was four months. It was not thought that the ship's bilge pumps would stand the strain imposed on them and attempts were made to dock the ship. These were unsuccessful and a sperrbrecher and minesweepers were brought alongside to protect the ship from further torpedo attacks while lying at the buoy. An air raid during the night of the 6th/7th caused no further damage and the "Gneisenau" was successfully moved into dry dock during the 7 April.

10.4.41

An air raid commenced at 2250 hours and was directed entirely against the two ships and the dock. At 2335 hours the "Gneisenau" received four hits close together which caused serious vibration in the ship. Much material damage was done together with 50 men killed and 90 wounded. Several fires were started and respirators had to be used owing to the smoke and explosion gases.

Details of hits and damage were as follows:-

The first hit grazed the upper edge of the racer of "B" turret and exploded on the upper deck on the starboard side of the barquette of "B" turret. The thin upper deck armour plating was pierced and stove in.

The second hit passed through the gap made by the first and exploded on the armoured deck on the starboard side of "B" turret.

The third hit passed through the spar deck, the upper deck and the battery deck and exploded in the 'tween deck on the starboard side at No. XIV compartment.

The fourth hit failed to explode. It passed through the spardeck, the upper deck and the battery deck and

instead of exploding on the armoured deck it bounced back through the hole in the battery deck where it was found later (on the 25 April).⁽¹⁾

None of the bombs pierced the armoured deck. The second and third hits made dents about 50 m.m. and 80 m.m. respectively. However, the armoured hatch in the ante-room to the control room was blown off and destruction and damage was caused in the control room and action dressing station below the armoured deck.

Destruction in compartments XIII to XVII on the 'tween and battery decks resulted in the loss of mess deck accommodation for one third of the crew. The dressing station and damage - control centre on the upper orlop deck were severely damaged and on the middle orlop deck the instruments in the forward A/A change-over switch and computer room were put out of action by water; this was particularly serious because of the similar damage aft caused by the torpedo hit on the 6 April.

The damage on the spar deck and upper deck was only slight.

1.7.41

During an attack on Brest on the night of the 1/2 July the "Prinz Eugen" sustained a direct hit by a heavy bomb on the port side of the upper deck in the fore part of the ship. The bomb pierced the armoured deck and exploded below completely destroying the switch room amplifier compartment, the compass room and the transmitting station. At the same time 51 men were killed and 32 wounded. The time needed for repairs was estimated as at least five months.

24.7.41

While lying alongside the mole at La Pallice, the "Scharnhorst" was attacked by about 15 bombers. Five direct hits were registered on the starboard side of the upper deck from $3/4$ to $3\frac{1}{2}$ metres away from the side. Three were heavy bombs (320 m.m. calibre) which all pierced the upper and armoured decks and then passed out through the skin plating. One bomb of medium size (300 m.m. calibre) exploded on the armoured deck and one bomb of smaller size (270 m.m. calibre) exploded on the side armour above the armoured deck. Losses in personnel were relatively small.

The first hit (270 m.m.) went through the upper and battery decks, through the 'tween deck and exploded over the armoured deck forcing the side armour out somewhat. Some destruction was caused on the 'tween and battery decks but the explosion was not very violent.

The second hit (320 m.m.) passed through all decks including the armoured deck, the stowage and double bottom and exploded shortly after coming through the bottom. Water and fuel oil poured into No. IV dynamo room and the action switchboard room. No. XII compartment on the 'tween deck was flooded with water and oil and No. III boiler room, being endangered, was shored up.

The third hit (320 m.m.) went through all decks as far as the armoured deck, then passed through the skin plating without exploding. Water and oil penetrated from below as far as the 'tween deck.

(1) This was a 250 lb. bomb but the German records do not say whether it was a G.P. or S.A.P. type. From the above description of the hits it appears that four such bombs were released and hit as a salvo.

The fourth hit (300 m.m.) exploded on the armoured deck at No. 52 rib, causing much damage on the 'tween and battery decks. The torpedo bulkhead was partly torn away from the armoured deck, causing the magazine of "C" turret to be three quarters flooded.

The fifth hit (320 m.m.) went through all decks and out through the starboard shaft tunnel without exploding. The shaft tunnel was not damaged but water and oil entered and reached the 'tween deck.

The entry of water and oil resulting from the penetration by the three heavy bombs gave the ship a maximum list of 8° which was righted by counter flooding the pumping of oil into other tanks. At the worst moment there were 3000 tons of water in the ship including water which had flooded in; 1600 tons were pumped out by the time the ship docked in Brest the next day. After the ship was docked, it was discovered that the structural damage could be repaired in a fairly short time, but a considerable amount of work would be necessary to get the electrical installations working again. All six cable-ways in No. 4 dynamo room were destroyed and the cables to the guns were affected to a great extent. The estimated time for repairs was given as at least four months.

18.12.41

During a daylight attack between 1330 and 1445 hours the "Gneisenau" was slightly damaged by splinters from bombs which fell around the dock. The outer skin plating aft on the starboard side was holed. This added to the amount of repair work being carried out but did not affect the date for completion of major defects. During the same raid a direct hit was secured on the lockgate of the dry dock in which the "Scharnhorst" was lying. The ship was unharmed but the lockgate was damaged to such an extent that the "Scharnhorst" could not be undocked for four weeks.

6.1.42

At 2030 hours, during an air attack on Brest, a bomb fell and exploded between the "Gneisenau" and the side of the jetty at which she was lying, damaging the skin plating on the starboard side abreast No. V compartment. No damage was caused to any of the armament or personnel. The external wing of Nos. IV to VI compartments and the internal wing in No. V compartment were flooded. It was only proposed to carry out those repairs which were absolutely necessary for seaworthiness during the Channel break-through. The hole in the skin plating was covered over to achieve a streamline through the water when under way. Two watertight transverse bulkheads were fitted in the region of the external wing so that the ship was floating on the torpedo bulkhead on the starboard side abreast of No. V compartment. By taking this risk, the final date for completion of repairs (21.1.42.) was not affected.

DETAILS OF THE "SCHARNHORST'S" MOVEMENTS BETWEEN
BREST AND LA PALlice IN JULY 1941

(Ref: From the Log of "Scharnhorst"
held in Admiralty N.I.D. 24)

The times are in German Summer Time which was the same as
British Double Summer Time

July 1941

"Scharnhorst" left Brest at 2200 on 21 July, 1941.

Weather. Very dark but good visibility. Slight easterly wind.

0042/22 At point B1, in swept channel. Speed 25 kts.
0100/22 At point 31. Set course 234° 25 kts.
0138/22 a/c to 1190.
0400/22 Position 4735N x 0405W. Vis. good. cloud 4/10
slight E. wind.
0613/22 Fighter escort of 2 - Me. 109 joined up followed
shortly after by 12 more fighters and 2 -
He.115 as A/U escort.
0912/22 Position 4618N x 0200W. Remained in this area
until 1209 hours carrying out torpedo practice.
1210/22 On swept channels P1 to P3 into harbour.
1600/22 Passed net boom defence into La Pallice.
23rd/24th Bomber Command attack on "Scharnhorst" in La Pallice.

"Scharnhorst" left La Pallice at 2105 on 24 July, 1941.

2210/24 Passed net boom defence outside harbour. C°277°22 kts.
2323/24 a/c 328° 25 kts. Weather cloudy and dark but vis.
good.
0008/25 a/c 320° in position 4630N x 0235W.
0200/25 Position 4705N x 0300W.
0700/25 Position 4820N x 0510W. Weather misty becoming
foggy.
0643/25 Sighted 1 - Beaufort type aircraft momentarily
through mist, again at 0700 and again at 0706 hours.
Position same as for 0700 hours.

Both Scharnhorst and her escorting destroyer fired
at the aircraft which attacked at 0708 releasing a
torpedo which exploded on touching the water. Air-
craft was then shot down and 3 survivors were
picked up by a Patrol boat.

0744/25 Passed net boom defence in Brest harbour entrance.
0930/25 Made fast alongside Laninon Jetty in Brest harbour.

ALL ATTACKS ON THE BREST GROUP OF ENEMY WARSHIPS BY
BOMBER AND COASTAL COMMAND AIRCRAFT

In this table is given an analysis of the joint effect of both Bomber and Coastal Commands, against the three major naval units at Brest, also at La Pallice and at sea from March 1941 - February 1942. The target for each raid is given as listed in Intelligence Summaries, but in some instances, especially in the latter part of the period, although the target is given as only "Scharnhorst and Gneisenau", it was not in effect intended to exclude the "Prinz Eugen". The initial of the ships concerned is given in the target column, not the full name.

Of the 3599 bombing sorties flown 2692 were effective and a total of 4118.43 tons of High Explosives and 64.67 tons of incendiaries were dropped. The type of aircraft used on each raid, and the number of each type of bomb dropped by them, are listed. The High Explosive bombs are listed by weight and type, and in instances where the types shown in daily Intelligence Summaries are open to doubt, and cannot be verified, the bombs have been as accurate an estimated classification as possible in the light of Intelligence records of results, and the loads scheduled for the raids; in these cases the type given has been marked thus *. In other cases where there is doubt as to number or type a footnote has been appended.

Incendiary bombs have been listed by the number of each weight of bomb dropped. In several instances some Bomber Command aircraft on a raid were scheduled to carry a small percentage of incendiary bombs as well as high explosive, but no record is given in the results of the raids of them having been dropped. As a certain number of aircraft failed to reach their objective in these instances it can only be assumed that in all cases those carrying incendiaries were included in this number.

The following summary gives the number of each type of bomb dropped over the whole period:-

73 x 4,000lb. comprising	39 G.P. 34 H.C.
1060 x 2,000lb. "	29 G.P. 15 S.A.P. 17 H.C. 2611 A.P.
14 x 1,900lb. "	13 G.P. 1 D.A.
17 x 1,700lb. "	17 Magnums
2 x 1,500lb. comprising 2 Torpedoes.	
28 x 11,004lb. comprising	28 G.P.
343 x 1,000lb. "	332 G.P. 5 S.A.P. 4 H.C. 2 A.P.
11,222 x 500lb. "	2349 G.P. 8615 S.A.P. 23 T.D. 88 A.P. 147 mixed G.P. and S.A.P.
3,081 x 250lb. "	904 G.P. 2144 S.A.P. 29 A.P. 4 D.A.

Incendiary bombs comprised 34,680 x 4lb.
40 x 12lb.
268 x 40lb.

The abbreviations used throughout the table for bomb types are as follows:-

G.P. = General Purpose

S.A.P. = Semi Armour Piercing

A.P. = Armour Piercing

T.D. = Tail Delay (momentary delayed action)

D.A. = Delayed Action

H.C. = High Capacity (Blast bombs)

The figures in the analysis for Coastal Command have been taken from the Appendices to ORB of Nos. 16 and 19 Groups, from St. Eval ORB (Narrative and Forms Blue) and from Squadron ORB's. The figures for Bomber Command have been taken from the Operational Appendices (Forms A and B) of the ORB, from Group ORB's forms A., B. and E. and from station and squadrons ORB's. Where other records fail to show the number of aircraft despatched on a raid the figure has been taken from Appendix L to Volume III Bomber Command Narrative.

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
1941 March 27/28	Brest	Night	B.C.	2	Blenheim	2	2							4 GP*	0.45	4 x 40 lb.	No results seen owing to cloud and taking evasive action.
29	S and G	Day	B.C.	5	Hampden	6	-										Unable to go over Brest, lack of cloud cover.
30	S and G	Day	B.C.	5	Hampden	12	-										No cloud cover.
30/31	S and G	Night	B.C.	1,3	Wellington	50	45						317 SAP	4 SAP	71.20	30 x 40 lb.	Clear, good visibility. No results observed because of darkness and searchlight glare but many bursts seen. Wellington saw one sqdn. straddle dry docks. Explosion seen on dock and flare fires.
	"			2	Blenheim	16	15						30 SAP		6.70		
	"			4	Whitley	24	22						70 SAP	131 SAP	30.25		
	"			5	Manchester	4	4						48 SAP		10.71		
	"			5	Hampden	15	13			2 GP			44 SAP	10 GP	12.72		
Monthly Total						129	101			2			509	149	132.03	0.61 tons	
April 1st	Scharnhorst	Day	B.C.	5	Hampden	11	-										No cloud cover.
3rd	S and G	Day	B.C.	5	Hampden	23	1						4 SAP		0.89		Cloud. One A/C attacked but did not see results as took evasive action.
3/4	S and G	Night	B.C.	2	Blenheim	12	3						6 GP*		1.34		5-9/10 cloud. Some bursts seen in target area and one fire.
	"			3	Wellington	51	40						254 SAP	14 GP	58.26		
	"			4	Whitley	26	19	1					40 SAP	84 SAP	18.30		
	"			3	Stirling	1	-										
4/5	S and G	Night	B.C.	3	Wellington	39	37						160 SAP	74 GP	43.97		Patchy cloud. Many fires seen, and some bursts observed. One Hampden claimed a direct hit.
	"			5	Hampden	11	9	1		9 AP	3 x 1900 GP		7 SAP	6 SAP	4.78		
	"			5	Manchester	4	3								8.04		
5	S and G	Day	B.C.	5	Hampden	10	1	1					4 GP*		0.89		10/10 cloud and rain no results seen.
6	Scharnhorst	Day	C.C.	19	Beaufort	4	1	1			1 Torpedo				0.67		A/C shot down having hit Gneisenau.
6/7	S and G	Night	B.C.	1,3	Wellington	65	45						104 GP	55 SAP	60.38	1680 x 4 lb.	10/10 cloud. No results observed. One Manchester brought back two of its 3 bombs as release equipment failed.
	"			5	Manchester	4	3			7 AP					6.25		
7	Scharnhorst	Day	C.C.	19	Blenheim	3	-										No cloud cover.
8	Gneisenau	Day	C.C.	19	Blenheim	3	-										No cloud cover.
April 10/11	S and G	Night	B.C.	2	Blenheim	12	9						66 GP)	18 GP*	2.01	234 x 40 lb.	Cloud obscured target in later part of raid some Blenheims, and Manchesters unable to observe target or results. Wellingtons saw many bursts and claimed hit on Scharnhorst and three on Gneisenau.
	"			3	Wellington	36	33	1					65 SAP)	14 GP)	30.80		
	"			5	Manchester	5	5						60 SAP)		13.40		
11	S and G	Day	C.C.	19	Swordfish	6	-										4 a/c reached target area but returned with torpedoes owing to very bad visibility.
12/13	Gneisenau	Night	B.C.	1,3	Wellington	34*	20						20 GP)	1 GP	20.87		9-10/10 cloud. Few bursts seen. 2 Whitleys' claimed bombs fell on decks, otherwise result not observed.
	"			5	Hampden	12	8			2 AP			72 SAP)	2 SAP	7.81		
	"			5	Manchester	6	4						24 SAP)	6 SAP	8.93		
	Brest Harbour			4	Whitley	10	3						40 SAP)		4.69		
14/15	S and G	Night	B.C.	1,3	Wellington	46	46		2 GP			13 GP	159 SAP)	5 SAP)	57.37		6-8/10 cloud. No results seen in early part of attack. Later bursts seen. One Wellington claimed direct hit on Gneisenau.
	"			3	Stirling	3	3						24 GP)	13 GP)	11.83		
	"			4	Whitley	20	18						23 TD)		25.45		
	"			5	Hampden	25	23				4 x 1900 GP		25 SAP)	54 GP)	19.24		
	"												60 GP)	54 SAP)			
15	S and G	Day	C.C.	19	Swordfish	6	1 (a)	1			1 Torpedo		10 GP)	14 GP)	0.67		Bad visibility only one a/c located battlecruisers.
	"												45 SAP)	18 SAP)			
17	S and G	Night	C.C.	19	Beaufort	3	2				2 Magnums				1.52		Clear visibility. No results observed because of taking evasive action from intense flak.
	"			19	Blenheim	3	2						4 SAP		0.89		
18	S and G	Day	C.C.	19	Beaufort	2	1				1 Magnums				0.76		Magnum seen to burst on target area.
19	S and G	Night	C.C.	19	Blenheim	7	3						6 SAP		1.34		Haze, magnums but not bombs seen to burst.
	"			19	Beaufort	3	3								2.27		

(a) In this case the missing aircraft is not assumed to have attacked the target as it was known to have crashed in the sea before reaching Brest.

APPENDIX XIV

4

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE OF BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
April 20	S and G	Night	C.C.	19	Blenheim	6	6						12 SAP		2.68		) Few bursts seen owing to haze and) heavy flak.
				19	Beaufort	4	3				3 Magnums				2.27		
22/23	S and G	Night	B.C.	3	Wellington	24	20	1		14 AP			46 SAP) 28 GP)	14 SAP 1 GP	30.69		) Clear but slight ground haze. Some) bursts seen but glare of search-) lights and flak hid the battle-) cruisers.
	"			3	Stirling	2	2			11 AP			2 SAP		10.27		
23	S and G	Night	C.C.	19	Beaufort	4	4						16 SAP		3.57		) One Beaufort saw 2 bursts rest did) not, owing to taking evasive action.
				19	Blenheim	5	5						10 SAP		2.23		) Mist obscured results from Blenheims.
23/24	S and G	Night	B.C.	1,3	Wellington	30	29			19 AP			113 SAP		42.19		) Many bursts seen but haze made it) difficult to observe results. One
	"			3	Stirling	2	-						68 SAP	126 SAP	29.24		) Wellington of No. 3 Group claimed a
	"			4	Whitley	25	21						24 SAP	18 SAP	7.36		) hit or near miss on Scharnhorst.
	"			5	Hampden	10	9										
24	S and G	Night	C.C.	19	Blenheim	4	4						8 SAP		1.79		) No results seen owing to cloud and
	"			19	Beaufort	4	3						12 SAP		2.68		) haze.
24/25	S and G	Night	C.C.	19	Blenheim	4	4						8 SAP		1.79		) 4 a/c bombed through cloud fifth saw
				19	Beaufort	2	1						4 SAP		0.89		) target but not results.
25/26	S and G	Night	C.C.	19	Beaufort	4	2						8 SAP		1.79		) Haze. No results seen, one burst
	"			19	Blenheim	4	3						6 SAP		1.34		) observed.
26/27	S and G	Night	C.C.	19	Blenheim	2	2						4 SAP		0.89		Bad visibility, no results observed.
27/28	S and G	Night	C.C.	19	Blenheim	3	3						6 SAP		1.34		) Cloud and haze. Blenheims unable
	"			19	Beaufort	4	2							4 GP	0.45	40 x 12 lb 360 x 4 lb	) to observe results. One Beaufort) saw one burst and both saw fires) from incendiaries.
28/29	S and G	Night	B.C.	3	Wellington	22	9			7 AP			24 SAP	7 SAP	12.29		) Thick ground haze, but one Wellington
	"			3	Stirling	3	3			12 AP					10.71		) claimed to have straddled dry dock,) and bursts seen near TB Station.
																	) No results observed by Stirlings.
"	S and G	Night	C.C.	19	Blenheim	3	3						6 SAP		1.34		) Haze. One burst observed but) results not seen.
29/30	S and G	Night	C.C.	19	Blenheim	3	2						4 SAP		0.89		No bursts seen owing to 10/10 cloud.
Monthly Total						680	486	7	2	81		27	1842	620	582.31	8.04 tons	
Cumulative Total						890	587	7	2	83		27	2351	769	714.34	8.65 tons	
May 1/2	S and G	Night	C.C.	19	Blenheim	5	5						10 SAP		2.23		) No bursts or results observed owing) to cloud.
3/4	S and G	Night	B.C.	3	Wellington	29	28			10 AP			41 AP) 2 SAP) 45 GP)	5 AP) 1 SAP) 11 GP) 4 DA)	30.91	4320 x 4 lb.	) Clear weather. Many bursts seen by) Wellingtons. One salvo seen to) straddle dry dock, and another the) Scharnhorst. The bombs on one) Stirling hung up. Few bursts seen) by Stirlings.
	"			3	Stirling	3	2			10 AP					8.93	360 x 4 lb.	
	"			5	Manchesters	1	1			3 AP					2.68		
3/4	S and G	Night	C.C.	19	Blenheim	6	5						10 SAP		2.23		) Clear weather. No results seen) owing to taking evasive action.
4/5	S and G	Night	B.C.	1,3	Wellington	54	52			1 SAP) 28 AP) 5 AP)			247 SAP	25 SAP	83.82		) Moonlight, no cloud, good visibility.) Target clearly visible, and a) Wellington claimed a direct hit on) Scharnhorst. Several bursts seen) on docks or near Scharnhorst.
	"			3	Stirling	1	1						54 SAP	114 SAP	4.46		
	"			4	Whitley	21	19			7 AP			47 AP) 4 SAP)	24 AP) 2 SAP)	24.78		
	"			5	Hampden	21	20								20.54		
7/8	S and G	Night	B.C.	3	Wellington	43	43			47 AP			89 SAP	4 SAP	62.28		) No cloud, perfect visibility. 2
	"			4	Whitley	28	28				6 x 1900 1b. GP		94 SAP	162 SAP	39.06		) Wellingtons claimed direct hits on) Gneisenau.
	"			5	Hampden	18	18						48 SAP	14 SAP	17.37		
27	Prinz Eugen at Sea.	Day	B.C.	3	Stirling	12	-										) Cloud, bad visibility, target could) not be located.
	"			3	Wellington	52	-										
Monthly Total						299	222			111			691	366	299.29	8.36 tons	
Cumulative Total						1108	809	7	2	194		27	3042	1135	1013.63	17.01 tons	
June 7/8	Prinz Eugen	Night	B.C.	3	Wellington	30	28			24 SAP			168 SAP	8 SAP	38.39		) Sea fog. Some bursts seen near) points of aim but no direct hits) claimed. Smoke screen in latter) part of raid.
	"			3	Stirling	7	7						71 SAP		37.32		
10/11	Prinz Eugen S and G	Night	B.C.	3	Wellington	38	34			14 AP		14 GP	155 SAP	12 SAP	48.44		) Smoke screen obscured target for) late aircraft. Fires seen in) dock area.
	"			4	Whitley	28	25						86 SAP	122 SAP	39.06		
	"			5	Stirling	39	37			5 AP			130 SAP	64 SAP	40.63		

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE OF BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
June 12	S and G	Day	B.C.	2	Blenheim	2	-										No cloud cover.
12/13	Prinz Eugen	Night	C.C.	19	Blenheim	6	3						6 SAP		1.34		) Thick ground haze. Bursts seen in dock area.
13/14	S and G	Night	B.C.	1	Wellington	23	21			2 AP		8 GP	92 SAP 35 GP)		33.71		) Haze, smoke screen. Many bursts seen, majority in target area.
	"			5	Hampden	37	36			14 AP			82 SAP)		37.81		) Some searchlights attacked.
	Prinz Eugen			3	Wellington	48	35			6 AP			209 SAP)	63 SAP	54.55		) Several bursts seen alongside Prinz Eugen.
				3	Stirling	4	3						72 SAP	23 SAP	16.07		
14	S.G. P.E.	Day	B.C.	2	Blenheim	3	-										No cloud cover.
15	S.G. P.E.	Day	B.C.	2	Blenheim	3	-										No cloud cover.
18/19	S and G	Night	B.C.	3	Wellington	57	47			5 AP			294 SAP	21 SAP	72.43		) Some cloud, haze and smoke screen.
				3	Stirling	8	3			12 AP			12 SAP		13.40		) Results not observed, except for one large fire.
Monthly Total						333	279			82		22	1412	313	433.15		
Cumulative Total						1441	1088	7	2	276		49	4454	1448	1446.78	17.01	
July 1/2	Brest docks S and G P.E.	Night	B.C.	2	Wellington	10	10										) Some ground haze and smoke screen, many bursts seen. Wellingtons of No. 2 Group saw explosion on docks No. 1 and 2 and claim direct hit on Scharnhorst. Wellington of No. 3 Group claimed 3 on Prinz Eugen, and many bursts on all docks.
				3	Wellington	24	14)	2		3 AP*		3 GP	7 SAP	91 GP	11.72		
				3	Wellington	19	17)					7 GP	76 (a)	8 GP	21.87		
													116 SAP	11 SAP	30.25		
4/5	S and G	Night	B.C.	3	Wellington	47	43		1 HC. (b)	30 AP			159 SAP	14 SAP)	66.63		) Good visibility, smoke screen partially obscured target later.
	P.E.			4	Whitley	23	19	1					66 SAP)	147 SAP)	32.92		) Many bursts seen, one on or near dry dock, and four Wellingtons of No. 4 Group claimed to have straddled the docks.
				4	Wellington	18	18						88 SAP	106 SAP	31.47		
6/7	S and G	Night	B.C.	1	Wellington	21	19	1		18 AP			57 SAP	18 SAP	30.80		) Weather perfect but smoke obscured most results. One hit claimed on No. 1 dock.
				5	Hampden	88	82	2		17 HC)			162 SAP	79 SAP	100.33		
										45 AP)							
22	S. at sea	Day	C.C.	16	Beaufort	11	-										Target not located.
23	S at La Pallice.	Day	B.C.	3	Stirling	6	4	1		11 AP					9.82		) Haze, some bursts seen but mostly overshoots. One hit claimed.
23/24	S at La Pallice.	Night	B.C.	4	Whitley	30	27						89 GP*	184 GP*	40.40	1020 x 4lb.	) Slight Haze. Bursts seen on dock side, but searchlights glare made it impossible to observe results.
23/24	S at La Pallice.	Night	C.C.	19	Beaufort	8	7				7 Magnums				5.31		Several bursts seen in dock area.
24	Gneisenau	Day	B.C.	2	Fortress	3	3				12 x 1100 lb. GP				5.90		) Ideal weather conditions. 7 direct or possible hits, on the Gneisenau were claimed. One hit by a Wellington of No. 1 Group.
	"	Operation Sunrise.		5	Hampden	18	18	2					67 SAP	2 SAP	15.18		) 2 hits and one possible hit by Wellingtons of No. 8 Group. One hit and one possible hit by Wellingtons of No. 4 Group, and a possible hit by a Fortress. Many bursts on and around docks.
	"			3	Wellington	36	30	4					162 SAP		36.16		
				4	Wellington	18	14	3		8 AP			80 SAP		25.00		
	Prinz Eugen			1	Wellington	24	19	2					96 SAP		24.11		
				1	Wellington	-	1						6 SAP		1.34		
24	S at La Pallice.	Day	B.C.	4	Halifax	15	8	5		15 AP			53 SAP		25.22		) Clear weather. Intense flak, all a/c damaged. One hit claimed. Bursts seen.
25	S at sea.	Day	C.C.	19	Beaufort	6	1	1			1 Magnum (c)				0.7		) Bad visibility, only one a/c located target and was shot down.

(a) The 76 bombs dropped were a mixture of SAP and GP types. The proportion of the bombs was ordered to be roughly 2 SAP bombs to one GP, but no records are available of exactly how many of each kind were in fact dropped.

(b) Bomber Command records state that 2 x 4000 lb. bombs were dropped, but as one bomb hung up and then dropped north of Brest it has not been included.

(c) Load dropped was assumed to be a magnum, aircraft were carrying different loads. See foreword to Table A.

APPENDIX XIV

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
July 25	S at sea	Day	C.C.	16	Beaufort	9	-)2 a/c searched presumed target) area but failed to locate.
Monthly Total						434	354	24	1	147		16	1288	677	515.19	1.82 tons	
Cumulative Total						1875	1442	31	3	423		65	5742	2125	1961.97	18.83 tons	
August 6	S and G	Day	B.C.	2	Fortress	2	2				5 x 1100 lb. GP				3.93)Clear weather. One burst seen on) Rade Abri.
16	S and G	Day	B.C.	2	Fortress	2	2				8 x 1100 lb. GP				3.93)Variable cloud. One a/c unable to) see results. Other a/c got one) hit on docks and 3 in town.
Monthly Total				4		4	4								7.86		
Cumulative Total						1879	1446	31	3	423		65	5742	2125	1969.83	18.83 tons	
September 3/4	S and G	Night	B.C.	1	Wellington	6	2						14 SAP		3.12)Aircraft of Groups 1, 4 and 5 were) recalled because of possibility of) fog at base. 4 a/c did not) receive signal and continued. A/c) No. 3 Group found excellent visi-) bility but smoke screen covered) battlecruisers. Some bursts seen) and one salvo was observed bursting) across No. 1 Dock.)No cloud but some haze and very) dark. This and later smoke screen) prevented a/c seeing target.) Some bursts seen including 4000 lb.) bomb in target area. The Stirlings) claimed their loads burst on the) docks.))))))
	"			3	Wellington	61	49		2 GP*		11 AP) 1 SAP) 13 SAP	8 GP) 2 SAP)	55 GP) 154 SAP)	6 GP) 11 SAP)	67.30		
	"			3	Stirling	4	3								11.61		
	"			5	Hampden	30	1					1 SAP	2 GP		0.89		
	"			5	Manchester	2	-										
	Prinz Eugen			4	Whitley	19	-										
	"			4	Wellington	18	1						6 GP	1 GP	1.45		
13/14	S and G	Night	B.C.	1	Wellington	27	21					15 GP	12 GP) 45 SAP)	18 GP) 5 SAP)	21.99		
	"			3	Wellington	37	28		1 HC			4 GP) 2 SAP)	22 GP) 134 SAP)	15 GP) 6 SAP)	41.63		
	"			3	Stirling	3	3				10 AP				10.16		
	"			4	Whitley	22	19				2 AP	7 GP	17 GP) 30 SAP)	32 GP) 116 SAP)	31.92	840 x 4 lb.	
	"			4	Halifax	6	5				10 AP				14.73)Adverse weather limiting sorties.) First a/c saw bombs but not) results. Later smoke screen) covered area.)10/10 cloud. Some bursts seen) through cloud.)One a/c saw burst in target area.) Others unable to observe results) because of searchlight glare and) gun flashes.)Clear weather, bursts seen in dock) area, and small fire.)Bad visibility. Bursts seen in) target area but no results.)7-10/10 cloud, lifting later,) smoke screen. No results seen)Moonlight, good visibility. No) smoke. Bursts seen close to) Docks 1 and 2.
	"			5	Hampden	38	32					9 GP	26 SAP) 31 GP)	8 GP) 38 SAP)	33.48		
	"			5	Manchester	4	4				8 AP		8 SAP) 4 GP)	1 GP) 2 SAP)	8.93		
	Prinz Eugen			3	Wellington	10	8		1 HC			1 GP			11.49		
Monthly Total						287	176		4	55		49	674	270	258.70	0.32 tons	
Cumulative Total						2166	1622	31	7	478		114	6416	2395	2228.53	19.15 tons	
October 2/3	S and G	Night	B.C.	4	Halifax	6	5				10 AP		30 GP		15.62		
3/4	S and G	Night	B.C.	3	Stirling	9	2	1 (a)			10 AP				8.93		
21/22	Prinz Eugen	Night	C.C.	16	Hudson	6	6							18 SAP	2.01		
22/23	S and G	Night	B.C.	3	Stirling	6	5				24 AP				21.43		
23/24	S and G	Night	B.C.	3	Stirling	9	7				35 AP				31.25		
24/25	Prinz Eugen	Night	B.C.	3	Stirling	6	6						119 SAP		26.56		
29/30	S and G	Night	B.C.	1	Wellington	16	14						96 SAP		21.43		
Monthly Total						58	45	1		79			245	18	127.23		
Cumulative Total						2224	1667	32	7	557		114	6661	2413	2355.76	19.15 tons	
November 1/2	S and G	Night	B.C.	3	Stirling	8	-)9-10/10 cloud. Able to locate) dock area but not special target.) Wellington saw one burst.)9-10/10 cloud. One burst seen) through cloud.
	Dock area			3	Wellington	9	3		2 HC	20 AP			8 SAP		17.85		
3/4	S and G	Night	B.C.	3	Wellington	8	-		2 HC						3.57		

(a) This aircraft was shot down over England, near its base, on its return journey having successfully bombed Brest. As it was lost to enemy action it has been listed as missing.

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
November 18/19	Prinz Eugen	Night	B.C.	3	Stirling	6	3						48 SAP		10.71		)10/10 cloud. One bombed through gap others on estimated target.
23/24	S and G Brest area.	Night	B.C.	3	Stirling	11	2			10 AP 21 AP					8.93 18.75		)7-10/10 cloud and smoke screen. 2 a/c believed bombed battle-cruisers. Others estimated target area. No results observed.
25/26	S and G "	Night	B.C.	3 4	Stirling Halifax	7 11	6 11			30 AP 18 AP		47 GP	20 GP ^(a)		26.79 41.52		)Moonlight, cloudless, Later effective smoke screen. Many bursts seen, but no results owing to flak and searchlight glare.
Monthly Total						60	37		4	99		47	76		133.48		
Cumulative Total						2284	1704	32	11	656		151	6737	2413	2489.24	19.15 tons	
December 7/8	S and G	Night	B.C.	3	Wellington	23	19		6 GP ^x	4 GP			24 GP) 45 SAP)		29.69		)Good weather, later smoke screen.
"	"			3	Stirling	7	4			15 AP					13.39		) Some bursts seen, and hits on docks 6 and 8. One 4000 lb. bomb burst on Dock 8. Fires started.
11/12	S and G	Night	B.C.	3	Wellington Stirling	21 5	16 3		2 HC	2 AP 11 AP			71(b)		21.21 9.82		)10/10 cloud. No results observed except one fire seen through cloud.
12	S, G and E	Day	B.C.	5	Hampden	6	-										Unable to go in, no cloud cover.
12/13	S and G Brest Area.	Night	B.C.	3	Wellington	18	-					4 HC	15 GP) 39 SAP)		22.77		)7-9/10 cloud and smoke screen. Some bursts seen but no results.
"	S and G			3	Stirling	6	5			25 AP					22.32)
13	S, G and P.E.	Day	B.C.	5	Hampden	6	-										Unable to go in, no cloud cover.
14/15	S and G	Night	B.C.	3 5	Stirling Hampden	6 22	- 1						2 SAP	2 SAP	0.67	180 x 4 lb.	)10/10 cloud, severe icing. Impossible to locate target. One Hampden dropped bombs in Rade de Brest.
15/16	S and G	Night	B.C.	3	Wellington	10	6		1 HC			2 GP	6 GP) 20 SAP)		8.48		)8-10/10 cloud. One Wellington reported huge white explosion, and another saw bombs fall across dry docks. Others saw burst but no results.
"	"			3	Stirling	7	6			26 AP					23.21)
16/17	S, G and P.E.	Night	B.C.	3	Wellington	17	13					3 GP 2 AP	20 GP) 61 SAP)		20.31		)4-6/10 cloud. Fair visibility, but smoke screen in action. Difficult to pinpoint target. Some bursts seen in dock area.
"	"			3	Stirling	5	3			5 AP) 9 GP)					12.50)
17/18	S and G	Night	B.C.	1	Wellington	32	30						50 GP) 118 SAP)		37.50		)5-10/10 cloud with large breaks. Fairly good visibility, but dark, smoke screen later. Some bursts observed in dock area but majority not seen.
"	"			3	Wellington	36	25						23 GP) 164 SAP)	3 GP	42.08)
"	"			4	Whitley	24	21						65 SAP 20 SAP	122 SAP 24 SAP	28.13 7.14)
"	"			4	Wellington	4	4						8 GP) 76 SAP)	4 GP) 38 SAP)	23.44)
18	S and G	Day Operation Veracity I	B.C. F.C.	5 3 10 Squadrons	Manchester Halifax Stirling	11 18 18	9 16 16	1 1 4	5 HC	4 AP 64 AP 64 AP			34 SAP 22 SAP	7 GP	20.09 62.05 57.92		)Excellent visibility, many bursts seen. Heavy flak made a/c take evasive action but bursts seen round dry docks. Halifax a/c saw bursts near and on stern of both cruisers. Stirling a/c saw a flash amidship from each cruiser.
18/19	S and G	Night	B.C.	4	Whitley	19	15					9 GP	29 SAP	70 SAP	18.30		)6/10 cloud. No smoke for main part of attack. Poor visibility, results not observed.
23/24	S and G	Night	B.C.	3	Wellington	38	35		2 HC				66 GP) 116 SAP)		44.20	4920 x 4 lb.	)Good visibility, little cloud, later smoke screen. Many bursts seen, and fires started.
"	"			3	Stirling	9	8			24 AP		10 GP	16 GP		29.46)

(a) The exact bomb loads of the Halifax on this sortie is not available. Nos 35 and 76 Squadrons took part in the sortie. 8 aircraft of No. 35 Squadron were detailed for the operation with the following loads:- (a) 3 aircraft 7 x 1000 lb. GP each

(b) 1 " 5 x 1000 GP + 4 x 500 lb. GP) only 7 of these aircraft took off, but which load was omitted is not established. For the purposes of the table it has been assumed to be the one aircraft with a separate load (b).

(c) 4 " 3 x 2000 AP + 2 x 500 lb. GP each

Of the four aircraft of No. 76 Squadron two were to carry 50% of 2000 lb. AP bombs with a balance of 1000 lb. GP bombs. As these aircraft were Halifax Mark II and previously had carried 11000 lb. to Brest it has been assumed that each load was 3 x 2000 lb. AP + 5 x 1000 lb. GP. The other two were to carry load No. 8 or Load No. 9 preferably No. 9. Load No. 8 was 8000 lb. consisting of 3 x 1000 lb. GP + 6 x 500 lb. GP + 45 SBC. No. 9 Load was 11000 lb. consisting of 8 x 1000 lb. GP + 6 x 500 lb. GP or S.B.C. As the other aircraft of the squadron were carrying 11000 lb. it has to be assumed for the purposes of this table that they carried No. 9 Load with 500 lb. bombs not S.B.C.

(b) Some aircraft carried SAP and some GP bombs, the exact number of each type dropped is not available.

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE BOMBS DROPPED						TOTAL TONNAGE H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
December 24	S and G	Day	B.C.	5	Hampden	4	1				1 x 1900 DA				0.85		)Two aircraft abandoned attempt on reaching area. One attacked but no results observed.
27/28	S and G	Night	B.C.	3	Wellington	23	12			2 HC*					17.19		)3/10 cloud increasing up to 9/10.
	"			3	Stirling	6	4			15 AP		5 GP	61 SAP	7 GP	17.19		) Smoke screen. Target pinpointed.
30	S and G	Day Operation Veracity II	B.C.	4	Halifax	16	14	3		52 AP			51 SAP		57.81		) Few results seen. One Wellington saw burst on or near dock 1.
			F.C.	9 Squadrons													) Good visibility. Intense flak, all aircraft were hit. No results observed owing to taking evasive action.
Monthly Total						442	323	10	23	320		35	1229	270	647.72	9.10 tons	
Cumulative Total						2726	2027	42	34	976		196	7966	2683	3136.96	28.25 tons	
1942																	
January 2/3	S and G Brest area	Night	B.C.	3	Wellington	22	-								20.76	2280 x 4 lb.	)8-10/10 cloud results not observed but glare of fires seen through cloud. The Manchester attacking Brest was scheduled to attack St. Nazaire but failed to locate it.
	S and G Brest.			3	Stirling	9	19			18 AP			93 SAP		16.07		
	"			5	Manchester	-	7					6 GP			2.68		
3/4	S and G Brest area	Night	B.C.	3	Wellington	14	-										
	S and G Brest area.			3	Stirling	4	12	1		4 AP			77 SAP		17.19	1680 x 4 lb.	) Adverse weather conditions operations on reduced scale 10/10 cloud. No results observed. Wellingtons believed bombed Brest area. One Stirling located.
	"					-	1						18 SAP		3.57		
	"					-	1								4.02		
5/6	S and G	Night	B.C.	1	Wellington	48	42						115 GP)	14 GP	56.03		)7-10/10 cloud with clear gaps. Some bursts seen, estimated on target area. No. 1 Group Wellingtons claimed bursts on Docks 2, 3 and 9, and Manchesters on Torpedo Boat Station Quay, and Dry Dock. Fires seen in Port Militaire and town.
	"			5	Hampden	27	22						129 SAP)		24.55		
	"			5	Manchester	12	11		5 GP	18 GP*			56 GP	28 GP)			
	Brest Town			3	Wellington	41	39		6 GP				32 SAP	16 SAP)			
	"			3	Stirling	2	2						14 SAP	8 GP	28.13		
	"			4	Whitley	17	17						186 GP	22 GP	53.13	4680 x 4 lb.)
	"			4	Halifax	7	7						15 GP		5.58	2040 x 4 lb.)
	"												62 GP		18.97	420 x 4 lb.)
	"												18 GP		16.96)
6/7	S and G	Night	B.C.	1	Wellington	31	27	1					90 GP)		40.85		) Dark, later smoke, most aircraft identified main target, many bursts seen, but results not observed.
	"												93 SAP)				
7/8	S and G	Night	B.C.	1	Wellington	35	35						90 GP)	9 GP	43.42		)8-10/10 cloud, smoke screen. A few bursts seen one on entrance to Port Militaire. Fires started.
	"			3	Wellington	6	6		6 GP				100 SAP)		10.71	4140 x 4 lb.	) One Wellington bombed through cloud, believed on Brest area.
	Brest			3	Wellington	22	20						81 GP	15 GP	19.75)
	Brest				"	-	1						9 GP		2.01)
8/9	S and G	Night	B.C.	1	Wellington	45	42						152 GP)		65.63		)8-10/10 cloud Bursts seen in target area. No. 1 Group Wellingtons claim bursts on docks. Fires and explosions reported in both dock area and town.
	"			5	Hampden	37	18						142 SAP)	16 GP)	19.87)
	"			5	Manchester	10	7	1	2 GP	12 AP			34 GP)	18 SAP)	16.96)
	Brest			3	Wellington	27	22		3 GP				38 SAP)		27.00	2880 x 4 lb.)
	"			4	Whitley	27	22						12 GP	8 GP	30.25	2640 x 4 lb.)
	"			4	Halifax	5	5						97 GP	61 GP	15.18	240 x 4 lb.)
	"												22 GP	61 GP)
	"												22 GP	24 GP)
9/10	S and G	Night	B.C.	1	Wellington	31	31						92 GP)		41.29		)8-10/10 cloud, haze, smoke screen later, some bursts seen in vicinity of docks, some bursts seen in town.
	"			3	Wellington	14	12						93 SAP)		16.07		) One large fire in dock area.
	"			3	Stirling	4	3						72 SAP)		11.61)
	"			5	Hampden	27	13						16 SAP	12 GP)	14.28)
	"												26 GP)	12 SAP))
	"			5	Manchester	6	1		1 GP				26 SAP)		1.79)
11/12	S and G	Night	B.C.	3	Wellington	23	21		5 GP				95 SAP		30.13		) Clear weather. Smoke screen, intense flak. A few bursts seen, no results.
	"			3	Stirling	3	3						54 SAP		12.05)
25/26	Brest	Night	B.C.	1	Wellington	21	17						99 SAP		21.87		)5-10/10 cloud, haze, smoke screen. Few results observed. Some bursts and fires in dock area.
	"			5	Hampden	35	15						60 GP	30 GP*	16.74)
	"			5	Manchester	15	13		3 HC				16 GP*		24.11)
26/27	Brest	Night	B.C.	3	Wellington	22	18		1 GP	9 AP			101 SAP	10 SAP	25.45		) No cloud, good visibility smoke screen obscured target. Only one burst seen.
	"			3	Stirling	3	3						21 SAP		12.95)
27/28	Brest	Night	B.C.	5	Hampden	32	20						4 GP)	2 GP)	21.99		) Operation limited by unfavourable weather. Ground haze, smoke screen neither target nor results could be observed.
	"			5	Manchester	3	3		2 HC	2 AP			76 SAP)	37 SAP)	5.80)
	"												4 SAP)

DATE	TARGET	TIME	Command	Group	ATTACKING AIRCRAFT		Attacked	Missing	NUMBER AND TYPE BOMBS DRIPPED						Total Tonnage H.E.	INCENDIARIES	REPORTS
					Type	Despatched			4000 lb.	2000 lb.	1100 - 1900 lb.	1000 lb.	500 lb.	250 lb.			
January 31/1 1 February	Brest	Night	B.C.	3	Wellington	9	9						54 SAP		12.05)Up to 6/10 cloud, good visibility) through gaps.
	"			3	Stirling	2	-										
	"			4	Wellington	9	7		2 HC			5 GP	20 SAP	20 SAP	12.50		
	"			5	Hampden	41	27	2					108 GP	52 GP	29.91		
	"			5	Manchester	11	11	3	3 HC	16 AP					19.64		
Monthly Total						764	613	8	39	79		147	2870	394	890.40	36.42 tons	
Cumulative Total						3490	2630	50	73	1055		343	10836	3077	4027.36	64.67 tons	
February 3	E.H. Dovarr- enez Bay.	Day	C.C.	19	Beaufort	5	-	1 (a))Cloud, bad visibility aircraft) could not locate target.
6	S.G. and P.E.	Day	C.C.	19	Beaufort	6	-										
6/7	S.G. P.E. Brest Night (ETA)		B.C.	1	Wellington	46	20	1					121 SAP	3 SAP	27.34)10/10 cloud. Some aircraft target) area, but no bursts or results) were observed.)))10/10 cloud, target not visible.) No results observed.
	S.G. P.E.			3	Stirling	3	-						6 SAP		1.34		
	Brest (ETA)			3	Wellington	11	1						30 SAP		6.70		
10/11	S and G Brest area.	Night	B.C.	3	Wellington	12	-						48 SAP)		13.39		
	S and G Brest area.			3	Stirling	8	-						12 GP)				
11/12	S.G. P.E.	Night	B.C.	1	Wellington	18	16	1		5 AP			45 SAP		14.51)No cloud, good visibility but) ground haze and smoke screen.) No results observed.
													89 SAP	1 SAP	19.98		
Monthly Total						109	62	3		5			386	4	91.07	-	
Cumulative Total						3599	2692	53	73	1060		343	11222	3081	4118.43	64.67 tons	

(a) As the major naval units do not report on attack by a single aircraft on the day, the missing aircraft is not shown as having dropped its torpedo.

MINELAYING OFF BREST MARCH 1941 - FEBRUARY 1942

The following table shows the number of sorties flown and the mines laid in the "Jellyfish", area off Brest during the period when the "Scharnhorst" and "Gneisenau", and later the "Prinz Eugen" were in dock there. As the figures given in Bomber Command records assume that missing aircraft have successfully carried out their missions the figures for Coastal Command have been given as a similar basis.

After the second week in December 1941, minelaying by aircraft under the operational control of Coastal Command ceased for some months, and in January and early February the effort of Bomber Command was directed primarily against the waters off the Dutch and North German coasts, on routes likely to be taken by the Battle cruisers on a break back to Germany, rather than in the small area off Brest itself, where channels were more easily swept.

With the exception of a short period in May 1941 when two Fleet Air Arm squadrons, on loan to the Command, were engaged on minelaying operations, the mining operations of Coastal Command against the Brest area were undertaken by the two Beaufort Squadrons, Nos. 22 and 217. Numerous sorties were scheduled in addition to those flown but were cancelled primarily on account of bad weather. A few sorties were cancelled because there were not sufficient serviceable aircraft to fulfil all commitments, and for the same reason some were cancelled at the time of the search for the Prinz Eugen, before she was located in Brest. The monthly total of sorties scheduled for Coastal Command aircraft but subsequently cancelled were as follows:-

April 1942	-	4	sorties	September 1942	-	21	sorties
May "	-	20	"	October "	-	4	"
June "	-	28+	"	November "	-	10	"
July "	-	3	"				
August "	-	2	"				

(+ In addition to these 28 sorties two operations of the maximum number of available aircraft were scheduled but cancelled on account of bad weather.)

MINELAYING IN BREST AREA, MARCH 1941 - FEBRUARY 1942

DATE	COASTAL COMMAND						BOMBER COMMAND					TOTAL NO. MINES LAID
	Group	Squadron	Type	Despatched	Effective	Missing	Group	Type	Despatched	Effective	Missing	
<u>March</u> 29/30 30/31							5 5	Hampden Hampden	25 10	14 8	1	14 8
Monthly Total									35	22	1	22
<u>April</u> 3/4							5	Hampden	10	9		9
4/5							"	"	6	6		6
6/7							"	"	15	13	1	13
8/9							"	"	5	5		5
11/12	19	22	Beaufort	2	1							1
12/13							5	Hampden	9	6		6
14/15	19	22	Beaufort	4	3							3
15/16	"	"	"	4	3		5	Hampden	4	4		7
16/17	"	"	"	2	2		"	"	4	3		5
17/18	"	"	"	4	1		"	"	5	4		5
18/19	"	"	"	3	3							3
19/20	"	"	"	4	4		5	Hampden	5	3		7
20/21	"	"	"	4	4		"	"	6	6		10
22/23	"	"	"	4	3		"	"	6	4		7
23/24	"	"	"	3	3							3
24/25	"	"	"	4	2							2
25/26	"	22, 217	"	4	4							4
26/27	"	22	"	3	3							3
27/28	"	22	"	4	3	1						4
28/29	"	22, 217	"	3	3							3
29/30	"	22, 217	"	2	1							1
Monthly Total				54	43	1			75	63	1	106
Cumulative Total				54	43	1			110	85	2	128
<u>May</u> 1/2	19	22, 217	Beaufort	4	3							3
3/4	"	22, 217	"	4	3							3
6/7	"	217	"	3	3							3
9/10	"	217	"	4	3							3
10/11	"	816	Swordfish	1	1							1
14/15	"	827	Albacore	4	2							2
16/17	"	217	Beaufort	3	3							3
20/21	"	827	Albacore	4	2							2
25/26	"	217	Beaufort	3	2		5	Hampden	29	12		14
26/27	"						"	"	38	26		26
27/28	"						"	"	20	16		16
Monthly Total				30	22		-		87	54		76
Cumulative Total				84	65	1			197	139	2	204

DATE	COASTAL COMMAND						BOMBER COMMAND					TOTAL NO. MINES LAID
	Group	Squadron	Type	Despatched	Effective	Missing	Group	Type	Despatched	Effective	Missing	
Carried forward				84	65	1			197	139	2	204
June 9/10	19	217	Beaufort	4	3							3
10/11	"	"	"	3	2							2
12/13	"	"	"	6	6							6
15/16	"	"	"	4	3							3
17/18	"	"	"	4	3							3
20/21	"	"	"	6	4							4
22/23	"	"	"	4	4							4
23/24	"	"	"	6	6							6
24/25	"	"	"	6	6							6
25/26	"	"	"	3	3							3
26/27	"	"	"	4	3							3
27/28	"	"	"	5	4							4
29/30	"	"	"	3	2							2
Monthly Total				58	49							49
Cumulative Total				142	114	1			197	139	2	253
July 5/6	19	217	Beaufort	4	4							4
10/11	"	"	"	1	1							1
21/22	"	"	"	4	2							2
22/23	"	"	"	8	7		5	Hampden	8	8		15
Monthly Total				17	14				8	8		22
Cumulative Total				159	128	1			205	147	2	275
August 11/12	19	217	Beaufort	1	-							-
18/19	"	"	"	2	2							2
22	16	22	"	2	2							2
24	"	"	"	2	2							2
26	"	"	"	2	2	1						2
28	"	"	"	2	2							2
29	"	"	"	2	2							2
Monthly Total				13	12	1						12
Cumulative Total				172	140	2			205	147	2	287
September 12/13	19	217	Beaufort	1	1							1
16	16	22	"	2	1							1
17	"	"	"	2	1							1
18	"	"	"	2	-							-
26	"	"	"	2	2							2
Monthly Total				9	5							5
Cumulative Total				181	145	2			205	147	2	292

DATE	COASTAL COMMAND						BOMBER COMMAND					TOTAL NO. MINES LAID
	Group	Squadron	Type	Despatched	Effective	Missing	Group	Type	Despatched	Effective	Missing	
Carried Forward				181	145	2			205	147	2	292
October 1/2	19	217	Beaufort	1	1							1
3/4	"	"	"	1	-							-
11/12	"	"	"	3	2	1						2
12/13	"	"	"	1	-							-
14	16	22	"	2	1							1
16	"	"	"	2	2							2
21	"	"	"	2	2							2
22	"	"	"	2	2							2
Monthly Total				14	10	1					2	10
Cumulative Total				195	155	3			205	147	2	302
November 20		217	Beaufort	2	1							1
25	"	"	"	2	2	1						2
26	"	"	"	2	1							1
27	"	"	"	2	1							1
Monthly Total				8	5	1						5
Cumulative Total				203	160	4			205	147	2	307
December 9	16	217	Beaufort	1	1							1
11	"	"	"	1	-							-
13(day)	"	"					5	Hampden	10	4	2	4
14/15							"	"	2	1		1
16/17							"	"	18	15		15
Monthly Total				2	1				30	20	2	21
Cumulative Total				205	161	4			235	167	4	328
January 1942 9/10							5	Hampden	5	4	1	4
Monthly Total									5	4	1	4
Cumulative Total				205	161	4			240	171	5	332
February			NIL					NIL				
TOTAL				205	161	4			240	171	5	332

ENEMY SHIPPING AT SEA - SUNK AND DAMAGED BY AIR ATTACK (R.A.F.) IN NORTH WEST EUROPE

JANUARY to JUNE 1942

Group	Month	SUNK				DAMAGED				Remarks
		Assessment x		Verification †		Assessment x		Verification †		
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	
No. 16 Group (C.C.)	January	-	-	1	1,892	11	27,600	-	-	Ice conditions in the Baltic and its approaches deteriorating. Shipping almost at a standstill in the Baltic and its approaches. Severe ice conditions in Baltic and North Sea persisted. Conditions slowly improving in the Baltic. North Sea normal. General resumption of enemy traffic. Normal routine.
	February	-	-	-	-	2	1,100	-	-	
	March	-	-	-	-	1	2,000	-	-	
	April	-	-	1	1,494	4	12,500	-	-	
	May	8	19,500	8	24,376	24	79,882	5	17,559	
	June	3	3,300	1	1,497	2	2,500	-	-	
	Total	11	22,800	14	26,259	44	125,582	5	17,559	
No. 18 Group (C.C.)	January	-	-	-	-	1	1,000	-	-	The German battleship <u>Tirpitz</u> transferred to Trondheim. Two additional major naval units transferred to Trondheim. The <u>Tirpitz</u> breaks out. <u>Admiral Hipper</u> transferred to Trondheim. Normal routine. Transfer of <u>Prinz Eugen</u> and <u>Lutzow</u> . Normal routine.
	February	-	-	1	226	5	6,500	-	-	
	March	-	-	-	-	4	4,800	-	-	
	April	-	-	-	-	8	15,000	-	-	
	May	-	-	2	8,779	13	57,721	3	7,006	
	June	-	-	-	-	2	9,000	2	8,132	
		Nil	Nil	3	9,005	33	94,021	5	15,138	
No. 19 Group (C.C.)	January	1	6,000	-	-	1	6,000	2	11,131	The watch on Brest stepped-up. Blockade Runner attacked. Three enemy major naval units escape 'up channel'. Combined Operations raid on St. Nazaire covered. Normal routine. " " Far Eastern blockade runner attacked. " "
	February	3	1,200	3	727	-	-	-	-	
	March	2	1,050	1	200	-	-	-	-	
	April	-	-	-	-	-	-	-	-	
	May	1	100	1	15	2	6,500	1	6,408	
	June	-	-	-	-	-	-	-	-	
		7	8,350	5	942	3	12,500	3	17,539	
COASTAL COMMAND	January	1	6,000	1	1,892	13	34,600	2	11,131	
	February	3	1,200	4	953	7	7,600	-	-	
	March	2	1,050	1	200	5	6,800	-	-	
	April	-	-	1	1,494	12	27,500	-	-	
	May	9	19,600	11	30,170	39	144,103	9	30,973	
	June	3	3,300	1	1,497	4	11,500	2	8,132	
GRAND TOTAL		18	31,150	19	36,206	80	232,103	13	50,236	

Notes:- x Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.

† Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners Association.

Group	Month	SUNK				DAMAGED			
		Assessment x		Verification †		Assessment x		Verification †	
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage
BOMBER COMMAND	January	-	-	-	-	-	-	-	-
	February	-	-	-	-	-	-	-	-
	March	-	-	-	-	-	-	-	-
	April	-	-	-	-	-	-	-	-
	May	-	-	-	-	-	-	-	-
	June	-	-	-	-	-	-	-	-
	Total	N11	N11	N11	N11	N11	N11	N11	N11
FIGHTER COMMAND	January	-	-	1	260	1	400	-	-
	February	1	600	1	292	7	6,100	-	-
	March	-	-	-	-	3	700	-	-
	April	-	-	-	-	3	400	-	-
	May	1	300	3	1,607	2	300	-	-
	June	3	1,650	-	-	9	5,300	1	40
	Total	5	2,550	5	2,600 2,169	25	13,200	1	40
GRAND TOTAL	January to June 1942	23	33,700	24	38,375	106	246,619	14 16	50,276 50,701

Notes:-

x Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.

† Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners Association.

COASTAL COMMAND OPERATIONAL INSTRUCTION NO. 105/1942
BOMBER COMMAND OPERATIONAL INSTRUCTION NO. 62/1942
FIGHTER COMMAND OPERATIONAL INSTRUCTION NO. 13/1942

CO-OPERATION BETWEEN BOMBER, FIGHTER AND COASTAL COMMANDS
IN ATTACK OF ENEMY SHIPPING IN THE ENGLISH CHANNEL
AND NORTH SEA

INTRODUCTION

1. It is necessary to deny to the enemy the sea passage of the Straits of Dover and the coastal waters of Northern France and the Low Countries for the movement of his shipping between France and Germany. This aim can only be achieved by air operations carried out in the closest co-operation between the Coastal, Fighter and Bomber Commands of the Royal Air Force in association with Naval Forces operating in the area.

STRIKING FORCE

2. No. 16 Group, Coastal Command operate in the area eastward from 30° West and including the southern North Sea.
3. No. 19 Group, Coastal Command operated in the area westward from 30° West.
4. No. 11 Group, Fighter Command operate Fighter Squadrons against shipping in the Dover Strait either in consultation with or at the request of Vice-Admiral, Dover. Nos. 10 and 11 Groups operate Hurricane Bombers in the areas described in para. 23(a) and (b).
5. No. 2 Group, Bomber Command now have three Squadrons of Bostons operational, and in addition to their other commitments on "Circus" operations and Army Support and Combined Operation roles, they will come to the support of Coastal Command in the attack on important enemy shipping in the area between Cherbourg and Wilhelmshaven, excluding the area Manston, Ostend, Dieppe and Beachy Head. This force is limited at present to operations which are begun and completed in daylight.

RECONNAISSANCE

6. Coastal Command is responsible for reconnaissance and may call upon Fighter Command for reconnaissance by day in the area Manston, Ostend, Dieppe, Beachy Head.
7. The area in which Fighter Command normally carry out daylight reconnaissance without special requests is the coastal waters between Ostend and the mouth of the Somme. Weather permitting, these patrols will be carried out at about two-hourly intervals.
8. No. 16 Group may make requests for special reconnaissances within this area direct to Headquarters No. 11 Group. It is to be noted that fighter pilots are not especially trained in ship reconnaissance and that the ability of fighters to navigate accurately is limited.
9. If assistance is required for day reconnaissance outside this area, Coastal Command is to refer to Air Ministry (D.O.N.C.) (or Duty Group Captain), who will issue instructions to Fighter Command to render such assistance as may be practicable.
10. Night reconnaissances, other than those flown possibly by Hurricane Bombers in good weather, will be carried out by Coastal Command aircraft.

TARGETS

11. Coastal Command is responsible for passing information regarding targets to Fighter Command, indicating the degree of importance of the target.

APPENDIX XVII

12. The importance of ships as targets may be classified as follows:-

CLASS I. Important naval units (e.g. battleships, cruisers, raiders, four or more destroyers), convoys of exceptional size (20 ships, excluding "E" Boats and single destroyers).

CLASS II. Single destroyers, formations of "E" Boats (6 or more); single merchant ships of over 1,000 tons (200 feet);

CLASS III. Small formations of "E" Boats (less than 6), armed trawlers, minesweepers, merchant vessels under 1,000 tons.

The information should only be passed to Bomber Command when the target belongs to CLASS I.

13. Information from Coastal Groups may be passed direct to Headquarters, Fighter, Fighter Command and to the Headquarters of the appropriate Fighter Groups in addition to Headquarters, Coastal Command.

14. Coastal Command is responsible for keeping Bomber Command informed regarding the position, course and speed of the target and the Coastal Command effort allotted to it and, when practicable, for co-ordinating offensive action by Coastal Command with that of Bomber and Fighter Commands.

15. The local Naval Authorities are to be informed by the Coastal and Fighter Group Headquarters concerned of any attacks ordered or contemplated.

READINESS

16. Bomber Command striking forces will not be held at states of readiness or incur wastage which might prejudice their other commitments.

FIGHTER CO-OPERATION

17. The primary role of fighters in anti-shipping operations is to afford aircraft of Bomber and Coastal Commands the greatest possible freedom of action in their attacks. This will normally be given by fighter escort but in large scale anti-shipping operations the fighter role may be to provide local air superiority ("support") for a given time in the area where Bomber and Coastal Command aircraft are operating.

18. Requests for fighter co-operation for daylight strike operations are to be made direct between Coastal Command Groups and the appropriate Fighter Groups. As Bomber Command have authority to make similar arrangements, strikes by Bomber and Coastal aircraft are to be co-ordinated as far as practicable to obtain the maximum benefit from the fighter effort available. This co-ordination will normally be achieved by mutual agreement, and Fighter Command will endeavour to provide for the requirements of both Coastal and Bomber Commands. In order, however, to economise in fighter effort, attacks of both Commands will, whenever possible, be timed to obtain the benefit of the fighter support provided.

19. When fighter "escort" is to be provided a definite time to set course from a specific departure point (Rendezvous) must be agreed and in no circumstances is the striking force to orbit the departure point after the agreed time of departure. The estimated track from Rendezvous and E.T.A. over target is to be communicated to the Fighter Group concerned.

20. If Fighter Command cannot provide the fighter "escort" at the agreed time and place, the Group controlling the striking force will be informed by the Fighter Group at least 10 minutes before E.T.D. when the striking force is to be informed, and instructed whether or not to proceed without the fighters. If no signal is received by the striking force before E.T.D. it is to be understood that the fighter co-operation is being provided and the striking force is to proceed on its course, in the expectation of joining up with the fighters later on.

21. When fighter "Support" is to be provided no Rendezvous is required between striking force and fighters, but the Group Headquarters of the striking force is to tell the Fighter Group concerned of the area where air superiority is required and the times between which it is to be maintained.

22. Squadrons are to be warned that fighter "support" does not imply close escort nor does it imply that striking forces and fighters will necessarily see each other.

23. The areas of responsibility allocated to Fighter Groups for escort and direct attack are shown below. The allocation is not intended to be rigid, but close liaison will be maintained between Fighter Groups and other Groups operating at the same area.

- (a) No. 10 Group Area:- The English Channel west of 1° West (Pte. de Barfleur inclusive).
- (b) No. 11 Group Area:- The Channel, Dover Straits and North Sea between 1° West and Ostend.
- (c) No. 12 Group Area:- The North Sea east of No. 12 Group land area, and the coastal waters between Texel and Ostend.

TARGET INFORMATION

24. At headquarters, Coastal Command, the Operational Intelligence Section is responsible for passing and receiving appropriate information regarding shipping targets to and from Bomber Command and Fighter Command and the relevant Coastal Group, and for obtaining from either the Air Staff or the Naval Staff an indication of the target's importance.

(SIGNED) P. B. JOUBERT

HEADQUARTERS, COASTAL COMMAND
REF. CC/S.7010/20/3/Plans
8th April, 1942.

AIR CHIEF MARSHAL
COMMANDING-IN-CHIEF,
COASTAL COMMAND.

APPENDIX XVIIEXTRACT FROM LETTER FC/S.25659/Ops. DATED 30.9.41Definition of the Role of Fighter Units Engaged in an Operation with our Bombers

4. It has been decided to use standard definitions to describe the role of the various component parts of a large Fighter force engaged in an operation such as "CIRCUS". Thus the various Fighter components (all or some of which may be included) will in future be referred to as follows:-

Escort
 Escort Cover
 Target Support
 Free Lance
 Forward Support
 Rear Support

These terms, though devised principally for "CIRCUS" operations, may be conveniently used for other types of operation when applicable. The role of each of the components named above is briefly as follows:-

(i) Escort

The role of an Escort is the direct protection of the Bombers. The term Close Escort may be introduced to indicate a formation allotted to maintain position in the immediate vicinity of the Bombers.

(ii) Escort Cover

The role of an Escort Cover is to cover the Bombers and their Escort from attack throughout the operation.

(iii) Target Support

The role of a Target Support is to establish air superiority over the Target Area a few minutes before the Bombers and their Escort and Escort Cover are due to arrive, and subsequently to cover their withdrawal.

(iv) Free Lance

The role of a Free Lance is to seek out and destroy enemy aircraft in an allotted area of operations.

(v) Forward Support

The role of a Forward Support is to follow up an operation and cover the withdrawal of the Bombers and their Escort in a forward area.

(vi) Rear Support

The role of a Rear Support is to cover the final phase of the withdrawal of the Bombers and their Escort to this country.

DIVERSIONS

5. A Diversionary Operation consisting of a smaller force of Fighters and possibly Bombers, if available, which is staged in conjunction with operations such as "CIRCUS".

FEINT

6. A small force of fighters, possibly accompanied by bombers, which approaches the enemy coastline and withdraws before becoming engaged with enemy fighters. The purpose of this operation is to maintain the enemy's defences at the highest possible state of preparedness.

COMBINED NAVAL AND AIR ACTION AGAINST ENEMY SURFACE CRAFT IN THE DOVER STRAITS

1 JANUARY TO 30 JUNE, 1942

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date 1942	Origin of Report	Number and Type of Surface craft reported	Course and Speed	Time of Report	Action Taken							Assessment	Verifi- cation	Remarks
					Operation Code Name	Bombers No. Type Sqdn.	Fighters No. Type Sqdn.	Time of Attack	Armament Expended	E/A Claims	Own Losses			
Jan. 11	C.H.L.	One vessel about 1,000 to 2,000 tons	S/9	1825 - 1927			Nil					-	-	Left Boulogne at 1825 hours
12	C.H.L.	2 small vessels (probably Trawlers)	N.E.	0830	-	-	1 Spitfire No. 91 Sqdn.	-	M.G.	-	-	Nil	-	Operating from off Ambleteuse to off Sangatte.
14	C.H.L.	One vessel of 400 tons.	N.	-	-	-	1 Spitfire No. 91 Sqdn.	-	M.G.	-	-	Damaged	N/C	Off Boulogne. Believed hits on bridge.
16	C.H.L.	Two vessels. believed over 1,000 tons with three smaller ships	W/9	1905 - 2125	-	-	-	-	-	-	-	-	-	Aircraft unable to operate M.G.Bs. sent to identify but failed to make contact.
22	C.H.L.	Small vessel of 500 tons	-	-	-	-	1 Spitfire No. 91 Sqdn.	-	M.G.	-	-	Nil	Sunk (Fr. Tug <u>Livols</u> (260 gt.))	Off Nieuport.
21	C.H.L.	One vessel believed over 1,000 tons with 3 small- er vessels	E/10	1708 - 2310			Nil					-	-	Left Boulogne at 1708, passed Gris Nez at 1835 and plot faded near Dunkirk A.W. Buoy.
25	C.H.L. and A/C.	2 surface craft - 400 feet vessels and 4 flak-ships	N/9	0900 - 0955			Nil					-	-	Insufficient time to lay on attack by A/C. before vessels entered Boulogne.
25/26	C.H.L. and "yn Ser- vice	2 destroyers, 1,625 tons. (Beitzen Class)	W/25	2045 - 0209	-	-	6 Hurri. bombers No. 607 Sqdn.	0130/ 26	2 x 250 lb.	-	-	Nil	-	Passed Gris Nez at 0145/26. Only one A/C attacked.
26	A/C	"			-	-	4 Spitfires No. 302 Sqdn.	-	-	-	2	-	-	Did not contact enemy.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Jan. 27/28	C.H.L.	One surface vessel (400 ft.) and three flak-ships	N.	1800	-	-	5 Hurri- bombers No. 607 Sqdn.		2 x 250 lb.	-	-	N11	-	This vessel left Boulogne at 1800/27 using inner route passed Dunkirk A.W. Buoy. Returned to Boulogne 0750/28. Attacked by 1 Hurricane bomber 6 miles N.E. Dunkirk.
29	C.H.L.	One ship believed over 1,000 tons	S/12	1740 - 1830	N11									Left Boulogne about 1740 hours.
Feb. 31/1	C.H.L.	Three ships-possibly "M" Class M/S.	S		-	-	1 Hurri- bomber No. 607 Sqdn.	0430/1	2 x 250 lb.	-	-	N11	-	Left Boulogne on southerly course. Attacked when off Gris Nez.
	A/C	"	S	0430/1	-	-	1 Hurri- bomber No. 607 Sqdn.	0515/1	2 x 250 lb.	-	-	N11	-	Attacked off Ambleteuse.
Feb. 2	C.H.L.	Two surface craft (later identified as two destroyers)	W/20	0040 - 0225	N11								-	Plot commenced at 0040/2. Weather conditions unsuitable for attack by coastal craft or aircraft.
4	C.H.L.	One vessel and two escorts (probably a large mine-sweeper)	E/12	0345 - 0600	N11								-	Picked up 8 miles S.W. of Boulogne, proceeded to Gris Nez, turned round and entered Boulogne. No action due to vessel turning back.
6	C.H.L.	One large vessel possibly a mine-sweeper with three escorts	W/11	2215 - 0005/7	N11								-	Plotted from 3 miles N.E. of Calais to Boulogne. Prevailing conditions ruled out M.T.B. attack and no aircraft were available.
9	C.H.L.	Two or three destroyers accompanied by E-boats	W/25	0045 - 0219	N11								-	Plotted from 6 miles N. of Calais to 7 miles S. of Boulogne 11 M.T.Bs, supported by 2 M.C.Bs. and Swordfish of F.A.A. from Manston, were despatched to attack but were unable to inflict damage.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Feb. 12	C.H.L.	Two vessels, probably large mine-sweepers with six escorts	E/12	0110 - 0535			N11							Plotted from 11 miles S.W. of Boulogne to 15 miles N.E. of Calais. No. action as M.G.Bs. searching for E-boats off Dungeness and other forces being reserved for expected passage of enemy battle-cruisers.
12	C.H.L. A/C V/S	"SCHARNHORST" "GNEISENAU" and "PRINZ EUGEN" with large number of escorts	E/20 - 30	0016 - 1355	"Fuller"	28 Beauforts 11 Hudsons 3 Beaufighters 1 Whitley 130 Wellingtons 57 Hampdens 37 Blenheims 24 Manchesters 8 Bestons 5 Halifaxes 2 Stirlings 306	367 Spitfires 18 Hur/brs. 27 Hurricanes 10 Whirlwinds 422	1230-2330	14 Torps 39 x 500 lb. 38 x 250 lb. 13 Mines	16	43	N11	1 Trawler sunk. John Mahn (GE - 292 tons)	Plotted from 20 miles S.W. of Boulogne to 17 miles N. of Dunkirk. Attacked by all available forces including 5 M.T.Bs., 5 Destroyers and 6 Swordfish (F.A.A.).
13	A/C	Small vessel probably Trawler, and one E-boat	-	1330	-	-	6 Hurri- bombers No. 607 Sqdn. 6 Hurricanes No. 32 Sqdn. 30 Spitfires Nos. 64, 411 and 313	1330	M.G. and C.	-	1	N11	-	Sighted off Dunkirk two Hurricanes and three Spitfires attacked.
14	C.H.L.	One large ship, probably a mine-sweeper and four escorts.	E/5 - 7	1810 - 2300			N11							Plotted from Boulogne to 4 miles N.N.W. of Gravelines. Attacked unsuccessfully by 4 M.T.Bs. and 3 M.G.Bs. in bad weather conditions.
21	A/C	Two minesweepers, one probably 3,000 tons.	-	0815	-	-	1 Spitfire No. 91 Sqdn.	0815	M.G.	-	-	Damaged	N/C	Sighted one mile off Calais. Strikes along ships side.
23	A/C	One coaster (200 tons)	-	1630	-	-	1 Spitfire No. 91 Sqdn.	1630	Cannon	-	-	Damaged	N/C	Sighted off Nieuport and attacked. Hits seen - large flash in bows.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Feb. 26	A/C	Two trawlers (200 tons each)	-	1400	-	-	2 Spitfires No. 71 Sqn.	1400	M.G. and Cannon	-	-	Damaged	N/C	Sighted off Dunkirk and attacked. Strikes seen.
28	A/C	One coaster (1,000 tons)	-	0745	-	-	1 Spitfire No. 91 Sqn.	0745	M.G. and Cannon	-	-	Damaged	N/C	Entering Dunkirk Harbour Strikes amidships.
March 1	CD/C.H.L. Visual	Two large vessels, believed tankers of 58,000 tons escorted by numerous crafts	E/9	1924 - 2310	-	-	-	-	Torpedo	-	-	(Naval Action) Damaged	N/C	Plotted from Boulogne to Cap Blanc Nez where force was attacked by M.T.Bs. and M.G.Bs. One large vessel believed hit by torpedo and stopped. Second M.T.B. attack failed.
1	A/C	One ship (150 tons)	-	1650	-	-	1 Spitfire No. 91 Sqn.	1650	M.G.	-	-	Nil	-	Sighted off Cap Gris Nez and attacked.
3	C/D C.H.L. Visual A/C	One vessel (about 2,500 tons) escorted by armed trawlers and a screen of 12 R-boats	E/9	1935 - 2335	-	-	-	2115	Torpedoes	-	-	(Naval Action) Sunk	Jeanet Jacques (Fr. - 3,493 gt.)	Plotted from Boulogne to 4 miles north of Gris Nez. Attacked by M.T.Bs. and M.G.Bs. off Cap Blanc Nez. Main target torpedoed and believed sunk.
9	A/C CD/C.H.L.	One merchant vessel about 400 ft. with 6 Minesweepers and Trawlers	E/10	0514 - 0650	Nil							-	-	Plotted from 8 miles S.W. of Boulogne. Believed to have come from Le Havre. Entered Boulogne. No time to lay on an attack.
10	CD/C.H.L. A/C	One armed vessel about 400 ft. with several escorts.	E/9	0200 - 0615	Nil							-	-	Plotted from Boulogne to a position off Gravelines. M.T.Bs. sent to attack unable to penetrate screen.
12	A/C	One small vessel (about 200 tons)	-	0755 -	-	-	1 Spitfire No. 91 Sqn.	0755	M.G. and Cannon	-	-	Seriously Damaged	N/C	Sighted between Gravelines and Dunkirk. Vessel appeared to catch fire.
14	CD/C.H.L. A/C	One large armed vessel escorted by 5 torpedo boats and several E/R - boats. Preceded by 6 Minesweepers	W/13	0208 - 0516	-	-	-	0600	Torpedo and Gunfire	-	-	Damaged (Armed vessel)	N/C	Plotted from 13 miles N.E. of Calais to 9 miles S.W. of Boulogne. Unsuccessful attack by 6 M.T.Bs. Five destroyers also carried out torpedo attack about 5 miles W. of Berck Buoy.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
March 24	CD/C.H.L.	One vessel about 2,500 tons	W/9	2020 - 2132	NIL									Plotted from 8 miles S.W. of Boulogne, but plot faded off Berck-sur-Mer at 2132. No attack possible.
28	A/C	Three coaster type vessels (500/800 tons)	-	0715	-	-	2 Spitfires No. 91 Sqdn.	0715	M.G. and C.	-	-	Nil	-	Sighted between Dieppe and Fe'camp. One aircraft attacked one vessel. Strikes observed on ships stern.
29	A/C	One coaster type (about 400 tons)	-	0720	-	-	1 Spitfire No. 91 Sqdn.	0720	M.G. and C.	-	-	Damaged	N/C	Sighted off Le Touquet. Hits observed.
April 12	A/C	One Guard vessel, (about 100 tons)	-	1230	-	-	1 Spitfire No. 91 Sqdn.	1230	M.G. and C.	-	-	Seriously damaged		Sighted off Gravelines. Attacked and believed left in sinking condition.
22/33	R.D.F. shore stations confirmed by P.R.U.	One armed vessel 430 ⁺ escorted by 3 minesweepers and at least 6 R-boats	W/9	2200 - 0150	-	-	-	2310 - 0010	Gunfire.	-	-	-	-	Plotted from 7 miles N.W. of Gravelines to Boulogne S. Foreland 9.2 "Battery fired 24 rounds. M.T.Bs. and M.G.Bs. sent to attack were unable to penetrate the screen of escorting vessels.
23	R.D.F. shore Stations	One armed vessel 430 ⁺ escorted by "M" Class Mine- sweepers and R- boats.	W/10	2200 - 2315	-	3 Hudsons No. 407 Sqdn.	-	-	-	-	-	-	-	Plotted from Boulogne south westwards to 4 miles west of Etaples. Aircraft of No. 11 Group unable to operate owing to weather and No. 16 Group aircraft (3 Hudsons of No. 40 Sqdn.) unable to locate target. M.T.Bs. and M.G.Bs. abandoned the attack owing to rising N.E'ly wind and sea. H.M.S. Albrighton sent to intercept failed to sight main target but engaged escort vessels off Fe'camp.

SECRET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
April 26	R.D.F. Shore Stations	One vessel escorted by several small craft	W/9	2145 - 0300	-	-	1 Hurri- bomber No. 174 Sqdn. " "	2340 0140 0031	1 x 250 lb. 2 x 250 lb. 1 x 250 lb.	- - -	- - -	N11 N11 N11	- - -	Plotted from Boulogne to 23 miles S.W. of Etaples. Results of aircraft attacks were not observed.
28	A/C	One coaster (200 tons) and one flak-ship	-	0628	-	-	1 Spitfire No. 91 Sqdn.	0628	M.G. and C.	-	-	N11	-	Sighted off Nieuport.
May 2/3	A/C	One cargo vessel (1,000 tons) and two escorts	-	0300	-	-	1 Hurricane No. 32 Sqdn.	0300	M.G.	-	-	N11	-	Sighted off Cap Gris Nez Strikes seen.
	A/C	One trawler (800 tons) and three smaller vessels	-	0140	-	-	1 Hurricane No. 32 Sqdn.	0145	M.G. and C.	-	-	N11	-	Sighted off Cap Gris Nez. No results.
	A/C	One cargo vessel (1,000 tons) and two escorts	-	0345	-	-	1 Hurricane No. 32 Sqdn.	0345	M.G.	-	-	N11	-	Sighted between Gris Nez and Calais.
3/4	R.D.F. and P.R.U.	Probable Sperr- brecher and 6 R-boats	W/12	2225 - 0135	-	-	1 Hurricane No. 32 Sqdn.	-	-	-	-	-	-	Plotted from 3 miles N.W. of Gravelines to Boulogne. M.T.Bs. and M.G.Bs. made contact with escort only. Aircraft did not locate force.
4/5	P.R.U. R.D.F.	Probable Sperr- brecher and 5 or 6 R-boats	W/12 and return.	2215 - 2310	-	-	-	-	-	-	-	-	-	Plotted from Boulogne to 12 miles S.W. Some or all returning to Boulogne M.T.Bs. and M.G.Bs. sailed at 2200 to intercept but were unable to make contact.
5/6	P.R.U. R.D.F. Jim Crow	One merchant vessel 4/5,000 tons with 7 or 8 escorts	W/12 and return.	2210 - 0140 - 0610.	-	-	1 Spitfire No. 91 Sqdn.	-	-	-	-	-	-	Plotted from Boulogne to 6 miles W.S.W. of Le Treport returning to Boulogne. Portsmouth destroyers were at sea but were foiled by enemy's return to Boulogne.
8	A/C	One Tug and barge		0615	-	-	1 Spitfire No. 91 Sqdn.	0620	M.G. and C.	-	-	Damaged	N/C	Sighted one mile from Ostend. Strikes seen on wheelhouse.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
May 8/9	P.R.U. R.D.F. Jim Crow	One merchant vessel 410' with 3 "M" class minesweepers and 6 R-boats	E/13	0707 - 0755	-	-	1 Spitfire No. 91 Sqdn.	-	-	-	-	-	-	Plotted 7 miles S.W. of Boulogne to Boulogne Harbour. Sighted by Jim Crow near Le Touquet shortly before sunrise.
10/11	R.D.F. P.R.U.	One merchant vessel 410' with Sperr- brecher, 7 mine- sweepers and trawlers	E/12	2205 - 2350	-	-	-	-	-	-	-	-	-	Plotted from Boulogne to 3 miles off Calais; three of escort (not Sperrbrecher) returning to Boulogne. M.T.Bs. and M.G.Bs. did not make contact in low visibility. One M.G.B. laid mines ahead.
11/12	P.R.U. R.D.F.	4 Torpedo Boats	E/24	2200 - 2310	-	-	-	-	-	-	-	-	-	Plotted from Boulogne to 3 miles N.W. of Grave- lines. M.G.Bs. attacked with "R" mines 5 miles W. of Dunkirk but without success.
12/13	P.R.U.	Tanker with 7 escorts	E	-	-	-	-	-	-	-	-	-	-	Not plotted. Arrived Boulogne from Le Havre about 0600 hours.
12/13	P.R.U. R.D.F.	One armed merchant raider and about 15 escorts.	W/14	0115 - 0445	-	-	-	-	Torpedoes	-	-	(Naval Action) 1 or 2 "T" class Tor- pedo Boats probably sunk. N/C	-	Plotted from 15 miles N.N.E. of Calais to 8 miles W. of Boulogne. All airfields in No. 16 Group unserviceable - weather. M.T.Bs. and M.G.Bs. sent to attack. Contact made and one or two Torpedo Boats believed sunk. After attack convoy turned back to Boulogne.
13/14	P.R.U.	Raider and escort	W	-	Nil							-	-	Left Boulogne after dark. Only vessels plotted were 4 trawler size from Boulogne westward.
14/15	P.R.U. R.D.F.	One merchant vessel 280' and 6 R-boats	W/7	0040 - 0440	Nil							-	-	Plotted from 5½ miles N.E. of Calais to Boulogne. Suitability of target doubtful.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
May 17/18	R.D.F. P.R.U.	Tanker, merchant vessel (200') and several escorts	E/13	0135 - 0445			Nil					-	-	Plotted from Boulogne to 4 miles N.W. of Dunkirk. Tanker entered Dunkirk and merchant vessel to Ostend. R.D.F. underestimated size.
20/21	R.D.F. P.R.U.	Probable Sperr- brecher 250' and several escorts	W/8	0245 - 0620			Nil					-	-	Plotted 6 miles N.E. of Calais to 5 miles N.W. of Boulogne.
22/23	P.R.U. R.D.F.	Sperrbrecher (470') and several escorts.	W/9	2040 - 2220			Nil					-	-	Plotted from Boulogne to 4 miles W. of Etaples.
23	A/C	Coaster (800 tons).	-	1800	-	-	1 Spitfire No. 91 Sqdn.	1800	M.G. and C.	-	-	Nil	-	Sighted off Nieuport. Results not observed.
27/28	R.D.F. P.R.U.	Probable Sperr- brecher (250') and several escorts	W/8	2250 - 0130			Nil					-	-	Plotted from 2½ miles N. of Boulogne, faded off Gravelines.
June 31/1	P.R.U. R.D.F.	Coaster (200') and 4 Trawlers	W/9	0030 - 0205			Nil					-	-	Plotted from Etaples to Boulogne.
31/1	A/C	Five ships	-	0155	-	-	1 Hurri- bomber No. 174 Sqdn.	0200	2 x 250 lb. M.G. and C.	-	-	Nil	-	Sighted near Boulogne. Largest ship attacked but results not observed.
1/2	A/C	Six small ships	-	0125	-	-	1 Hurri- bomber No. 174 Sqdn.	0130	2 x 250 lb.	-	-	Nil	-	Sighted off Cap Gris Nez. Results not observed.
	A/C	Three trawler type vessels	-	-	-	-	"	-	2 x 250 lb. M.G. and C.	-	-	Nil	-	Sighted off Ambleteuse. Bombing results not observed.
5/6	P.R.U. R.D.F. visual	Two Torpedo boats	E/18	0215 - 0400	-	-	-	-	-	-	-	-	-	Plotted from 10 miles south of Boulogne to 3 miles north of Calais. Briefly engaged by 3 M.G.Bs. on patrol S.W. of Boulogne.
6/7	P.R.U. R.D.F.	Sperrbrecher (280') with 6 R-boats	W/10	2227 - 0010			Nil					-	-	Plotted as three small vessels from Boulogne to 9 miles S.W. of Etaples.
	P.R.U. Jim Crow	One merchant vessel (220') and escort	-	-			Nil					-	-	Seen in Boulogne having arrived and returned to the westward.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
June 14/15	P.R.U. Visual. R.D.F.	Tanker (T.31), armed coaster (180') and 8 escorts	E/10	2225 - 0300	-	-	-	-	-	-	1 MEB.	(Naval Damaged (Tanker)	Action) N/C	Plotted from Boulogne; faded north of Gravelines. Attacked by 5 M.G.Bs. and later by 3 M.T.Bs. One probable torpedo hit.
16	A/C	One dredger	-	1230	-	-	2 Spitfires No. 122 Sqdn.	1235	M.G. and C.	-	-	N11	-	Sighted 10 miles north of Dunkirk. Strikes seen but no damage apparent.
18	A/C	Five fishing vessels	-	1505	-	-	12 Spitfires. No. 72 Sqdn.	1510	M.G. and C.	-	-	1 Sunk 4 seriously damaged	N/C	Sighted 3 miles off Dieppe.
19/20	P.R.U. R.D.F. Jim Crow.	3 "M" Class mine- sweepers and 4 R-boats.	W/15	0200 - 0430	N11							-	-	Plotted from N.E. of Calais to Boulogne. Left Boulogne south westwards on following night.
20/21	P.R.U. R.D.F. Visual	Sperrbrecher (390') 16 R-boats and 9 Trawlers	E/6 - 8	2245 - 0435								-	-	Plotted from Boulogne to Dunkirk. Attacked by 6 M.T.Bs. and 4 M.G.Bs. with aircraft creating a diversion. Contact made with escorts only.
23/44	A/C	One vessel.	-	0050	-	-	1 Hurri- bomber No. 174 Sqdn.	0055	2 x 250 lb.	-	-	N11	-	Sighted one mile east of Dunkirk. Results not observed.
25/26	A/C	Two vessels (800 tons).	-	0430	-	-	4 Hurricanes No. 32 Sqdn.	0435	Cannon.	-	-	N11	-	Sighted 10 miles N.E. of Fecamp. No strikes observed.
28/29	P.R.U. R.D.F.	Sperrbrecher (330') and nine escorts	W/8	0030 - 0350	-	-	2 Hurri- bombers No. 174 Sqdn.	0150 - 0330	4 x 250 lb. M.G.	-	-	Seriously damaged	N/C	Plotted from Gravelines. Stationary off Calais 0230-0350. Hits with bombs and M.G. claimed. Sperrbrecher entered Calais after attacked.
29/30	P.R.U. R.D.F.	One "M" Class mine- sweeper and 4 Trawlers	W/8	2355 - 0235	-	-	2 Hurri- bombers No. 174 Sqdn.	0120 - 0235	4 x 250 lb. M.G.	-	-	N11	-	Plotted from Calais to Boulogne A/C under ground control bombed target off Ambleteuse. Results not observed.
Totals - 1 January to 30 June, 1942.						Bombers	Fighters	Bombs and Torps.	Wastage		Assessment	Verification	(Air Action)	
						3	114	3.12 tons.	E/A	Own				
									-	7	Sunk 1 x 150 Damaged 14 x 13,400	Sunk 1 x 260 N11		
Operation "Fuller"						306	422	12.94 tons 14 Torps.	16	43	-	Sunk 1 x 292.		

THE ITINERARY OF THE "TIRPITZ" FROM DANZIG TO
TRONDHEIM - JANUARY 1942

(References: Supplement to Admiralty Battle Summary No. 22 and the
Log of the Tirpitz.)

January, 1942 (For British time subtract 1 hour)

The "Tirpitz" was transferred from Gotenhafen (Danzig Bay) to Trondheim under the code name operation "Polarnacht".

Reasons for transfer

- (1) To strengthen the naval forces guarding Germany's northern flank in the event of an enemy attack on Norway and to operate against the Russian Convoy route.
- (2) To tie down British units and create a diversion enabling the Brest Group to operate with greater freedom against the Gibraltar and Sierra Leone Convoys.
- (3) To create a diversion to facilitate the Brest Group's return to Norway should this be put into practice.

Itinerary.

The Tirpitz left Gotenhafen on the 11 January 1942 and proceeded through the Kiel Canal to Brunsbützel, arriving there late on the 13th.

- 2350/14 Weighed and proceeded northwards through the Heligoland Bight.
- 1636/15 When in the mouth of the Skagerrak, made a diversionary course to the N.E. to mislead possibly enemy reconnaissance and resumed course 360° at 1708.
- 1740/15 a/c to 310° (original course) Weather, visibility good. wind S.E. force 5-6.
- 2024/15 a/c to 330° up the coast of Norway.
- 0532/16 a/c to 055° to follow the coast of Norway off Stadtlandet.
- 0744/16 Sighted several lighthouses on Norwegian coast.
- 0815/16 a/c to 077°.
- 0912/16 a/c to 090° Air escort joined at 0935. Weather: visibility good but overcast, wind E. force 4.
- 1125/16 Entered Grip Holen.
- 1745/16 Arrived at Foetten Fjord and anchored. See Map XVII.

THE ITINERARY OF "THE VON SCHEER" AND "PRINZ EUGEN"
FROM GERMANY TO TRONDHEIM FEBRUARY 1942

(References. Supplement to Admiralty Battle Summary No. 22 and the Logs of the Von Scheer and Prinz Eugen)

February 1942. (For British time subtract 1 hour)

It was originally planned that the "Scharnhorst", "Gneisenau", "Von Scheer" and "Prinz Eugen" should make the move to Norway together. The two battle-cruisers were to put into Trondheim while the other two ships continued to Narvik but the damages sustained by the "Scharnhorst" and "Gneisenau", through hitting mines on the dash through the Channel, prevented their immediate participation. The transfer operation - code name "Sportpalast" - therefore only included the "Von Scheer" and "Prinz Eugen".

These two ships left Brunsbütel at 2200 hours on the 20 February 1942, escorted by destroyers and proceeded northwards through the Heligoland Bight and up the west coast of Denmark.

- 1311/21 In position 5615N x 0615E. At 1750 hours the force received the order to put into Skudesnes fiord at daylight and up the Inner Leads until off Bergen. Then to leave the Leads after dark and proceed by night to Trondheim.
- 0800/22 Position 5900N x 0508E. Entered Skudesnes fiord.
- 0820/22 "Prinz Eugen" opened fire on an aircraft which attacked "Von Scheer" at 0830 dropping bombs (which missed) in the face of heavy A/A fire. A/C was finally shot down.
- 0950/22 Passed Haugesund.
- 1200/22 In Korsfjord. 6011N x 0530E.
- 1328/22 Anchored in Grimstad Fjord. Ships at 1 hours notice.
- 2101/22 Both ships weighed and proceeded through Leads.
- 2200/22 In southern entrance of Hjeltefjord and proceeded into open sea at 2300 hours.
- 0640/23 Position 6311N x 0643E. a/c for Gripholen.
- 0706/23 "Prinz Eugen" torpedoed by H.M. S/M Trident in position 6313N x 0701E. "Von Scheer" was about 700 metres astern. Visibility very poor with snow falling.
- 0714/23 "Von Scheer" continued alone with one destroyer. Entered Yttre Fjord at 0834, south of Garten Island at 1129, off Trondheim at 1300 and made fast in Lofjord at 1448 hours. Meanwhile "Prinz Eugen" was making water aft and the steering gear was out of action.
- 0830/23 Under way again using auxiliary steering.
- 0840/23 A torpedo heard approaching on the sound detector gear. Ship turned to Starboard and torpedo was heard to pass across the bows.
- 0859/23 "Prinz Eugen" making 10-12 knots.
- 1315/23 Off Terningen.
- 1940/23 Off Trondheim.
- 2355/23 Anchored in Lofjord.

Extensive damage had been caused by the torpedo to the rudder blade and steering gear. After provisional repairs lasting eight weeks the "Prinz Eugen" left Trondheim on 16/5/42 for Kiel and proper refit.

DETAILS OF THE ATTEMPT BY THE "TIRPITZ" TO INTERCEPT CONVOY P.Q. 126th - 9th March 1942

(Reference - Admiralty Supplement to B.S. 22)

N.B. - Times are British Time

P.Q. 12 was sighted and reported at 1205 on 5 March by German air reconnaissance when 70 miles S.S.E. of Jan Mayen Island. Four U/Bs patrolling to the west of Bear Island were ordered to form an interception line and the battle group in Foetten Fjord went to 3 hours notice.

On the 6 March the Naval War Staff, with Hitler's approval, decided that they should be sent to attack the convoy.

1100/6 Tirpitz with the 5th Destroyer and 2nd Torpedo boat flotillas put to sea. The T.Bs. Nos. T5 and T12 and one destroyer turned back at 1852 after providing A/S escort through Fro Havet into the open sea leaving "Tirpitz" and three destroyers to proceed for the convoy which it was estimated would be found in approximately 7210N x 0900E about 1500 hours on the 7th.

0950/7 The force was in position 7028N x 1130E. As no further reconnaissance reports had been received from either aircraft or U/Bs, the Tirpitz detached the destroyers to sweep to the northward while she altered course to 312° and searched to the N.W.

1630/7 Tirpitz picked up a W/T message from the Russian steamer "Ijora" that she was being attacked in 7235N x 1050E. It was assumed that the destroyers had not met the convoy but a straggler from it and that the convoy was somewhere in the vicinity.⁽¹⁾ Tirpitz closed the estimated position of the destroyers and met them at 1728/7 in position 7238N x 0756E. It was confirmed that one of them had sunk the "Ijora".

Tirpitz and the destroyers then stood to the southward to obtain better sea conditions for oiling the destroyers but was unsuccessful. Owing to shortage of fuel one destroyer had to be detached at 2023/7 and both the others at 0500/8. Tirpitz continued the search alone to the south and southwestward of Bear Island with not much hope owing to the inadequate air reconnaissance, the uncertainty of enemy dispositions and unfavourable weather.

1120/8 Group Command North gave new areas where it was thought the convoy might be found. These lay to the westward of the Tirpitz's position and she headed that way. No success or any reconnaissance news eventuated and at 2025/8, Tirpitz signalled her intention of returning.

2035/8 In position 7219N x 1317E she altered course to 191° and headed for Fro Havet.

0815/9 When in position 6757N x 0858E a British aircraft (carrier borne type) was sighted. Course was immediately altered to 082° to make for Vestfjord by the quickest route.

Then followed an attack by 12 Albacores launched from H.M.S. Victorious but Tirpitz succeeded in avoiding all torpedoes.

At about 1000 hours she was joined by a He.115 as close A/S escort. At 1038 this aircraft sighted a submarine and the alarm given enabled Tirpitz to avoid torpedoes fired at her by the British submarine in Vestfjord. She arrived without further incident in Bogenfjord at 1620/9.

(1) In point of fact the "Ijora" was a straggler from Q.P. 8 the westbound convoy. See Map XV.

The Tirpitz remained in Bogenfjord until the 12 March when she weighed at 2300 and proceeded southwards very close to the Norwegian coast until 1000/13 when in position 6612N x 1246E off Asvaer Fjord she altered course to 270° until 20 miles off the coast at 1118 when she turned to course 192° putting into Fro Havet soon after 1630/13 and anchoring in Foetten Fjord at 2100/13.

In his comments on the operation the Group Command North deplored the lack of air reconnaissance and stated that an essential condition in future operations was the strengthening of the Luftwaffe and a higher standard of competence among the pilots in his particular task.

THE ITINERARY OF THE "HIPPER" FROM GERMANY TO TRONDHEIM19th - 21st March 1942(Reference - Log of the Admiral Hipper)

N.B. For British time subtract 1 hour

The "Admiral Hipper" transferred from Brunsbittel to Trondheim under operational code name of "Eisenbahn".

Itinerary

- 1330/19 Left Brunsbittel, proceeded through Heligoland Bight to northwards.
- 2125/19 Passed Horn Reefs.
- 0300/20 In mouth of Skagerrak. Picked up bearings from Hantsholm in Denmark and Lister in Norway C.^o 346^o.
- 0623/20 a/c to 330^o Weather 10/10 cloud but vis. good. Strong S.E. Wind.
- 0705/20 Set C.^o for Kvitingso Light.
- 0730/20 1 He.115 and 2 Me. 109 joined as air escort.
- 1000/20 Passed through Langemuen Fjord.
- 1353/20 Took pilot on board at Knarrevik. Passed through Hjelte Fjord and Fedjefjord.
- 1650/20 Sighted by British aircraft in position 6040N x 0450E. The aircraft reported position correctly to No. 18 Group.
- 1935/20 Off Krakkhelle Sund.
- 2150/20 Came out of "Leads" at Gjejta Light and made wide detour round Stadtlandet Peninsula entering the Leads again at Bredsundabet at 0300/21.
- 0700/21 Passing through Gripholen. 1 - JU.88 joined up and at 0730 a fighter escort joined up.
- 1500/21 Anchored in Lo fjord.

OPERATION "MAGIC FLUTE" (ZAUERFLOTE). THE MOVING OF "PRINZ EUGEN"
FROM NORWAY TO GERMAN WATERS IN MAY 1942

An outline of the salient points of the operation and the course steered by "Eugen". Reference - Log of the "Prinz Eugen". British times.

16.5.42 1100 Left Lofjord.
 1255 Aasenfjord.
 1400 63° 29'N.-10° 7.1'E.
 1458 Tryndheimleden.
 1557 63° 32.2'N.-09° 14.3'E.
 1610 Speed 26 knots.
 1800 Ravnefjord. Wind N.E. 4, 5/10 overcast, Sea 0, Vis. 15-20 miles.
 2000 Harofjord.
 2200 Entrance to Vartdalsfjord.
 2252 Speed 12 knots.
 2255 Fighter protection leaves the force.
17.5.42 0000 North of Stadtlandet. (62° 12.8'N.-05° 4.6'E),
 Wind ENE. 4, 5/10 overcast, Sea 2-3, Vis. 10-15.
 0023 Speed 26 knots.
 0058 A/C. alarm. 4 low-flying A/C. pass astern at a range of 215 hm. The A/C were apparently able to D/F the ships but were unable to sight anything owing to the extreme darkness.
 0200 Faa Fjord.
 0400 Helle Fjord.
 0515 Off Tussen
 0600 Aafjord. Wind SE. 3 to 4 9/10 overcast, Sea 0-1 Vis. 15 miles.
 1000 Entrance to Langenuen.
 1125 Entrance to Karmsund, off Haugesund.
 1128 C.O. "Eugen" had no information concerning the state of the mines in Karmsund, so turned about.
 1203 Aircraft astern. The force has probably been discovered.
 1226 "Eugen's" "Y"-service supplies the information that a British A/C had reported, at 1200, 1 Pocket-battleship and 4 destroyers in Bommelfjord, course 045° speed 15 knots. "Eugen" had apparently been mistaken for "Lutzow".
 1301 Hardangerfjord. 59° 53'N.-05° 43.6'E. Turn about to port.
 1400 Bommelen.
 1445 Haugesund on the beam.
 1533 Aircraft alarm. 1 aircraft flies over "Eugen" at an altitude of 3500 metres. Ship opens fire.
 1600 Feistein channel.
 1800 58° 31'N.-05° 21'E. Wind NW. 2, 9/10 overcast, Misty, Vis. 10 miles, sea 1-2.
 1930 It was known that enemy A/C were trying to locate the force by D/F. At 1955 one of the enemy A/C off the port bow. This A/C was shot down by fighters at 1957.
 2001 A "Hudson" A/C was sighted. "Eugen" opened fire at a range of 40 hm. and the A/C disappeared in the clouds pursued by fighters.
 2008 About 28 low-flying A/C sighted bearing 115°.
 2016 One of the destroyers sighted a torpedo-track to starboard. A little later "Eugen" sighted 2 torpedo tracks abaft the starboard beam. A series of low-flying attacks were made in the face of very heavy A/A fire, but the ships succeeded in evading all the torpedoes. The A/A of the ships claimed 7 A/C shot down. ("Eugen" 5, Escort - 2) and the fighters at least 1.
 2028 Torpedo attack over. A little later 2 A/C carried out a high-level bombing attack. About 5 bombs were dropped. No damage.
17.5.42 2200 58° 07'N.-07° 53'E. Fighter protection leaves.
 2233 Wind NNE. 3-4, 9/10 overcast, sea 2, Vis. 10-15 miles.

SECRET

2

APPENDIX XXIII

18.5.42 0000 58° 6'N.-08° 37.5'E. Wind NNE. 4, 9/10 overcast, sea 2-3,
Vis. 10-15 miles.
0437 Fighter protection arrives. (4. Me.110).
0800 57° 51'N.-11° 48'E.
1000 56° 17'N.-11° 25'E.
1200 55° 50.2'N. 10° 57.8'E. Wind SE. 3-4, 5/10 overcast sea.
1-2, Vis. 15-20 miles.
1400 55° 26.8'N.-10° 57.8'E.
1800 54° 37.5'N.-11° 46'E. Wind SE. 3-4, 10/10 overcast, sea. 1-2,
Vis. 15 miles.
1940 Kiel Lightship.
2115 Made fast at Scheerhafen.

AIR ATTACKS ON MURMANSK

(From the war diaries of Luftflotte 5)

14.3.42.

An attack was carried out on Kandalakscha station on the Murmansk railway, in the course of which a large square building was destroyed by direct hits and other buildings were probably damaged.

24.3.42.

In the forenoon, an attack was made by 12-Ju.87's on ships and harbour installations in Murmansk. Hits were observed on quay installations and on a large merchant ship at the quayside. Fighter defences consisted of 7-10 Hurricanes. In the afternoon, a dive-bombing attack was carried out against Murmansk harbour; three direct hits were observed on quay installations, and two direct hits fell on store houses. One Ju.87 was shot down by enemy fighters. During the bomber operations against Murmansk in the morning, there was a fighter-battle 2000 metres above the town. In the course of this, our fighters shot down one Hurricane.

30.3.42.

Explosions observed in the residential area south of Murmansk.

3.4.42.

In bomber operations, hits were scored amidships on a medium-sized merchant ship and on a large building, in the Murmansk harbour installations. Some bomber operations were carried out against shipping targets in Murmansk harbour.

4.4.42.

Hits were scored and two fairly large fires were observed in the northern part of Murmansk harbour.

12.4.42.

Eight Ju.87 aircraft carried out an attack against ships and quay installations in Murmansk harbour, and hits were observed.

15.4.42.

In the course of an attack on shipping and installations in Murmansk harbour, one passenger and freight-ship of about 10,000 tons received a direct hit amidships. It can be counted as destroyed. At 17.40 hrs. there was a dive-bombing attack on quay installations and two merchant ships (each 2,000 tons) in Murmansk harbour; there were two direct hits on a storage shed and two direct hits on quay installations. In air fights over Murmansk, 4-Hurricanes, 2-J.180's, and 1-J.16 were shot down. In the two Stuka attacks on Murmansk, two medium-sized merchant ships were badly damaged and probably destroyed; hits were scored on installations and stores. Seven enemy fighters were shot down. None of our aircraft were lost.

22.4.42.

A dive-bombing attack was carried out against harbour installations in Murmansk, and hits were scored on installations and on the western quarter of the city.

23.4.42.

Strong forces carried out three bombing attacks on Murmansk. Hits were scored on harbour and dock installations, and one merchant ship of 3,000 tons was severely damaged. Escorting fighters shot down 15 enemy aircraft. One of our fighters was lost.

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24.4.42.

Dive bombing attack was carried out against the new Rosta Wharf north of Murmansk. Bombs fell on the target. 1-Ju.87 is missing. Three enemy Hurricanes were shot down.

25.4.42.

A dive-bombing attack was carried out against harbour installations in Murmansk. Several bombs fell on the repair workshop in the southern part of the city, and there were hits on the harbour and on railway installations to the south of Murmansk.

26.4.42.

Besides single attacks by bombers, an effective Stuka attack was made on Murmansk. 2-Ju.88's are overdue. Escorting planes shot down eight Hurricanes and one Mig.

10.5.42.

Harbour installations and ships in Murmansk were attacked with good results. On the Murmansk railway, an ammunition train was destroyed.

18.5.42.

In bombing attacks on Murmansk and Jokanga, one merchant ship of 4,000 tons was severely damaged in Jokanga. Several hits on wharf and railway installations in Murmansk caused heavy fires. Escorting fighters shot down 13 Hurricanes. The American Curtiss P40 appeared for the first time. It bore American recognition marks.

21.5.42.

In attacks on the Murmansk railway between St. Olenja and Imandra, three trains were successfully attacked; of these, one was probably a munitions train. A considerable number of wagons were destroyed and damaged.

23.5.42.

In armed reconnaissance against the Murmansk railway, the railway line N.W. of Tschupa was cut by direct hits; no traffic was observed.

24.5.42.

In a Stuka attack against the Murmansk railway, the line was broken by hits on bridges and on the railway lines.

25.5.42.

The railway bridge N.W. of Kowda which was broken in the Stuka attack of 24.5.42 was badly damaged for a second time by another Stuka attack. In a fighter thrust in the Murmansk area, one Hurricane was shot down, and another aircraft (presumably a Hurricane) was destroyed on the ground. 1-Bf.109 is missing.

26.5.42.

At mid-day, a Stuka attack was made on the Murmansk railway south of Taibola. Lines were cut in five places by direct hits. Escorts shot down six Hurricanes. One Tomahawk fell, trying to ram a Ju.87.

27.5.42.

In a Stuka attack on shipping in Murmansk harbour, an 8,000 ton and a 4,000 ton freighter were damaged by bombs.

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28.5.42.

In two Stuka operations against ships in Murmansk harbour, a fairly large merchant ship was set on fire.

31.5.42.

In Stuka operations against shipping targets in Murmansk harbour, hits were scored on quay installations, and two merchant ships totalling some 17,000 tons were damaged. Fires lasting several hours were observed in the harbour installations.

1.6.42.

In several Stuka and bomber operations against Murmansk harbour, one merchant ship of 3,000 tons was severely damaged, and another of 8,000 tons was damaged by mines. There were also effective hits scored on quay installations and goods dumps in Murmansk and Jokanga.

2.6.42.

In bomber and Stuka attacks on Murmansk, some hits were scored on quay installations and some close to ships. A fairly large merchant ship sunk in Murmansk harbour is probably the result of the previous day's attacks on an 8,000 ton ship. Nine enemy fighters were shot down by escorts.

7.6.42.

Reconnaissance and bomber operations against the Murmansk railway produced no special results.

8.6.42.

The Murmansk railway was cut south of Kandalakscha after bombing operations.

9.6.42.

The Murmansk railway was cut south of Louhi and one train was damaged by bombs.

10.6.42.

The Murmansk railway was cut south-east of Sobuereakaja.

11.6.42.

In the southern sector of the Murmansk railway, hits were scored in several places where, according to geological tests, the foundations are on marshy ground and unsafe. These hits are likely to cause considerable interruption.

12.6.42.

In armed reconnaissance carried out by single aircraft, small formations and fighter-bombers, hits were scored in the Murmansk city-area and on the Murmansk railway.

13.6.42.

Several bomber and Stuka attacks on Murmansk scored numerous hits on and caused fires amongst harbour and railway installations, on the city area and on ship repair workshops. Good hits were obtained in a strong bombing attack against railway installations in Louhi. Escorts over Murmansk shot down 11 enemy fighters. For the first time, some Airacobra aircraft were seen amongst the enemy fighters.

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14.6.42.

Bomber and Stuka attacks on Murmansk caused great damage in harbour and railway installations, in ship repair workshops and in the city area. Fires were started. An enemy destroyer was damaged by bombs. In a strong attack on a railway bridge near Kem, the bridge was damaged and the embankment at the southern end of the bridge was broken.

15.6.42.

In bomber and Stuka operations in the Murmansk area, wharf sheds were destroyed and living quarters on the fighter airfield at Murmaschi were also destroyed. Several hits on the railway line at the Kem bridge effectively severed the Murmansk railway.

18.6.42.

In bomber and Stuka operations, several bombs hit a merchant ship of 6,000 tons in Murmansk harbour. It was set on fire and destroyed. The main weight of attacks was on the harbour and the city of Murmansk. Extensive fires were observed in the centre of the city and in the northern part of the city. Important industrial installations and the GPU Building were set on fire. Four enemy fighters were shot down in air battles.

19.6.42.

In spite of heavy losses, the enemy fighter protection for Murmansk is being continually strengthened. Flak and fighter defences - the latter sometimes stronger than our own forces - are resulting in considerable losses on our side. One Stuka attack was made on the wharves and docks installations in Murmansk.

22.6.42.

In a feint attack by Stukas on Murmansk, covered by fighters, 12 enemy fighters were shot down. We suffered no losses.

23.6.42.

Our bomber and Stuka operations on the Murmansk harbour and railway installations scored numerous hits which caused fires. Escort planes and a fighter thrust shot down 11 enemy fighters. None of our planes were lost.

24.6.42.

In our bomber and Stuka operations against shipping and harbour installations in Murmansk, two merchant ships (totalling 11,000 tons) were sunk, and one merchant ship of 6,000 tons was damaged. Effective hits were also scored and fires were started in the harbour and railway station installations. Escorts and a fighter thrust shot down 10 enemy fighters. We had no losses.

27.6.42.

In an armed reconnaissance over the Murmansk railway between Murmansk and Kandalaksch a bridge was damaged and the railway line cut.

28.6.42.

Bomber and Stukas attacked ships and installations in Murmansk harbour during the afternoon. One merchant ship of 7,000 tons was damaged and several hits were obtained in large storage sheds in the main quay installations; these were followed by fires. In escort duties and in fighter sweeps, our fighters shot down 12 enemy aircraft. None of our planes were lost.

29.6.42.

Bomber and dive-bomber operations were carried out against quay installations in Murmansk, and good results were obtained.

30.6.42.

Bomber and Stuka attacks were carried out against the transformer-installation of the power station used for the Murmansk railway at Murmaschi; the much used airfield, Warlamowo I, and the sheds on Rosta Wharf were also attacked. An attack made by strong forces with incendiary bombs on the southern part of Murmansk (previously little damaged) caused numerous and widespread fires.

GERMAN AIR OPERATIONS AGAINST BRITISH CONVOYS TO RUSSIA

(Reference - The Diaries of Luftflotte 5.)

Convoy PQ 16

Reports of the preliminary gathering of PQ 16 had been received by the German War Staff. The United Kingdom portion, on its way to Iceland, had been sighted by a F.W. 200 on the 5 May thus confirming an agent's report of a Murmansk bound convoy having sailed from North Scotland. Agents in Canada reported the gathering of Russia bound shipping in Canadian harbours between the 5 and 7 May. It was considered, therefore, that the complete convoy would sail from Iceland soon after the 17 May. This appreciation was strengthened by a F.W. 200 sighting of a British task force consisting of one battleship, one aircraft carrier, two cruisers and several destroyers on the 16 May about 70 miles east of Iceland. Increased air reconnaissance was instituted between Iceland and Jan Mayen Island but owing to persistent foggy conditions it was 1600 hours on the 23rd before the task force was again observed and not till 0645 hours on the 25 May was the main convoy sighted about 120 miles east of Jan Mayen Island. U-boats had picked up portions of the convoy late on the 24th but W/T interference had corrupted their early shadowing signals. Continuous position reports were made by air and U-boat shadowers for the next six days. From these the convoy was estimated to number up to 50 merchant vessels escorted by five cruisers, 14 destroyers and nine corvettes.

Between 2022 hours on the 25th and 1730 hours on the 30 May a total of 21 separate attack waves of torpedo carrying and bomber aircraft were launched. He.111's and 115's carried the torpedoes, Ju.88's the bombs and Ju.87 dive bombers were used as the convoy neared Murmansk. Low cloud and misty conditions in the target area prevented many of the aircraft from locating the convoy and this with the increasingly unserviceable condition of the runways on the airfields at Banak, Kirkenes and Petsamo upset the planned strong concentrated attacks. In all, there were dispatched 42-He.111's, 9-He.115's, 227-Ju.88's and 33-Ju.87's. Against the loss of one He.115 and 6-Ju.88's there were claimed 16 merchant vessels sunk, a further six probably sunk and 24 damaged. (1) The shadowing and reconnaissance duties were performed by 86 sorties consisting of 29-F.W. 200's, 24-BV.138's, 29-Ju.88's and 4-He.115's.

Convoy PQ 17

From the beginning of June a PQ convoy was reported by agents to be assembling on the west coast of Iceland but the actual sailing was not observed. It was, however, inferred from the location at 1640 hours on the 30 June of the westbound QP convoy in a position 180 miles north of the North Cape that the PQ was also at sea. Extra air reconnaissance was then laid on in the Jan Mayen area. At 1401 hours on the 2 July the PQ 17 convoy was sighted east of the island and was reported to consist of 38 merchant ships escorted by 10-15 naval craft. In the vicinity was a covering force of two battleships, one or two aircraft carriers, four cruisers and about 12 destroyers.

Air attacks on the convoy were launched on the 2 July by Ju.88 bomber aircraft and on the 4th by He.111's carrying torpedoes. Four merchant ships were claimed as sunk by the latter. On the 5 July it was reported by reconnaissance aircraft that the convoy had dispersed and in the opinion of the German War Staff this was considered to have been caused by the operations of the torpedo carrying aircraft. During the afternoon, torpedo and bomber attacks were sent into the general area of scattered merchant ships. Seven were claimed as sunk with seven more seriously damaged. Attacks continued to be directed on isolated ships as reported by reconnaissance between the 6 and 10 July. Five more ships were claimed as sunk and two damaged.

In all the "Luftflotte 5" claimed to have sunk one cruisers, one destroyer,

(1) This compares with the actual British loss of six merchant ships and damage to three others by air action.

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two escort vessels and twenty-two merchant ships⁽¹⁾ against the loss of five torpedo carriers and two reconnaissance aircraft. The total number of attacking aircraft was 130-Ju.88's, 43-He.111's and 29-He.115's. In the course of the attacks 212,500 kgs. of bombs were dropped and 61 torpedoes released.

Convoy PQ 18

This convoy was located by a F.W. 200 on the 8 September whilst rounding northwest Iceland and was thereafter shadowed by U-boats. It was again located by air reconnaissance at 0315 hours on the 13th when 25 miles southwest of the southern tip of Spitzbergen. Attacks followed immediately by torpedo and bomber aircraft. The former, in spite of heavy losses (13 He.111's) claimed to have sunk seven merchant ships but low clouds hampered the Ju.88 bombing attacks. Similar operations on the 14th were again hampered by weather conditions, a number of aircraft failing to find the target. Even heavier casualties were suffered by the torpedo aircraft (20 He.111's and 115's) and only one merchant ship was claimed sunk with damage to two others. On the 15th frequent bombing attacks by Ju.88's were despatched into the target area but the extensive low cloud bank and atmospheric disturbances interfered with the homing of the attackers on to the shadowing aircraft. Few aircraft found the convoy and no claims of sinkings were made. 5-Ju.88's were missing.

The westbound convoy QP 14, which was known to be at sea, was located on the morning of the 15 September about 60 miles north of Cape Kanin. Beyond maintaining touch when weather permitted, no attacks were planned against this convoy in view of the greater importance of dealing with PQ 18. During the 16th severe weather conditions with icing at all altitudes prevented any air attacks from being made and finally interrupted the shadowing of both convoys.

At this time the Reichsmarshal (Goering) ordered all available air forces to attack PQ 18 until it reached port stating that the destruction of the ships in this convoy was of decisive importance. Although the convoy was re-located by reconnaissance aircraft fitted with radar equipment, the very bad weather conditions again frustrated all air attacks during the 17th. On the 18 September a slight moderation in the weather permitted four attack waves of torpedo and bomber aircraft to be launched. Only two of these found the convoy, which was now nearing Cape Kanin, and claims were made of the sinking of six merchant ships with a further seven badly damaged. Final attacks by bombers alone were made on the 20th while the convoy was approaching Archangel. Poor weather conditions still prevailed and Russian fighters were escorting the ships. Three ships were claimed as damaged for the loss of one Ju.88.

Total claims amounted to 14 merchant ships sunk, two probably sunk and ten damaged⁽²⁾ against a loss of 33 torpedo aircraft, 6-Ju.88's and two reconnaissance aircraft.

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- (1) This compares with the actual British loss of 13 merchant vessels by air attack.
- (2) This compares with the actual British loss of 10 merchant ships by air action.

DETAILS OF THE ABORTIVE SORTIE BY "TIRPITZ", "HIPPER"
AND SIX DESTROYERS

(Reference Admty. N.I.D. 24/X106/47)

Operation Rosselsprung against PQ 17

July 1942

On the 30 June from 1650 hours, air and then U-boat reports confirmed the position of convoy QP 13 after leaving Archangel and on the 1 July U-boats reports from 1615 followed by air reports confirmed the position of PQ 17 after leaving Iceland. PQ 17 was then accurately shadowed and reported by 9 U-boats.

From these reports it was calculated that PQ 17 would pass longitude 50 east during the forenoon of 2 July and at 1257 the executive for the preliminary move was made by the Operation Division of the Naval Staff. The Narvik group consisting of the Lutzow, Scheer and six destroyers⁽¹⁾ left Bogenfjord on the night of the 2nd proceeding northwards but the Lutzow grounded in Tjelsund putting her out of action for the operation. The other ships of the group carried on and arrived in Altenfjord A.M. on the 3 July. The Trondheim force consisting of the Tirpitz, Hipper and six destroyers⁽²⁾ left Trondheim on the 2nd and arrived at Gimsoystraumen⁽³⁾ on the 3 July. On the way into this narrow channel three of the destroyers⁽⁴⁾ ran aground sustaining damage that rendered them unfit for action. The remainder of the force moved on to Altenfjord in northernmost Norway during the night of the 3/4 July.

The Luftwaffe had been re-inforced since the complaints laid against it in March and for this operation consisted of three squadrons of F.W. 200 and four squadrons of B.V. 138 of Luftflotte 5 - all long range reconnaissance aircraft - and a large number of J.U.88 both bomber and torpedo carrying.

On the forenoon of the 5 July the convoy was known to be scattered apparently because of the air and U-boat attacks. The heavy units of the British support forces were well to the west of Bear Island. At 1137 on the 5th the executive for the operation was made from the operation divisional headquarters. Orders were given for the Tirpitz, Hipper and six destroyers to leave the Leads at a point as far East as possible - namely at Nordkyn - to avoid being spotted or attacked by hostile submarines.

At 2006 intelligence, reported that the German force had been sighted by an enemy submarine at 1700 hours in 7130N x 2350E steering 045°, ⁽⁵⁾ and a little later that another enemy submarine had made a sighting report at 2029 hours giving the position 7120N x 2750E 00.060°. ⁽⁶⁾ These reports prematurely divulged the operation and the direction in which it was proceeding. The C. in C. Fleet in the Tirpitz considered that it was just possible to operate against some portions of the scattered convoy and get back to the North Cape area (under the fighter umbrella) before a possible interception by the British heavy units who had an aircraft carrier in company.

However, the operational division of the Naval Staff refused approval because

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- (1) Destroyers - Beitzen, Z24, Z28, Z29 and Z30.
 - (2) Destroyers - Idn, Lody, Galster, Riedel, Eckoldt and Steinbrink.
 - (3) A narrow channel leading from the north end of Vestfjord to the open sea.
 - (4) Destroyers - Lody, Riedel and Galster.
 - (5) This was the Russian submarine "K.21" which claimed to have hit the Tirpitz with 2 torpedoes. However no mention of any attack by a hostile submarine is made in the war diary of the Tirpitz for this period and certainly no damage at all was suffered by the German battleship during this operation.
 - (6) This was the British submarine "P.54". There was also an unexplained report of a force of 11 ships having been sighted in position 7131N x 2710E steering 065° at 1816.

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of the presence of the aircraft carrier in the British heavy support forces⁽¹⁾ and because in the meantime the convoy had been scattered and reduced by air and U-boat attack to such an extent that only a very limited success could be expected and this no longer justified the risk. Therefore at 2132 hours the order was passed to C. in C. Fleet to break off the operation and return to harbour by the Nordkyn route and finally withdraw through the Leads into Vestfjord.

The force put back into Altenfjord, refuelled and on the 7 July the whole fleet proceeded towards Vestfjord. On the journey they put in at Arnoy on account of fog and when getting under way again at 1045 hours, were spotted by a British aircraft which made a jumbled report which however led to no development. The fleet steamed without incident through Gimsoystraumen and Tjeldsund into Bogen Fjord where they arrived during the night of 7/8 July.

(1) This apprehension whenever an aircraft carrier was known to be present dated from the fate of the Bismarck in May 1941, the loss of the Prince of Wales and Repulse in December from air attack, and the carrier borne air attack on the Tirpitz in March 1942. Henceforward all operation orders made out by the Naval Staff stressed the necessity for major units to break away if reconnaissance revealed any risk of interception by heavy enemy ships which included an aircraft carrier amongst them.

MONTHLY SUMMARY OF MINES LAID BY COASTAL COMMAND BY AREAS

	Bay of Biscay				North France				Belgian, Dutch and Frisian coast					S.W. Norway	Total Laid	Mines jettisoned	Mines lost	No. of Sorties	A/C lost
	Artichokes	Beech	Cinnamon	Jellyfish	Anemones	Dewberry	Greengages	Scallops	Barnacles	Oysters	Trefoils	Turbot	Nectarines	Bottle					
July 1941	17	10	-	14	5	-	-	10	-	-	-	-	12	-	68	-	4	83	2
Aug.	6	3	2	12	-	1	-	-	-	2	-	-	-	3	29	2	4	41	5
Sept.	2	2	-	5	-	-	-	-	-	-	-	-	-	6	15	1	-	35	-
Oct.	5	6	-	10	-	-	-	-	-	-	-	-	-	-	21	-	-	28	1
Nov.	5	1	-	5	-	-	-	-	-	-	-	-	1	-	12	1	4	33	5
Dec.	-	-	-	1	-	-	-	-	-	-	-	-	3	-	4	-	-	4	-
Total	35	22	2	47	5	1	-	10	-	2	-	-	16	9	149	4	12	224	13
Jan. 1942	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mch.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	-	-	6	-
June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug.	-	-	-	-	-	-	14	-	-	-	7	-	-	-	21	-	2	26	2
Sept.	-	-	-	-	-	-	11	10	-	-	-	-	-	-	21	-	1	19	1
Oct.	-	-	-	-	-	-	5	14	3	-	13	12	-	-	47	1	-	49	2
Nov.	-	-	-	-	-	-	9	26	-	-	-	-	-	-	35	1	-	44	-
Dec.	-	-	-	-	-	-	-	17	-	-	-	-	-	-	17	-	2	20	3
Total 1942	-	-	-	-	-	-	39	67	3	-	20	12	-	6	147	2	5	164	8
Jan. 1943	-	-	-	-	-	-	-	10	-	-	-	-	-	-	10	-	-	12	-
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1
Mch.	-	-	-	-	-	-	9	8	-	-	-	-	-	-	17	4	-	23	3
Total	-	-	-	-	-	-	9	18	-	-	-	-	-	-	27	4	-	40	4
Grand Total	35	22	2	47	5	1	48	95	3	2	20	12	16	15	323	10	17	428	25

MONTHLY SUMMARY OF MINES LAID BY DOCKER COMMAND BY AREAS

	Bay of Biscay							Nether-lands	North German Coast							S. Norway	Kattegat	The Sound and Belts							Kiel Canal and Bay				Western Baltic										Total laid	Mines jettisoned	Mines lost	No. of sorties	A/C lost					
	Artichokes	Beech	Cinnamon	Deodars	Elderberry	Purze	Corse	Jelly fish	Barnacles	Trefoils	Eglantines	Hawthorn	Nectarines	Rosemary	Yams	Bottle	Onions	Kraut	Silverthorn	Yew tree	Asparagus	Broccoli	Carrots	Daffodil	Endives	Nasturtium	Pumpkins	Verbena	Forget-me-nots	Melons	Quinces	Radishes	Wallflowers	Geranium	Hollyhocks	Jasmine	Pollock	Privet						Spinach	Sweet Peas	Tangerine	Willow	
July 1941	18	20	1	-	-	-	-	8	-	-	25	-	17	1	10	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	6	10	-	-	-	-	-	-	-	-	-	-	-	125	6	3	155	4
Aug.	-	-	-	-	-	-	-	-	-	-	-	1	43	-	-	-	-	2	-	-	-	1	2	2	3	-	2	-	2	2	3	-	2	-	-	1	2	-	-	-	-	-	-	68	1	1	93	2
Sept.	-	-	-	-	-	-	-	-	-	-	4	-	36	11	2	-	21	1	-	-	2	1	1	1	1	1	1	1	18	1	1	3	1	12	2	5	-	-	-	-	-	-	-	111	8	4	115	6
Oct.	-	-	-	-	-	-	-	-	-	-	6	2	14	-	5	-	-	-	-	-	-	-	-	2	-	5	1	-	18	-	2	-	1	-	-	-	-	-	-	-	-	6	52	3	3	64	1	
Nov.	-	-	-	-	-	-	-	-	-	-	1	5	20	-	12	-	15	-	-	-	-	-	-	2	-	5	1	-	44	-	2	-	-	-	-	-	-	-	-	-	3	110	6	6	120	6		
Dec.	-	-	-	-	-	-	-	20	-	-	1	-	15	-	6	-	-	-	-	-	-	-	-	-	-	1	-	7	-	-	-	-	-	-	-	-	-	-	-	-	12	62	7	4	72	4		
Total	18	20	1	-	-	-	-	28	-	-	36	8	145	12	35	-	36	3	-	-	3	3	3	3	4	7	4	1	82	3	12	13	4	12	3	8	-	-	-	-	-	21	528	31	21	619	23	
Jan. 1942	-	6	5	5	-	-	4	4	-	-	-	-	27	-	8	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	61	7	3	100	4		
Feb.	-	-	-	-	-	-	-	-	-	-	1	6	215	28	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	306	19	11	319	13			
Mch.	144	-	-	36	-	-	-	-	-	-	-	-	114	18	35	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	355	33	22	266	14				
Apr.	16	29	-	47	-	-	31	-	-	-	-	32	133	128	-	-	-	-	-	-	-	-	-	8	8	-	-	61	-	38	16	12	-	-	-	-	-	-	-	559	28	25	344	12				
May	38	23	44	67	-	-	-	-	-	-	-	79	98	137	-	-	-	-	-	10	34	14	21	57	19	14	36	5	118	-	64	48	4	28	-	-	-	9	-	-	29	-	25	1021	49	47	450	16
June	29	130	-	110	-	-	4	-	-	-	-	-	850	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	32	-	-	-	-	-	-	1160	22	27	516	10			
July	40	56	18	70	-	-	-	-	-	81	2	14	520	53	-	-	-	-	-	-	18	9	-	-	-	9	-	-	-	-	8	-	-	-	-	-	-	-	-	-	998	32	30	434	12			
Aug.	24	60	26	95	-	-	-	24	-	6	3	-	317	12	12	-	-	10	120	-	13	-	-	8	-	-	-	54	-	9	35	5	44	-	-	16	3	15	5	6	38	960	62	57	382	17		
Sept.	18	27	17	73	4	-	-	-	-	14	-	17	429	67	-	-	-	12	87	16	4	4	2	30	6	10	6	12	17	-	10	13	7	31	-	5	22	24	30	20	9	17	1060	109	44	468	20	
Oct.	54	65	44	120	42	30	-	32	16	27	2	14	333	40	-	28	-	8	53	-	7	4	13	-	20	-	-	10	-	-	-	4	9	-	9	-	-	12	-	9	1005	51	44	461	18			
Nov.	122	130	80	182	47	24	-	52	-	14	10	2	429	31	-	-	-	8	-	2	4	7	-	7	-	-	-	-	-	-	-	6	3	-	-	6	9	3	-	6	-	1184	63	52	582	20		
Dec.	36	34	42	132	27	21	-	30	-	8	4	-	456	20	-	-	-	-	91	-	12	12	-	10	-	10	5	5	7	-	-	3	-	-	-	6	3	21	-	-	995	159	39	421	10			
Total 1942	521	560	276	937	120	75	39	142	16	150	22	164	3921	534	111	36	-	30	359	26	90	47	43	113	60	48	47	22	268	-	129	115	38	147	-	6	59	45	51	87	21	89	9,564	634	401	4743	166	
Jan. 1943	56	50	42	230	30	18	-	18	-	16	-	-	648	18	-	12	-	-	72	-	6	-	-	3	-	-	12	-	-	-	-	-	3	-	-	6	-	-	46	-	-	1286	83	40	596	20		
Feb.	51	68	18	149	37	15	-	28	-	29	-	-	703	5	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	9	3	-	-	-	1130	62	32	540	16			
Mch.	16	24	32	103	4	8	-	12	-	48	22	-	618	50	-	-	-	-	104	-	-	-	4	-	6	-	-	22	-	-	-	-	8	-	15	16	16	12	16	3	1159	33	49	511	21			
Total	123	142	92	482	71	41	-	58	-	93	22	-	1969	73	-	12	-	-	185	-	6	-	4	3	6	-	12	-	22	-	-	-	3	8	-	6	21	25	19	58	16	3	3575	178	121	1647	57	
Grand Total	662	722	369	1419	191	116	39	228	16	243	80	172	6035	619	146	48	36	33	544	26	99	50	50	119	70	55	63	23	372	3	141	128	45	167	3	20	80	70	70	145	37	113	13667	843	543	7009	246	

THE MINELAYING CODE

Antwerp Channel	Juniper
Bayonne	Elderberry
Boulogne	Dewberry
Brest	Jellyfish
Cadet Channel - West Baltic	Sweet Peas
Calais	Prawns
Cherbourg	Greengages
Copenhagen	Verbena
Danzig	Privet
Dieppe	Vineleaf
Dunkirk	Cypress
Eckernforde	Melons
Esbjerg and Jutland coast	Hawthorn 1. 2. 3.
Fehmarn Belt	Radishes
Flushing	Flounders
Frisian Islands	Nectarine 1. 2. 3.
Gironde River mouth	Deodar
Gdynia	Spinach
Great Belt (north)	Pumpkins
Great Belt (south)	Asparagus
Great Belt (south)	Broccoli
Haugesund	Bottle
Heligoland Bight	Rosemary 1. 2. 3. 4.
Ijmuiden	Whelks
Kattegat (various areas)	Silverthorn 1. to 7.
Kattegat (Frederikshavn)	Undergrowth
Kattegat (Laeso Channel)	Yew tree
Kiel Bay	Quinces
Kiel Canal	Lettuces
Kiel Harbour	Forget-me-nots
Kiel Harbour	Wallflowers
La Pallice	Cinnamon
Le Havre	Anemones
Le Havre	Scallops
Lim Fjord (Aalberg to Hals)	Krauts
Little Belt	Carrots
Little Belt	Endives
Lorient	Artichokes
Maas and East Scheldt estuaries	Newts
Morlaix	Upastree
Oslo Harbour	Onions
Oslo Fjord (Frederikstadt)	Tomatoes
Ostend	Turbot
Pillau	Tangerine
Quiberon Bay	Gorse
River Elbe estuary	Eglantines
River Ems (east)	Xeranthemum
River Ems (west)	Zinnias
Rivers Jade and Weser estuaries	Yams
Rotterdam and Hook of Holland	Oysters
St. Jean de Luz	Furze
St. Malo	Hyacinth
St. Nazaire	Beech
Sassnitz	Willow
Swinemunde	Geranium
Terschelling West	Mussels
Texel (north)	Limpets
Texel (south)	Trefoils
The Sound (northern end)	Nasturtium
The Sound (southern end)	Daffodil
Travemunde	Hollyhock
Ushant	Sultanas
Warnemunde	Jasmine
Zeebrugge	Barnacles

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APPENDIX XXVIII

Anemones	Le Havre
Artichokes	Lorient
Asparagus	Great Belt (south)
Barnacles	Zeebrugge
Beech	St. Nazaire
Bottle	Haugesund
Broccoli	Great Belt (south)
Carrots	Little Belt
Cinnamon	La Pallice
Cypress	Dunkirk
Daffodil	The Sound (southern end)
Deodar	Gironde River mouth
Dewberry	Boulogne
Eglantines	River Elbe estuary
Elderberry	Bayonne
Endive	Little Belt
Flounder	Flushing
Forget-me-not	Kiel Harbour
Furze	St. Jean de Luz
Geranium	Swinemunde
Gorse	Quiberon Bay
Greengage	Cherbourg
Hawthorn 1. 2. 3.	Esbjerg and Jutland coast
Hollyhock	Travemunde
Hyacinth	St. Malo
Jasmine	Warnemunde
Jellyfish	Brest
Juniper	Antwerp Channel
Krauts	Lim Fjord (Aalborg to Hals)
Lettuces	Kiel Canal
Limpets	Texel (north)
Melons	Eckernforde
Mussels	Terschelling West
Nasturtium	The Sound (northern end)
Nectarines 1. 2. 3.	Frisian Islands
Newts	Maas and East Scheldt estuaries
Onions	Oslo Harbour
Oysters	Rotterdam and Hook of Holland
Prawns	Calais
Privet	Danzig
Pumpkins	Great Belt (north)
Quinces	Kiel Bay
Radishes	Fehmarn Belt
Rosemary 1. 2. 3. 4.	Heligoland Bight
Scallops	Le Havre
Silverthorn 1. to 7.	Kattegat (various areas)
Spinach	Gdynia
Sultanas	Ushant
Sweet peas	Cadet Channel - West Baltic
Tangerine	Pillau
Tomatoes	Oslofjord (Frederikstadt)
Trefoils	Texel (south)
Turbot	Ostend
Undergrowth	Kattegat (Frederikshavn)
Upas tree	Morlaix
Verbena	Copenhagen
Vineleaf	Dieppe
Wallflowers	Kiel Harbour
Whelks	Ijmuiden
Willow	Sassnitz
Xeranthemum	River Ems (east)
Yams	Rivers Jade and Weser estuaries
Yew tree	Kattegat (Laeso Channel)
Zinnias	River Ems (west)

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April 1940 to March 1943

APPENDIX XXIX

AERIAL MINELAYING

by aircraft of Bomber and Coastal Commands

Period	A/C despatched	Mines laid	A/C lost	Vessels sunk	Vessels damaged	Remarks
Apr./ June 1940	584	421	15	32 - 36,927	2 - 4,114	
July/Sept. 1940	611	513	9	40 - 35,735	5 - 7,611	
Oct./Dec. 1940	312	243	7	14 - 10,321	3 - 5,345	One torpedo boat sunk.
Jan./Mch. 1941	293	235	8	13 - 16,356	3 - 2,369	One torpedo boat sunk.
Apr./ June 1941	583	473	19	4 - 7,248	3 - 5,982	
July/Sept. 1941	522	416	19	18 - 11,674	3 - 3,731	
Oct./Dec. 1941	321	261	17	21 - 18,669	3 - 7,894	
Jan./Mch. 1942	685	722	31	15 - 22,535	2 - 10,400 74,000	One destroyer sunk. Two battlecruisers damaged.
Apr./ June 1942	1,316	2,746	38	47 - 59,129	8 - 22,305	
July/Sept. 1942	1,329	2,960	52	64 - 62,459	13 - 34,533	
Oct./Dec. 1942	1,577	3,283	53	61 - 53,482	9 - 14,787	
Jan./Mch. 1943	1,687	3,602	61	40 - 27,286	4 - 8,309	
3 years total	9,820	15,875	329	369 - 361,821	58 - 109,700 190,980	

DIRECT ATTACK AT SEA

by aircraft of Coastal, Bomber and Fighter Commands

Period	A/C despatched	Attacks	A/C lost	Vessels sunk	Vessels damaged	Remarks
Apr./ June 1940	2,199	302	68 68	4 - 8,720	2 - 3,232	
July/Sept. 1940	1,807	312	58 58	2 - 1,655	8 - 26,254	
Oct./Dec. 1940	1,034	182	47 47	3 - 3,156	4 - 18,176	
Jan./Mch. 1941	1,134	191	37 37	3 - 9,907	2 - 1,680	No. 2 Grp. B.C. started operations at sea.
Apr./ June 1941	2,722	440	89	9 - 11,777	9 - 66,562	Gneisenau) Lutzow) damaged
July/Sept. 1941	1,767	400	73 73	20 - 18,059	8 - 20,282	
Oct./Dec. 1941	1,699	267	66 66	21 - 35,516	10 - 19,454	No. 2 Grp. B.C. Ceased operations at sea.
Jan./Mch. 1942	3,070	289	100 100	8 - 3,597	2 - 11,131	Escape of Brest Group up Channel.
Apr./ June 1942	2,630	531	80 80	16 - 34,778	12 - 39,145	
July/Sept. 1942	2,312	480	36 36	11 - 12,616	1 - 8,998	
Oct./Dec. 1942	1,854	295	37 37	7 - 10,037	6 - 22,878	
Jan./Mch. 1943	2,190	158	28 28	3 - 5,258	N11	
3 years total	24,418	3,847	719 719	107 - 155,076	64 - 237,792	

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APPENDIX XXIX

DIRECT ATTACK AT SEA

by Coastal Command

Period	A/C despatched	Attacks	A/C lost	Vessels Sunk	Vessels damaged	Remarks
Apr./ June 1940	1,990	220	48 55	1 - 750	2 - 3,232	
July/Sept. 1940	1,598	195	48 56	2 - 1,655	8 - 26,254	
Oct./Dec. 1940	993	146	48 47	3 - 3,156	4 - 18,176	
Jan./Mch. 1941	991	144	48 35	3 - 9,907	2 - 1,680	
Apr./ June 1941	1,717	143	53	2 - 2,221	2 - 52,206	Gneisenau torpedoed, Lutzow torpedoed. Both damaged.
July/Sept. 1941	1,189	164	48 35	6 - 7,072	5 - 9,759	
Oct./Dec. 1941	1,538	218	48 45	17 - 32,765	10 - 19,454	
Jan./Mch. 1942	1,554	108	48 54	6 - 3,045	2 - 11,131	Escape of Brest Group up Channel.
Apr./ June 1942	1,571	251	48 64	13 - 33,161	11 - 39,105	
July/Sept. 1942	1,009	173	48 24	2 - 9,953	1 - 8,998	
Oct./Dec. 1942	1,039	154	48 22	5 - 9,265	6 - 22,878	
Jan./Mch. 1943	1,354	88	48 24	2 - 5,168	N11	
3 years total	16,543	2,004	48 514	62 - 118,118	53 - 212,873	

DIRECT ATTACK AT SEA

by Bomber Command

Period	A/C despatched	Attacks	A/C lost	Vessels Sunk	Vessels damaged	Remarks
Apr./ June 1940	209	82	13	3 - 7,970	N11	
July/Sept. 1940	209	117	2	N11	N11	
Oct./Dec. 1940	41	36	N11	N11	N11	
Jan./Mch. 1941	143	47	2	N11	N11	No. 2 Group started operations at sea.
Apr./ June 1941	1,005	297	36	7 - 9,556	7 - 14,356	
July/Sept. 1941	573	235	38	13 - 10,967	3 - 10,523	
Oct./Dec. 1941	134	33	17	2 - 2,661	N11	No. 2 Group ceased operations at sea.
Jan./Mch. 1942	276	39	15	N11	N11	Escape of Brest Group up Channel.
Apr./ June 1942	8	2	N11	N11	N11	
July/Sept. 1942	53	14	3	N11	N11	
Oct./Dec. 1942	20	8	N11	N11	N11	
Jan./Mch. 1943	N11	N11	N11	N11	N11	
3 years total	2,671	910	126	25 - 31,154	10 - 24,879	

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DIRECT ATTACK AT SEA

APPENDIX XXIX

by Fighter Command

Period	A/C despatched	Attacks	A/C lost	Vessels Sunk	Vessels damaged	Remarks
Apr./ June 1940	-	-	-	-	-	
July/Sept. 1940	-	-	-	-	-	
Oct./Dec. 1940	-	-	-	-	-	
Jan./Mch. 1941	-	-	-	-	-	
Apr./ June 1941	-	-	-	-	-	
July/Sept. 1941	5	1	Nil	1 - 20	Nil	
Oct./Dec. 1941	27	16	4	2 - 90	Nil	Fighter Command started the "Channel Stop".
Jan./Mch. 1942	1,240	142	31	2 - 552	Nil	
Apr./ June 1942	1,051	278	16	3 - 1,617	1 - 40	
July/Sept. 1942	1,250	293	9	9 - 2,663	Nil	
Oct./Dec. 1942	795	133	15	2 - 772	Nil	
Jan/Mch. 1943	836	70	4	1 - 90	Nil	
3 years total	5,204	933	79	20 - 5,804	1 - 40	

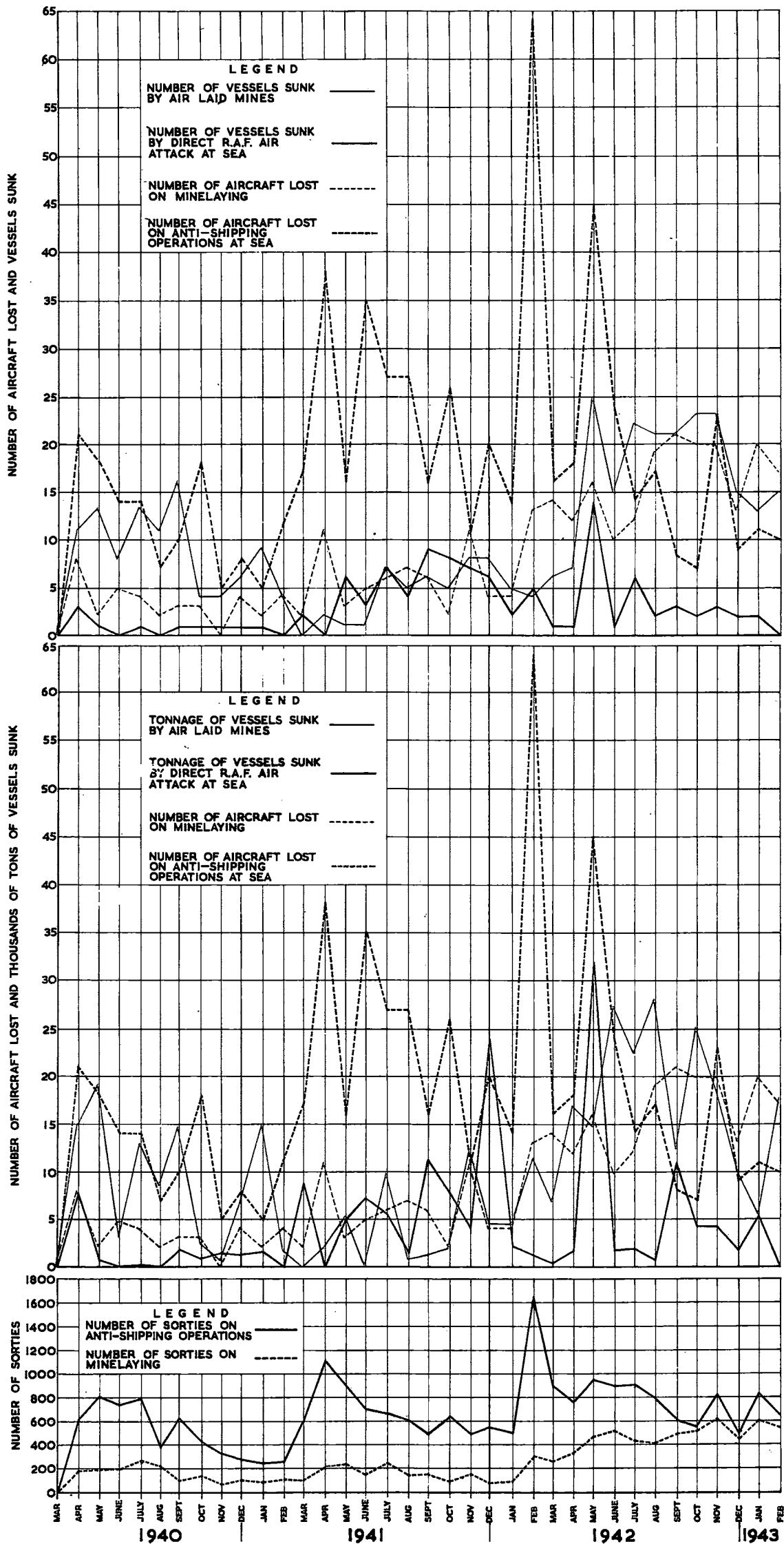
AIR-RAIDS ON PORTS

by aircraft of Coastal, Bomber and U.S. Air Force Commands

Period	A/C attacking	Bomb tonnage	A/C lost	Vessels destroyed	Vessels damaged	Remarks
Apr./ June 1940	237	197	Nil	Nil	Nil	
July/Sept. 1940	2,635	2,133	31 31	10 - 8,818 Plus 95 barges 2 tugs and 13 small craft	16 - 28,502 Plus 126 barges and 1 small craft	Bombing of Invasion Ports.
Oct./Dec. 1940	2,001	1,720	34	5 - 1,774 Plus 11 barges	Nil	
Jan./Mch. 1941	2,333	2,492	42	Nil	2 - 4,263	2 - 4,263
Apr./ June 1941	3,685	5,113	105	2 - 785	1 - 37,000 37,000	Gneisenau damaged in dock at Brest
July/ Sept. 1941	2,968	4,045	115	3 - 5,991	5 - 71,842 71,842	Scharnhorst damaged at La Pallice and Prinz Eugen at Brest
Oct./Dec. 1941	2,634	4,036	76	2 - 232	2 - 15,076	
Jan./Mch. 1942	2,104	3,557	86	3 - 14,066	1 - 37,000 37,000	Gneisenau damaged in Kiel.
Apr./ June 1942	3,914	6,742	225	6 - 3,390	1 - 1,316	
July/Sept. 1942	2,337	4,905	163	6 - 16,715 6 - 16,715	3 - 13,993	U.S. 8th A.F. started bombing operations
Oct./Dec. 1942	864	1,816	69	5 - 1,415	1 - 7,851	
Jan./Mch. 1943	5,198	12,992	151	15 - 20,523	Nil	
3 years total	30,910	49,748	1,097 1,097	51 - 73,709 Plus barges, etc.	32 - 216,843 Plus barges, etc.	

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COMPARISON BETWEEN AERIAL MINELAYING AND DIRECT AIR ATTACK AGAINST ENEMY VESSELS AT SEA



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APPENDIX XXXI

T.C.21
(Revised September 1942)

TACTICS OF AIRCRAFT TORPEDO ATTACKS

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APPENDIX XXXI

TACTICS OF AIRCRAFT TORPEDO ATTACKS

INTRODUCTION

The torpedo is the most promising anti-ship weapon and its use by aircraft is undergoing extensive development and likely to become much more frequent. The following paper gives a resume of the tactics which are likely to prove successful.

Factors of success

2. The success of a torpedo attack depends upon:-

- (i) Degree of surprise attained.
- (ii) Weight of attack.
- (iii) Quick final appreciation of the situation on sighting the target.
- (iv) Correct positioning of aircraft prior to, and during attack, including diversions.
- (v) Speed and co-ordination in delivery of the attack to counter the enemy's avoiding action and confuse his A.A.
- (vi) Determination in pressing attacks well home.
- (vii) Standard of training and practice.
- (viii) Effective preliminary reconnaissance and intelligence.

DROPPING THE TORPEDO

3. To ensure a true run a torpedo must fulfil two conditions at the moment of its entry into the water. Its axis should lie slightly nose up to its trajectory at the centre of gravity, and also it should be between 12° - 24° below the horizontal. If the speed be increased, the trajectory becomes flatter. The torpedo must then be dropped from a greater height in order to enter at the correct angle. The height and speed of release are, therefore, closely related. Thus at the moment of release, pilots must concentrate on flying straight and level, at the correct height and airspeed.

METHODS OF SIGHTING

4. The theory of torpedo sighting is fully explained in A.P.1730c. Briefly, the problem is to direct the torpedo ahead of the target the distance that the target will cover during the torpedo's run. These are three techniques in being, namely:-

Straight running

Gyro angling

Constant bearing.

(i) In the straight running technique, the torpedo runs straight through the water in the same direction as that in which it was dropped. A sight has to be used to solve the velocity triangle.

(ii) The gyro-angling technique involves dropping the torpedo aimed straight at the middle of the target, but as soon as the torpedo enters the water a mechanism comes into play which turns it through a predetermined angle, effecting interception. A computer is required to determine the angular setting on the torpedo.

- (iii) The constant bearing technique causes the torpedo, after release, to maintain a constant bearing relative to the target, both during the flight in air and run in water. This requires both aim-off and gyro-angling.

The only technique at present used by the R.A.F. is the straight running method.

5. Experience has proved beyond doubt that accuracy is greatly increased when aiming equipment is used. It is therefore most important to use such equipment if it is available.

FACTORS AFFECTING TACTICS

Torpedo Force

6. The objective of the torpedo striking force is to put as many torpedoes into the target in as short a time as possible. To do this the striking force must be manoeuvred so that the maximum number of torpedoes is released and running at the target simultaneously. These torpedoes should be dropped from within the most favourable sectors as is practicable consistent with the disposition of the enemy vessels.

7. R.A.F. torpedo aircraft are unable at present to carry out high diving attacks. Therefore, the approach to attack must be made at low level. The advantage of escaping R.D.F. or visual detection until the last minute offsets to some degree the disadvantages of decreased visibility and of being unable accurately to determine the enemy's heading and disposition.

8. In attacking a well escorted target, it is desirable to do so in co-operation with bomber and fighter aircraft, but the torpedo should be regarded as the primary weapon. The attacks should be co-ordinated so as to provide the greatest confusion and allow the torpedo aircraft freedom of action. Fighter aircraft should provide air escort for the torpedo bombers and also attack the escorting destroyers and flak ships.

Enemy Force

9. The commander of the enemy force may be able to employ the following defensive measures:-

- (i) Land based or ship-borne R.D.F.
- (ii) Fighter protection.
- (iii) Escort vessels.
- (iv) Avoiding action.
- (v) Smoke.

INFORMATION REQUIRED WHEN PLANNING AN ATTACK

10. When planning the attack the following information is desirable:-

- (i) Details of target and escort, including disposition.
- (ii) Position, course and speed of the enemy.
- (iii) Probable weather and sea conditions obtaining at position of attack.
- (iv) Extent of enemy R.D.F.
- (v) Probable enemy fighter opposition.
- (vi) Disposition of own forces and any other vessels in the vicinity.
- (vii) Depth of Water.

For attacks of shipping in harbour, the following details are also necessary:-

- (viii) Topography.
- (ix) Heading of ships.
- (x) A.A., balloon and net defences.

DAY ATTACKS ON WELL ESCORTED TARGETSCruising and approach formations

11. The striking force should fly in open formation in sub-flights of three. Waves of three sub-flights should fly within one mile, or visibility distance (whichever is the less) of each other, and each wave should be handled independently by its leader, but should conform to the movements of the leading wave. The height should be the minimum possible without causing undue fatigue, and experience has shown that 50 feet is a suitable cruising altitude. When in the vicinity of the target, each wave should manoeuvre so as to develop successive attacks in the shortest time possible. The ideal is to approach to a position 5 - 10 miles ahead of the target from which to develop the attack.

12. It may be possible to home on a shadowing aircraft at the required position, otherwise normal navigation methods aided by A.S.V. should be employed. Accurate navigation of a force flying at 50 ft. is not easy and correct calculation of windspeed and direction is essential. Windspeed and direction are normally found most accurately at this height by observation of wind-lanes on the surface of the water, checked by drifts. It is emphasised that if a successful interception is to be carried out, the navigation must be particularly accurate, to ensure that the target is met on a bearing which is most suitable for the torpedo attack.

Action when the Enemy has been located by the Striking Force

13. As soon as the leader has definitely located the target, he must decide whether to lead straight in to attack, or manoeuvre to approach from a more favourable angle.

This decision will be influenced by the following:-

- (i) Importance of surprise effected.
- (ii) Desirability of intercepting and developing the attack from ahead or astern of the enemy.
- (iii) Presence of enemy fighters.
- (iv) Approach from the darker side of the sky, when dawn and dusk attacks are carried out.
- (v) Approach from the direction of the low sun in a clear sky will give the greatest chance of surprise, and may hamper control of A.A. fire.
- (vi) Use of relative wind to best advantage.
- (vii) Avoidance of outlying enemy ships.
- (viii) Topography of coast if in vicinity.

Formation and Directions of Attack

14. The formation which has proved most promising is that of aircraft flying in sub-flights of three, in squadron inverted vic. The three directions of attack visualised, based on this formation, are:-

- (i) from ahead;
- (ii) from the beam;
- (iii) from astern.

Optimum Bearings

15. The best chance of hitting a ship with a 40 knot torpedo dropped from 1,000 yards will be achieved if it is dropped within the following arcs of relative bearing from the ship:-

- (i) Ship on a steady course - 30° - 80° either side.
- (ii) Ship swinging away - 10° - 60° on outer bow.
- (iii) Ship swinging towards - 70° - 120° on inner quarter.

Attack from ahead

16. The method of approach is. If, as is usual, the ship takes avoiding action the sub-flight furthest on the bow must increase speed to a maximum as soon as this avoiding action becomes apparent and endeavour to head off the ship. Sub-flight attacks should be as nearly simultaneous as possible. Aircraft attacking a fast target from dead ahead or nearly so with Duplex set pistols, should not drop at less than 900 yards in order that the pistol may arm.

Attack from the beam

17. When it becomes apparent that the wave is committed to a beam-on approach, the sub-flight furthest on the bow should increase speed to the maximum and endeavour to pass ahead of the target and attack on the opposite bow.

Attack from astern

18. If the approach has to be made from astern of the target, the formation should open out on a front of 8,000 - 10,000 yards, (minimising the risk from light A.A.). As an approach from the quarter may be difficult and prolonged, the two outer sub-flights should increase speed and open well ahead of the target, particularly if it is moving fast, before turning into attack. The third sub-flight should continue straight towards the stern of the target ready to take advantage of any avoiding action. It should be remembered that torpedoes dropped from astern, or on the quarter will have to travel a greater distance in the water before striking and the dropping range should be shortened accordingly.

The Getaway

19. The getaway should be made at low level, but high enough to avoid splash barrage. The direction should be governed by the following two factors:-

- (i) Necessity for opening range.
- (ii) Complications produced in the sighting problem of the A.A. gunners by changes in altitude and varying rates of change of bearing.

A high relative change of bearing is normally achieved by turning in a direction astern of the target. The general direction of withdrawal should have been determined prior to take-off and torpedo aircraft should pass through a rendezvous specified by bearing and distance from the target.

CONVOY ATTACKS

20. When the target is a small convoy in more than one column, the most convenient striking unit is six aircraft.

21. The aircraft should endeavour to attack on each beam, selecting the largest ship in the convoy. There are advantages in choosing a dropping position which

places the bow of the target ship in line with the stern of a ship in the next column, or, alternatively, the stern of the target ship in line with the bow of a ship in the next column. This effectively increases the chances of obtaining a hit.

AIRCRAFT CARRYING TWO TORPEDOES

22. When aircraft carry two torpedoes, these should be released in the same attack at an interval of $\frac{1}{2}$ - 1 second.

NIGHT ATTACKSGeneral Conditions

23. (i) In a well delivered night attack, the aircraft are rarely sighted before making their attack, which can therefore be well pressed home.

(ii) A.S.V. is of the greatest assistance to night-striking forces both in locating the target, and in manoeuvring so as to attack from the most favourable direction.

(iii) Night attacks can be carried out either on dark or moonlight nights. On bright moonlight nights aircraft can attack up moon without using flares, but on dark nights reconnaissance flares are necessary to silhouette the target.

Moonlight Attacks

24. (i) The striking force should consist of sub-flights of 3 aircraft despatched at intervals of about 30 minutes.

(ii) The attack should be carried out from the down moon side of the target.

(iii) Aircraft should lose height in a shallow dive with engines throttled back, and make their final approach at dropping height or in a shallow glide.

(iv) They should attack in succession from the same direction. Attacks should be well pressed home at a normal range of 600 yards, but drops should not be made at less than 600 yards when duplex pistols are used from fast aircraft.

(v) The attack should not be hurried, and if heavy and accurate A.A. fire is encountered in the preliminary approach, aircraft should stand off and make another approach.

(vi) Successive aircraft should take advantage of the confusion caused by earlier attacks.

(vii) The getaway should be made in a direction clear of following attacks.

Dark Night Attacks

25. (i) A convenient unit for dark nights strikes consists of 1 flare dropping aircraft to act as leader, and 3 torpedo aircraft who can, if necessary, home on the leader.

(ii) The leader at least, should have an A.S.V. equipped aircraft.

(iii) A height of 3,000 - 4,000 ft. is suitable for night striking forces on passage.

(iv) When aircraft are employed in which night formation is impracticable, it will be necessary for them to proceed singly at one minute intervals.

(v) One flare dropper per three torpedo aircraft is necessary and all aircraft should be equipped with A.S.V.

Illumination of the Target

26. The target illuminating aircraft should carry the maximum number of flares and A.S.V. There are two methods of employing the illuminating aircraft:-

- (i) By despatching the aircraft in advance of the striking force, to take over the target from the shadowing aircraft.
- (ii) By detaching the illuminating aircraft from the striking force on arrival in the vicinity of the target.

27. In either case the target is illuminated in the same manner. The illuminating aircraft proceeds to the side of the target remote from the direction of attack. When ordered by the leader of the striking force, this aircraft drops a curtain of about eight reconnaissance flares at right angles to the direction of attack, about one mile from the target. A second curtain is then dropped at right angles to the first on a leading towards the targets expected track, to ensure silhouetting the target if it alters course. In practice the sixteen flares are usually dropped in an arc which produces the same result in a more practical manner. Flares must not be dropped on the side of the target from which the attack is to be delivered. Aircraft should, if possible, avoid flying between the flare curtain and the target.

The following points are important:-

- (i) The period between illumination and attack should be kept to a minimum in order that the enemy may not have time to develop defensive measures such as increasing speed or laying smoke screens.
- (ii) Wherever possible the sector relative to the target in which the flares are to be laid should be decided at the time that the attack is planned. Aircraft which have temporarily lost the target should thus be enabled to pick it up by approaching the flares on a pre-determined course.
- (iii) One aircraft of the striking force should be detailed as reserve illuminating aircraft for use in emergency, and should carry as many flares as possible in addition to its torpedo.
- (iv) A curtain of flares must always be used, as single flares over individual ships are useless and misleading.
- (v) A.S.V. is of great assistance in positioning the flares.

SMOKE SCREEN

28. It must be remembered that the laying of smoke screens by ships does prove embarrassing to aircraft attacking at night. This is especially the case where the number of vessels in convoy is small and the escort large, thus enabling the latter to lay a screen close to, and parallel with the lines of ships. In these circumstances flares should only be dropped if absolutely necessary, and then only at the last moment, to reduce the chance of the enemy developing his smoke screen.

DAWN ATTACKS

29. (i) A dawn attack should normally be made at the first possible light, so that the getaway can be completed before it is light enough for fighters or effective A.A. fire. Dawn attacks have the advantage that aircraft return and land in daylight, but have the disadvantage of making a night passage to the target with the consequent likelihood of attacks having to be made singly, and additional navigational difficulties.

(ii) In middle latitudes, depending on weather conditions, it is possible to attack completely unseen between 45 and 30 minutes before sunrise.

(iii) The attack should be made in line astern, on the night attack principle.

DUSK ATTACKS

30. (i) It may be desirable, owing to enemy fighter or A.A. opposition, to hold off till dusk before launching a torpedo attack. This should enable torpedo aircraft to press home their attacks.

(ii) If a striking force arrives at the target just before dusk it may be advisable for it to stand off until conditions, while still suitable for torpedo attack, are dark enough to afford cover. This period depends on varying conditions, but is roughly 25 to 45 minutes after sunset in medium latitudes.

(iii) The attack should be made as a day attack, with intervals of about 2 minutes between waves.

(iv) After the attack no general form up should be made but aircraft should return to base singly.

PHOTOGRAPHY

31. (i) If possible all aircraft of the torpedo striking force should be equipped with F.46 torpedo aiming cameras operated from the torpedo release switch.

(ii) An F.24 camera with either 9" or 14" lens should be carried in the leader's aircraft and operated by the wireless operator during the attack, and useful photographs of the target during the approach or turnaway from the attack can be obtained. In addition, an F.24 camera mounted vertically, equipped with a reflecting mirror, may be used. If the camera is started automatically on the release of the torpedo, a series of photographs will be obtained during the turnaway, which will probably record the actual explosion when the torpedo strikes the target.

(iii) A photographic reconnaissance timed to arrive at the target shortly after the anticipated time of the torpedo "strike" should be provided whenever possible.

Only by obtaining the very fullest evidence of the progress and results of a torpedo attack can a true analysis of such operations be made. Such an analysis is invaluable for developing tactics and assessment purposes.

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September 1942

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APPENDIX XXXII

COASTAL COMMAND OPERATIONAL PROCEDURE INSTRUCTION NO. 8

(Coastal Command Operational Procedure Instruction No. 1
dated 5 February, 1942 is hereby cancelled and is
to be destroyed)

INSTRUCTIONS GOVERNING ATTACKS ON SHIPPING BY
AIRCRAFT IN HOME WATERS

1. WITH THE EXCEPTION OF FISHING VESSELS, ALL VESSELS MAY BE ATTACKED BY AIRCRAFT AT ALL TIMES BY DAY OR BY NIGHT AT ANCHOR, UNDER WAY OR ALONGSIDE WITHIN THE AREAS DEFINED IN PARAGRAPHS 2, 3, 4 and 5 SUBJECT TO THE PROVISIONS DETAILED IN PARAGRAPHS 6 AND 7.

2. Northern Waters

All the waters of the Greenland and Barents Seas lying to the northward of the parallel of 61° North and bounded on the West by the Meridian of Greenwich, on the East by the coasts of Norway, Finland and Russia and the Meridian of 32° East.

3. The North Sea

The area bounded on the NORTH by the parallel of 61°N, on the WEST by the line drawn through the following positions -

- (i) 61°N. 00°W.
- (ii) 59°30'N. 00°W.
- (iii) 58°28.5'N. 01°15'W.
- (iv) 57°30'N. 00°28.5'W.
- (v) Thence along the Eastern edge of the East Coast Mine barrier to position 51°42'N. 02°31'E.
- (vi) 51°13'N. 02°31'E.

on the SOUTH by the parallel of 51°13'N, and the coasts of Belgium, Holland, Germany and Denmark on the EAST from the coast of Germany by the Meridian of 13°E to the limit of Swedish territorial waters and thence along the limit of Swedish territorial waters and the coast of Norway to the parallel of 61°N.

The Eastern limit of the East Coast Mine barrier as referred to in (v) of paragraph 3 is a line joining the following positions:-

57°30'N.	00°28'30"W.
56°40'N.	01°09'W.
56°10'N.	01°09'W.
55°45'N.	00°27'W.
55°12'N.	00°00'W.
54°16'N.	01°16'E.
53°14'N.	03°03'E.
53°08'30"N.	03°03'E.
53°00'N.	03°16'E.
52°41'N.	03°03'E.
52°29'N.	03°03'E.
52°18'N.	02°56'E.
52°18'N.	02°48'20"E.
51°58'45"N.	02°35'E.
51°43'N.	02°31'E.

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The English Channel

The area to the eastward of a line drawn from position 163° Bishop Rock Light 22 miles to the Chaussee de Sein (latitude 48°03'.4 North, longitude 05°05' West approximately, and to the southward of the line joining the following positions:

- (i) A point 163° Bishop Rock Light 22 miles
- (ii) 49°32'N. 4°55'W.
- (iii) 49°44'N. 4°55'W.
- (iv) 50°06'N. 02°35'W.
- (v) 50°20'N. 00°46'W.
- (vi) 50°31'N. 00°24'W.
- (vii) 50°48'N. 01°08'E.
- (viii) 50°59'N. 01°22'E.
- (ix) 51°13'N. 02°31'E.
- (x) Thence along the parallel of 51°13'N. until it meets the Belgian coast.

5. The Bay of Biscay

The area bounded on the NORTH by the line drawn through the following positions:-

- (i) The Bishops Rock Light
- (ii) 49°52'N. 07°W.
- (iii) 49°N 07°W.
- (iv) 49°N 12°W.

On the WEST by the meridian of 12° West

On the SOUTH by a line drawn through the following positions:-

- (i) 44°05'N. 12°W.
- (ii) 44°05'N. 08°W, thence at a distance of 20 miles from the Spanish Coast to:
- (iii) 43°39'N. 02°07'W.
- (iv) Le Socoa Light (Lat. 43°23'42"N. Long. 01°41'12"W).

On the EAST by the line drawn from Bishop Rock Light 180 for 10 miles, thence to Chaussee de Sein and thence along the coast of France to Le Socoa Light.

6. Naval Commanders-in-Chief will arrange with the Air Officer Commanding-in-Chief, Coastal Command for suitable restrictions on attacks to be imposed when our surface forces are operating inside the areas defined in paragraphs 2, 3, 4 and 5. This information will be passed in sufficient time to enable aircrews to be suitably briefed.

7. The Admiralty may route certain neutral ships from the areas defined in paragraphs 2 and 3. The description and movements of these vessels will be promulgated to aircraft. They are only to be attacked if they do not proceed along the route laid down by the Admiralty.

8. IN AN AREA IN THE BAY OF BISCAY BOUNDED AS FOLLOWS:-

- (i) On the West by the Meridian 14° W.
- (ii) On the North by the Parallel of 49°N.
- (iii) On the South by the Meridian of 42°15'N, and the North Spanish Coast.
- (iv) On the East by the Western and Southern limits of the area defined in paragraph 5 of this instructions.

CONDITIONS OBTAIN AS SET OUT BELOW:

- (a) All movements of Portuguese ships over 1,000 tons will be notified.
- (b) All movements of Spanish ships over 2,500 tons will be notified.
- (c) Movements of all Eire ships will be notified.

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(d) Accordingly, if a vessel of over 2,500 tons of which no notification has been promulgated is encountered in this area outside neutral territorial waters, it may be assumed to be enemy and attacked at sight.

(e) Vichy vessels in this area are to be treated as enemy.

(f) All Eire, Spanish and Portuguese vessels exhibit their national markings, and the fact that a vessel apparently carries no markings in this area will, therefore, be a highly suspicious circumstance, though the possibility of the markings being dimmed or obscure should be borne in mind. A vessel showing colourings other than Eire, Spanish or Portuguese may be presumed to be enemy unless notice of a neutral or allied vessel has been promulgated. On the other hand the enemy is likely to adopt Spanish and Portuguese colours as cover and the fact that a suspicious ship is wearing these colours is not, therefore, by itself conclusive evidence of innocence.

(g) If considerable doubt as to the identity of a vessel of over 2,500 tons in this area exists, she is to be shadowed and a description signalled to base and instructions asked for.

(h) Spanish territorial waters must in all ordinary cases be carefully respected. If, however, an enemy ship of over 2,500 tons is encountered and attacked outside Spanish territorial waters an attack may be carried right to the edge of Spanish territorial waters and if necessary beyond, provided, (i) care is taken to avoid damage to neutral persons and property ashore (ii) attack is not made in or in the immediate vicinity of harbour except upon express instructions from the Admiralty (iii) aircraft after completing the attack do not remain over Spanish territorial waters longer than is essential to observe the result of the attack.

9. SHIPS IN SWEDISH TERRITORIAL WATERS WEST OF 13°E MAY BE ATTACKED, BUT ONLY IF UNDER WAY.

10. ANY MERCHANT VESSEL DEFINITELY IDENTIFIED AS ENEMY MAY BE ATTACKED ANYWHERE IN THE ATLANTIC OUTSIDE NEUTRAL TERRITORIAL WATERS.

11. Action of aircraft against shipping at sea outside the areas defined in paragraphs 2, 3, 4, 5, 8 and 9 is to conform with the instructions set out in Coastal Command Operational Procedure Instruction No. 9.

(Sgd.) T. LANGFORD-SAINSBURY

A/Cdr.

for Air Chief Marshal
Commanding-in-Chief,
Coastal Command.

Ref: CC/S.7027/Plans.
21 August, 1942

DS 64294/1(709)

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APPENDIX XXXII

COASTAL COMMAND OPERATIONAL PROCEDURE INSTRUCTION NO. 9

ACTION BY AIRCRAFT AGAINST SHIPPING AT SEA OUTSIDE THE AREAS
DEFINED IN PARAGRAPHS 2, 3, 4, 5, 8 AND 9 OF COASTAL COMMAND
OPERATIONAL PROCEDURE INSTRUCTION NO. 8

Appendix "A" - Signals to be employed by Aircraft in
controlling shipping

1. THE FOLLOWING INSTRUCTIONS ARE BASED ON MARITIME LAW.
2. AIRCRAFT MUST NOT BE ORDERED TO ATTACK AT SIGHT AND WITHOUT CHALLENGE, ANY VESSELS EXCEPT THE FOLLOWING:-
 - (A) Vessels definitely identified as enemy warships.
 - (B) Vessels definitely identified as enemy mine-layers, mine-sweepers, patrol vessels or troopships.
 - (C) Any vessel other than those specified in sub-paragraphs (A) and (B) above which are definitely established by observation to form part of any enemy fleet. (Merchant ships in convoy are NOT part of an enemy fleet).
 - (D) Any vessel in a "Special Zone" which opens fire on a British or Allied aircraft. The attack should not be made if it involves risks to innocent ships in the vicinity.

Note:- "Special Zones" will be defined from time to time in Air Ministry" Admiralty instructions.

3. AIRCRAFT SHOULD NOT BE ORDERED TO CHALLENGE VESSELS AT SEA UNLESS:-
 - (A) The aircraft is engaged in contraband control operations in co-operation with H.M. Ships or in conjunction with a contraband control base. In such circumstances specific orders as to the general description and probable location of vessels which may be challenged or diverted are to be issued. (For detailed procedure see paragraph 4 below).
 - (B) The aircraft has been ordered to search for or keep a look out for:-
 - (i) An enemy vessel being used openly or, under disguise for military purposes (e.g. a suspected raider).
 - (ii) Particular enemy merchant ships.

In such circumstances an aircraft may challenge and divert any ship in the area ordered to be searched which corresponds with the description of any of the vessels described in the orders. (For detailed procedure see paragraph 5 below).

4. THE FOLLOWING PROCEDURE IS TO BE FOLLOWED BY AIRCRAFT ENGAGED IN CONTRABAND CONTROL OPERATIONS IN CO-OPERATION WITH H.M. SHIPS OR IN CONJUNCTION WITH A CONTRABAND CONTROL BASE. (See paragraph 3, sub-paragraph (A) above).
 - (A) The aircraft is to report the position of the vessel to the co-operating warship or contraband control base.
 - (B) The aircraft is to pass on to the vessel by lamp, using the International Code of Signals (Part I), the orders received from the co-operating warship or contraband control base. (See Appendix "A").
 - (C) If the vessel obeys, it is to be escorted for as long as possible or until it is taken over by the co-operating warship, or the contraband control base or a relieving aircraft.

(D) If the vessel does not obey, the aircraft is to repeat the orders THREE times. If the vessel still does not obey the aircraft is to fire a number of rounds as a warning into the sea ahead of the ship and repeat the orders. (See Appendix "A").

(E) If the ship still refuses to obey, the aircraft is to request further instructions from the co-operating warship or contraband control base.

(F) In no circumstances is the vessel to be attacked unless the foregoing instructions have been complied with and specific orders to attack have been received from the co-operating warship or contraband control base.

(G) If orders are received to attack the ship the aircraft is to follow the procedure set out in paragraph 5, sub-paragraphs (D), (E) and (F) below.

(H) Even if the vessel opens fire the aircraft is not to attack it until ordered to do so by the co-operating warship or contraband control base unless the ship is within a "Special Zone" when it may be dealt with under paragraph 2, sub-paragraph (D) above.

(I) If the aircraft for any reason has to cease escorting the vessel before a relieving aircraft or one of H.M. Ships arrives, and the vessel in the interval ceases to obey the orders given to her, the procedure described in paragraph 4, sub-paragraphs (A) to (H) inclusive above, must be recommenced and followed in its entirety if it is desired to regain control of the vessel.

5. AN AIRCRAFT WHICH IDENTIFIES A VESSEL AS A SUSPICIOUS SHIP WHICH IT HAS BEEN ORDERED TO SEARCH FOR AND CHALLENGE UNDER PARAGRAPH 3, SUB-PARAGRAPH (B) ABOVE, IS TO ADOPT THE FOLLOWING PROCEDURE:-

(A) The aircraft is to report the description, position, course and speed of the ship to its base and to the nearest British or Allied warship.

(B) Order the ship by lamp, using the International Code of Signals (Part I), to steer a course towards the nearest British or Allied warship or a suitable port.

(C) If the ship obeys it is to be escorted for as long as possible or until the aircraft is relieved.

(D) If the ship does not obey, the order is to be repeated THREE times. If it still does not obey the aircraft is to fire a number of rounds into the sea ahead of the ship and again repeat the signal.

(E) If the ship does not obey the order it may be assumed that she has enemy character and force may be used to secure compliance with the orders given. The aircraft is to machine-gun the bridge with a short burst of fire. If this has no effect the ship is to be bombed until one hit is registered. After a reasonable lapse of time if the ship still continues on her course the aircraft is to continue bombing until the ship does obey.

(F) If at any stage of this procedure the vessel opens fire the aircraft may at once attack it with all the force at its command whether it is in a "Special Zone" or not.

6. Orders to aircraft are to make it clear that as all merchant ships have a right of self-defence aircraft must in all circumstances be careful not to provoke an innocent merchant ship to open fire by approaching any merchant ship, whether suspect or not, in such a manner as to give the vessel reasonable grounds for apprehension that she is about to be attacked.

(Sgd.) T. LANGFORD-SAINSBURY
A/Cdr.

for Air Chief Marshal,
Commanding-in-Chief,
Coastal Command

Ref: CC/S.7027/Plans
21 August, 1942

DS 64294/1(711)

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APPENDIX XXXII

APPENDIX "A"

to

Coastal Command Operational Procedure Instruction No. 9

SIGNALS TO BE EMPLOYED BY AIRCRAFT IN CONTROLLING SHIPPING

1. The following methods for the control of Merchant vessels will be employed by Royal Naval and Royal Air Force aircraft:-

2. By Visual Signalling

Aircraft will fly round the ship and will flash in the Morse Code one of the following international signals which must be preceded by the International Code Group Indicator "P.R.B." to indicate that the signal letters that follow are from the International Code of Signals.

WZ	-	You should stop your vessel instantly.
OL	-	Heave to or I will open fire on you.
WS	-	You should steer more to port.
WT	-	You should steer more to starboard.
IMO	-	Proceed to

These signals may be amplified by other international signals or by a message flashed in plain language. Orders given by R.A.F. or F.A.A. aircraft should be obeyed at once.

Note:- The ship will acknowledge the message as follows:-

(i) If daylight signalling apparatus is carried (by day or night), by flashing the answering sign - a succession of Ts.

(ii) If no daylight signalling apparatus is carried - By day; by hoisting the Answering Pendant close up - By night; by waving a white light in a suitable position as far away as possible from other sources of light.

3. By Machine Gun

If the visual signal is disregarded or if the aircraft is not equipped with daylight signalling apparatus, the ship will be ordered to stop by machine gun shots fired ahead of the challenged vessel.

The vessel should comply immediately and should acknowledge as in the Note to paragraph 2 above.

ENEMY SHIPPING SUNK AND DAMAGED AT SEA
BY AIR ATTACK (R.A.F.) IN NORTH WEST EUROPE
JULY 1942 TO DECEMBER 1942

Command	1942	SUNK				DAMAGED				Remarks
		Assessment [⊙]		Verification [⊗]		Assessment [⊙]		Verification [⊗]		
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	
Coastal Command	July	1	4,000	-	-	7	20,100	-	-	
	August	-	-	-	-	4	20,000	-	-	
	September	-	-	2	9,953	10	41,500	1	8,998	
	October	1	4,000	1	3,979	7	13,290	3	6,515	
	November	-	-	3	4,227	6	23,200	2	15,426	
	December	-	-	1	1,059	4	11,500	1	937	
	Total:-	2	8,000	7	19,218	38	149,590	7	31,876	
Fighter Command	July	1	1,200	6	1,764	15	5,200	-	-	
	August	2	120	2	594	13	6,900	-	-	
	September	2	1,000	1	305	5	2,600	-	-	
	October	-	-	1	150	10	5,300	-	-	
	November	-	-	-	-	13	3,600	-	-	
	December	3	450	1	622	30	6,050	-	-	
		8	2,770	11	3,435	86	29,650	-	-	
Bomber Command	July	-	-	-	-	-	-	-	-	
	August	1	100	-	-	-	-	-	-	
	September	-	-	-	-	-	-	-	-	
	October	-	-	-	-	-	-	-	-	
	November	-	-	-	-	-	-	-	-	
	December	-	-	-	-	-	-	-	-	
		1	100	-	-	-	-	-	-	
GRAND TOTAL	July to December 1942	11	10,870	18	22,653	124	179,240	7	31,876	

Notes:-

[⊙] Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.

[⊗] Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners Association.

ENEMY SHIPPING SUNK AND DAMAGED AT SEA
BY AIR ATTACK (R.A.F.) IN NORTH WEST EUROPE
JANUARY 1943 TO FEBRUARY 1943

Command	1943	SUNK				DAMAGED				Remarks
		Assessment *		Verification *		Assessment *		Verification *		
		No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	No. of Ships	Tonnage	
Coastal Command	January	2	4,500	2	5,168	6	14,000	-	-	
	February	-	-	-	-	3	8,000	-	-	
		2	4,500	2	5,168	9	22,000	-	-	
Fighter Command	January	-	-	-	-	16	2,750	-	-	
	February	2	150	-	-	14	6,725	-	-	
		2	150	-	-	20	9,475	-	-	
Bomber Command	January	-	-	-	-	-	-	-	-	
	February	-	-	-	-	-	-	-	-	
		-	-	-	-	-	-	-	-	
GRAND TOTAL	January and February	4	4,650	2	5,168	29	31,475	-	-	

Notes:-

* Made by the Air Ministry Anti-Shipping Assessment Sub-Committee of the Bombing Committee.

** Extracted from the records maintained by the Corporation of Lloyds, the German Admiralty and the German Shipowners Association.

BREAKDOWN OF SHIPS SUNK OFF THE AMERICAN SEABOARD INTO FRONTIER ZONES

Month	Canadian Zone	Eastern Sea Frontier	Bermuda Zone	Gulf Sea Frontier	Panama Sea Frontier	Caribbean Sea Frontier East and West	Brazil Zone	TOTAL
Jan. 1942	24	14	2	nil	nil	nil	nil	40
Feb. 1942	20	18	4	4	1	23	nil	70
March 1942	9	14 34	13	3	nil	17	nil	76
April 1942	5	14 25	12	3	nil	13	3	61 61
May 1942	7 of which 2 in the St. Lawrence	14 8	13	42	2	36	2	110 110
June 1942	4	13 13	15	22	12	35	2	103 103
July 1942	6 of which 4 in the St. Lawrence	5 5	3	17 17	1	20	nil	52 52
Aug. 1942	6	nil	2	3	nil	46	7	64
Sept. 1942	10 of which 8 in the St. Lawrence	nil	1	1	nil	26	2	40
Oct. 1942	3 all in the St. Lawrence	nil	1	nil	nil	15	1	20
Nov. 1942	17	1	nil	nil	nil	26	8	52
Dec. 1942	1	nil	1	nil	nil	8	13	23
Jan. 1943	2	nil	nil	nil	nil	5	3	10
Feb. 1943	4	nil	nil	nil	nil	nil	2	6
March 1943	nil	nil	nil	1	nil	7	5	13
April 1943	nil	nil	2	2	nil	1	nil	5
May 1943	nil	1	1	nil	nil	2	1	5
June 1943	nil	1	nil	nil	nil	nil	1	2

ATTACK AND DEFENCE OF ALLIED SHIPPING IN HOME WATERS

(July 1941 to February 1943)

Month 1941	German Air Force * Direct attack at Sea				Mine- laying	Allied Merchant Ships SUNK by direct attack at Sea						Fighter Command Protection of Shipping at sea						Ships A.A. Armament						Sunk - Direct Attack			
	Despatched		Attacked			Despatched	Day		Night		Unrecorded		Despatched		Wastage		Claims. E/Ac			Claims, E/Ac.			Day & Night		Day & Night		
							No.	Tonnage	No.	Tonnage	No.	Tonnage											Fishing Vessels		Naval Craft		
	Day	Night	Day	Night	No.	Tonnage							No.	Tonnage	Day	Night	E/A	Non E/A	Dest.	P. Dest	Dmgd.	Dest.	P. Dest	Dmgd.	No.	Tonnage	No.	Tonnage
July	495	425	11	68	195	-	-	5	5,378	3	1,510	6,475	2,794	1	-	4	2	1	3	-	-	4	746	2	324		
August	380	450	17	34	138	-	-	2	6,662	-	-	5,685	2,483	1	2	7	2	1	5	-	-	1	173	1	683		
September	390	500	16	47	162	-	-	7	20,246	-	-	4,416	1,555	1	1	5	2	2	4	-	-	-	-	-	-		
October	280	320	8	33	255	1	2,662	5	15,506	-	-	4,072	684	1	1	5	-	3	3	-	-	-	-	-	-		
November	334	216	23	38	340	-	-	5	10,262	-	-	3,952	614	-	2	-	-	7	3	1	3	3	644	1	322		
December	224	230	6	27	400	-	-	1	570	-	-	3,591	537	1	-	2	-	-	2	2	3	1	210	2	568		
Totals:-	2,123	2,141	81	247	1,490	1	2,662	25	58,624	3	1,510	28,191	8,667	5	6	23	6	14	20	3	6	9	1,770	6	2,397		
1942																											
January	314	138	12	20	180	1	5,626	2	3,636	-	-	3,260	324	-	1	1	-	1	2	1	2	-	-	1	276		
February	491	153	30	11	160	1	3,431	1	269	-	-	4,246	442	-	1	6	-	8	1	3	5	-	-	2	1,076		
March	465	220	13	18	190	-	-	2	884	-	-	3,370	389	1	5	-	-	1	3	1	-	1	91	-	-		
April	486	106	8	2	227	-	-	-	-	-	-	3,994	448	1	1	2	1	1	1	-	-	-	-	-	-		
May	515	133	24	6	230	-	-	-	-	-	-	3,680	208	-	4	7	2	6	3	-	-	-	-	-	-		
June	419	170	5	7	220	-	-	1	345	-	-	4,066	269	2	3	2	2	4	2	2	2	-	1	1,120			
July	628	200	19	5	93	1	1,109	1	351	-	-	4,009	173	1	4	6	-	2	1	-	1	2	403	-	-		
August	649	238	8	3	28	-	-	-	-	-	-	3,054	144	-	-	-	-	-	7	1	2	-	-	2	203		
September	480	187	20	3	11	-	-	-	-	-	-	2,737	108	-	-	-	-	-	-	-	-	-	-	1	387		
October	574	122	21	-	12	-	-	-	-	-	-	2,178	63	-	1	-	-	-	-	-	-	-	-	-	-		
November	417	40	3	-	14	-	-	-	-	-	-	1,879	94	1	1	3	-	-	1	-	-	-	-	-	-		
December	340	33	18	-	70	-	-	-	-	-	-	1,549	47	1	-	-	-	-	-	-	-	-	-	-	-		
Totals:-	5,778	1,740	181	78	1,435	3	10,166	7	5,485	-	-	38,022	2,709	7	21	27	5	23	21	8	12	3	499	7	3,062		
1943																											
January	362	41	5	-	95	-	-	-	-	-	-	1,384	-	-	2	-	-	-	1	-	2	-	-	-	-		
February	323	25	2	1	98	-	-	-	-	-	-	1,599	-	-	2	4	2	-	-	-	-	-	-	-	-		
Totals:-	685	66	7	1	193	-	-	-	-	-	-	2,983	-	-	4	4	2	-	1	-	2	-	-	-	-		

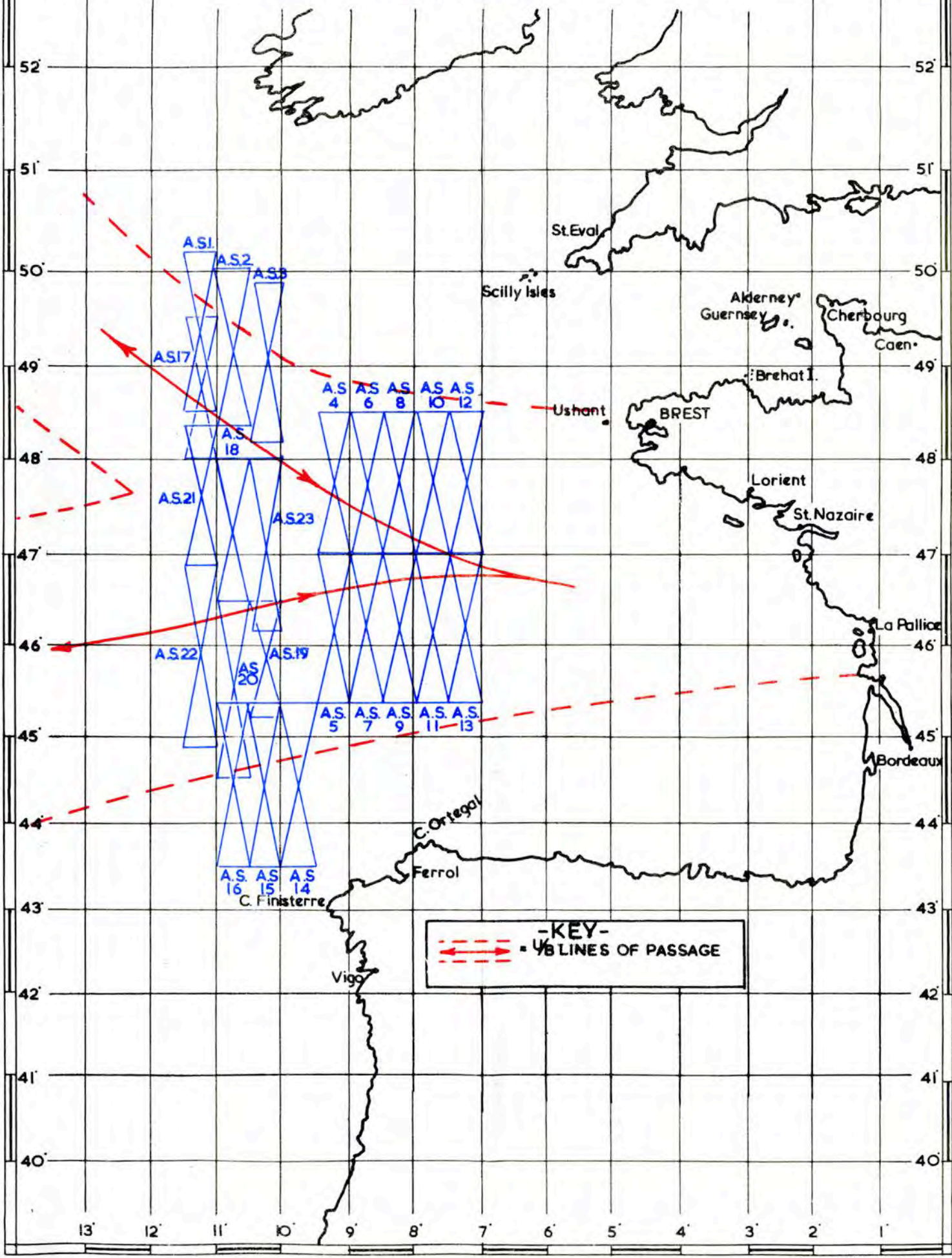
* All figures for the German Air Force are estimations by Fighter Command as German records do not give a breakdown into types of operation.

ANTI-U-BOAT OPERATIONAL FLYING AND RESULTS - JULY 1941 TO FEBRUARY 1943


		Aircraft based in United Kingdom and Iceland															Aircraft based in Gibraltar Area																
		Convoy escort			Convoy areas			Northern Transit			Biscay Transit			Convoy escort			E. and W. of Gib.																
Month		Actual hours on ocean escorts	A/c lost	U-boats		Effective hours on sweeps in Convoy areas	A/c lost	U-boats		Effective hours in Northern Transit area	A/c lost	U-boats		Effective hours in Biscay Transit area	A/c lost	U-boats		Actual hours on Ocean escorts	A/c lost	U-boats		Effective hours on sweeps from Gibraltar	A/c lost	U-boats		Merchant ships sunk within effective air range from C.C. bases							
				Sighted	Attacked	Sunk		Sighted	Attacked	Sunk		Sighted	Attacked	Sunk		Sighted	Attacked	Sunk			Sighted	Attacked	Sunk										
July 1941	Day	1,784	4	-	-	-	704	1	-	-	-	336	-	-	-	1,040	3	7	5	-	297	-	1	1	-	121	-	1	1	-	No. 8	Tons 16,409	
	Night	60	-	-	-	-	29	-	-	-	-	47	-	-	-	170	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aug.	Day	1,665	2	2	1	-	1,400	1	22	18	1	608	4	1	1	-	1,170	1	4	4	-	229	1	3	2	-	143	-	3	2	-	20	71,125
	Night	60	-	1	0	-	56	-	1	0	-	83	-	-	-	-	68	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	
Sep.	Day	770	1	3	3	-	1,403	1	17	14	-	295	-	6	4	-	1,292	2	12	11	-	262	-	1	1	-	176	-	-	-	-	13	32,709
	Night	25	-	1	1	-	66	-	-	-	-	28	-	-	-	-	26	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	
Oct.	Day	1,115	2	4	4	-	1,117	1	8	7	-	127	1	-	-	-	1,350	4	10	8	-	301	-	3	3	1	249	-	-	-	-	18	84,408
	Night	15	-	-	-	-	20	-	-	-	-	-	-	-	-	-	93	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
Nov.	Day	590	-	-	-	-	1,200	1	1	0	-	64	-	-	-	-	932	1	9	9	1	235	-	-	-	-	448	-	-	-	-	NONE	
	Night	8	-	-	-	-	65	-	-	-	-	-	-	-	-	-	54	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	
Dec.	Day	283	-	3	1	-	629	3	-	-	-	170	1	-	-	-	538	3	1	1	-	132	-	-	-	-	590	2	13	9	-	11	51,913
	Night	4	-	1	0	-	25	-	-	-	-	7	-	-	-	-	178	1	2	1	-	14	-	-	-	-	127	-	3	1	-	-	-
Jan. 1942	Day	272	-	-	-	-	516	2	3	3	-	310	1	-	-	-	169	-	-	-	-	33	-	1	1	-	329	2	-	-	-	6	32,575
	Night	6	-	-	-	-	32	-	-	-	-	3	-	-	-	-	170	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	
Feb.	Day	445	3	-	-	-	660	1	9	5	-	341	2	1	1	-	201	1	1	1	-	140	-	-	-	-	250	1	-	-	-	2	10,942
	Night	-	-	-	-	-	10	-	-	-	-	13	-	-	-	-	398	2	1	0	-	12	-	-	-	-	8	-	-	-	-	-	-
Mar.	Day	594	-	-	-	-	1,090	2	5	4	-	576	-	1	1	-	487	-	1	1	-	109	-	-	-	-	336	-	-	-	-	1	984
	Night	8	-	-	-	-	47	-	-	-	-	25	-	-	-	-	308	1	2	1	-	12	-	-	-	-	20	-	1	1	-	-	-
Apr.	Day	903	-	-	-	-	1,384	1	6	6	-	802	3	1	1	-	781	1	6	6	-	60	1	1	0	-	470	-	2	0	-	NONE	
	Night	8	-	-	-	-	80	-	-	-	-	94	-	-	-	-	245	-	1	1	-	6	-	-	-	-	69	-	1	1	-	-	-
May	Day	1,254	1	-	-	-	2,024	-	3	3	-	1,059	3	11	5	-	935	1	8	6	-	102	2	-	-	-	566	-	4	5	1	NONE	
	Night	23	-	-	-	-	101	1	-	-	-	205	-	-	-	-	214	-	-	-	-	-	-	-	-	51	-	1	1	-	-	-	
June	Day	1,200	4	4	2	-	1,360	-	1	2	-	963	-	5	2	-	2,331	9	14	12	-	180	-	1	0	-	683	-	6	4	1	7	25,486
	Night	(38	-	-	-	-	77	-	-	-	-	204	-	2	2	-	(266 L/L 235	1	7	3	-	1	-	-	-	-	90	-	1	1	-	-	-
July	Day	1,283	1	2	2	-	1,851	1	14	9	-	1,344	2	5	6	-	3,809	6	16	13	1	176	-	-	-	-	780	-	1	1	-	2	11,096
	Night	(45	-	1	0	-	10	-	-	-	-	94	-	1	1	-	(152 L/L 370	2 1	- 4	- 3	- 1	18	-	-	-	-	87	-	-	-	-	-	-
Aug.	Day	900	1	8	4	1	1,893	2	20	14	-	1,173	1	6	5	-	4,114	16	32	24	1	250	1	1	0	-	813	1	5	5	-	11	63,049
	Night	(11	-	1	1	-	11	1	-	-	-	(15 L/L 61	-	-	-	-	(172 L/L 179	-	-	-	-	10	-	-	-	-	52	-	-	-	-	-	-
Sept.	Day	853	1	25	11	1	1,451	3	19	10	1	1,583	4	17	3	1	5,002	21	33	22	1	66	-	1	1	-	816	1	3	2	1	12	51,925
	Night	(6	-	-	-	-	5	-	-	-	-	(6 L/L 95	1	-	-	-	(281 L/L 284	-	-	-	-	13	-	-	-	-	133	1	1	0	-	-	-
Oct.	Day	643	1	7	5	1	1,887	3	23	14	4	1,401	2	6	4	-	4,300	20	16	11	1	40	-	-	-	-	588	1	4	1	-	11	84,335
	Night	(-	-	-	-	-	19	-	-	-	-	L/L 40	-	2	2	1	(321 L/L 454	-	-	-	-	16	-	-	-	-	100	-	-	-	-	-	-
Nov.	Day	371	-	3	2	1	2,071	-	11	7	1	998	2	1	0	-	4,962	9	9	6	-	649	4	4	2	-	2,524	6	86	60	4	10	100,539
	Night	(1	-	-	-	-	27	-	-	-	-	(24 L/L 37	2	-	-	-	(512 L/L 640	-	2	1	-	54	-	-	-	-	(232 L/L 243	-	-	-	-	-	-
Dec.	Day	261	-	27	9	2	1,612	2	11	7	-	386	-	1	1	-	3,512	21	9	5	-	606	-	3	1	-	2,202	2	18	4	-	7	41,174
	Night	1	-	-	-	-	18	-	-	-	-	-	-	-	-	-	(533 L/L 581	1 1	2	2	-	(62 L/L 19	-	-	-	-	(240 L/L 573	-	-	-	-	-	-
Jan. 1943	Day	286	1	1	0	-	1,851	1	8	6	1	471	1	-	-	-	3,136	11	5	4	-	685	-	3	2	-	2,266	-	2	0	-	4	29,332
	Night	18	-	-	-	-	48	-	-	-	-	12	-	-	-	-	(452 L/L 376	1 -	-	-	-	(19 L/L 15	-	-	-	-	(180 L/L 426	-	-	-	-	-	-
Feb.	Day	405	-	11	6	1	815	-	5	4	2	542	1	1	1	-	4,354	6	25	11	1	768	1	9	4	-	1,403	-	14	9	1	15	87,670
	Night	21	-	-	-	-	20	-	-	-	-	20	-	-	-	-	(560 L/L 654	1 1	-	-	-	(305 L/L 7	-	3	2	1	(270 L/L 123	-	-	-	-	-	-

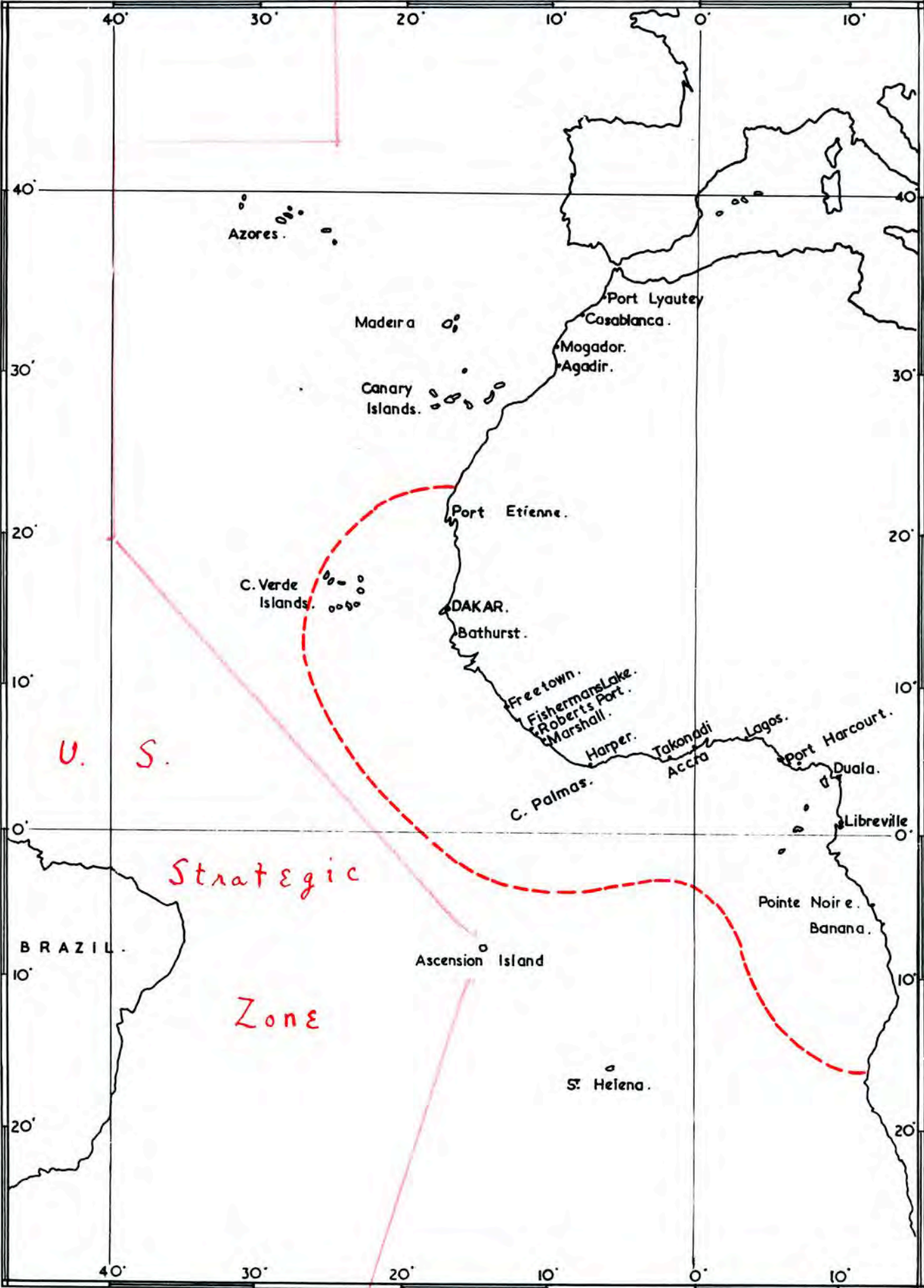
N.B. L/L Signifies Leigh Light Night flying - Refs: Group O.R.B. Appendices and Squadron Forms 540.

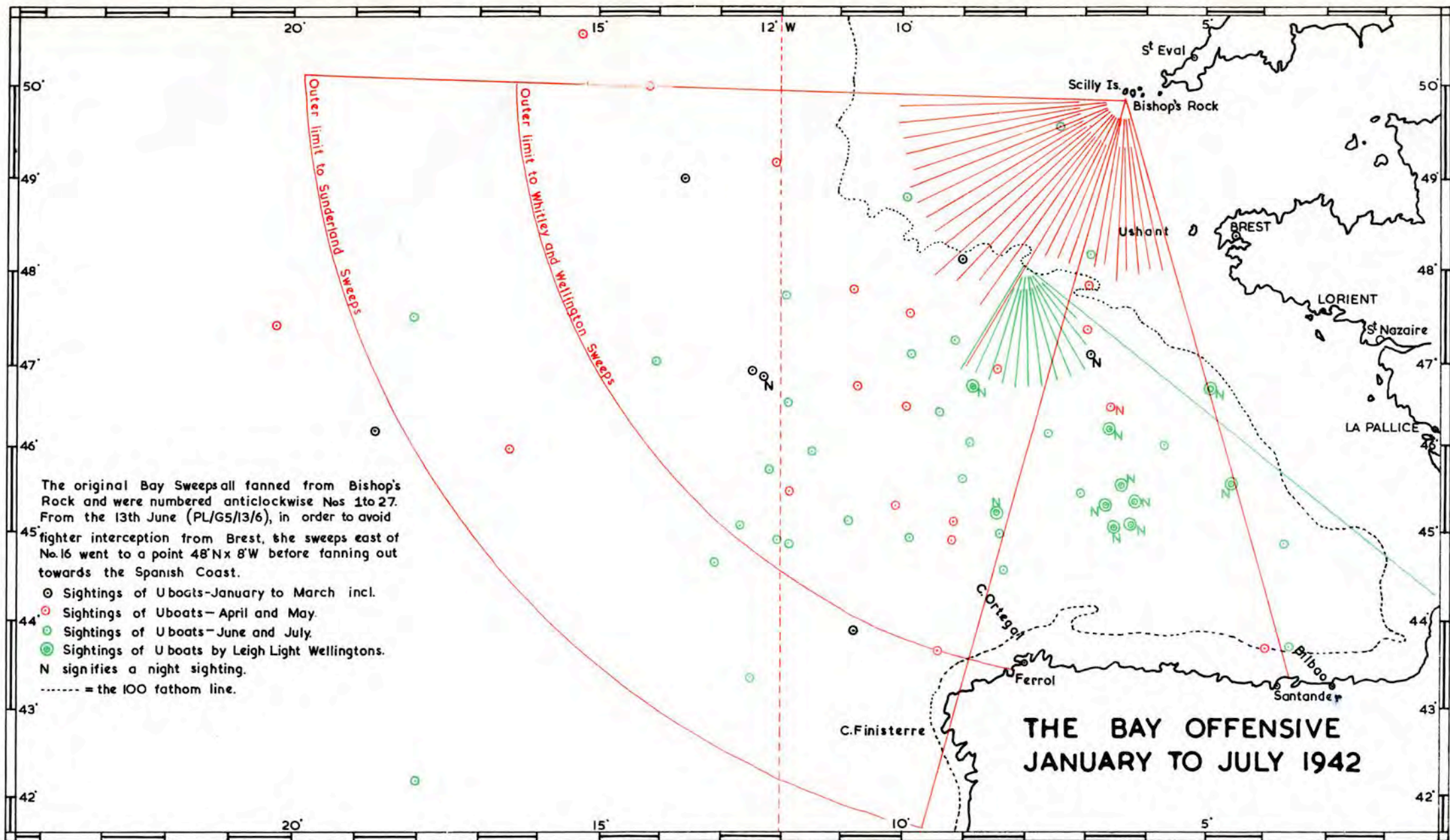
THE STANDARD $\frac{1}{2}$ PATROLS IN SEPTEMBER 1941

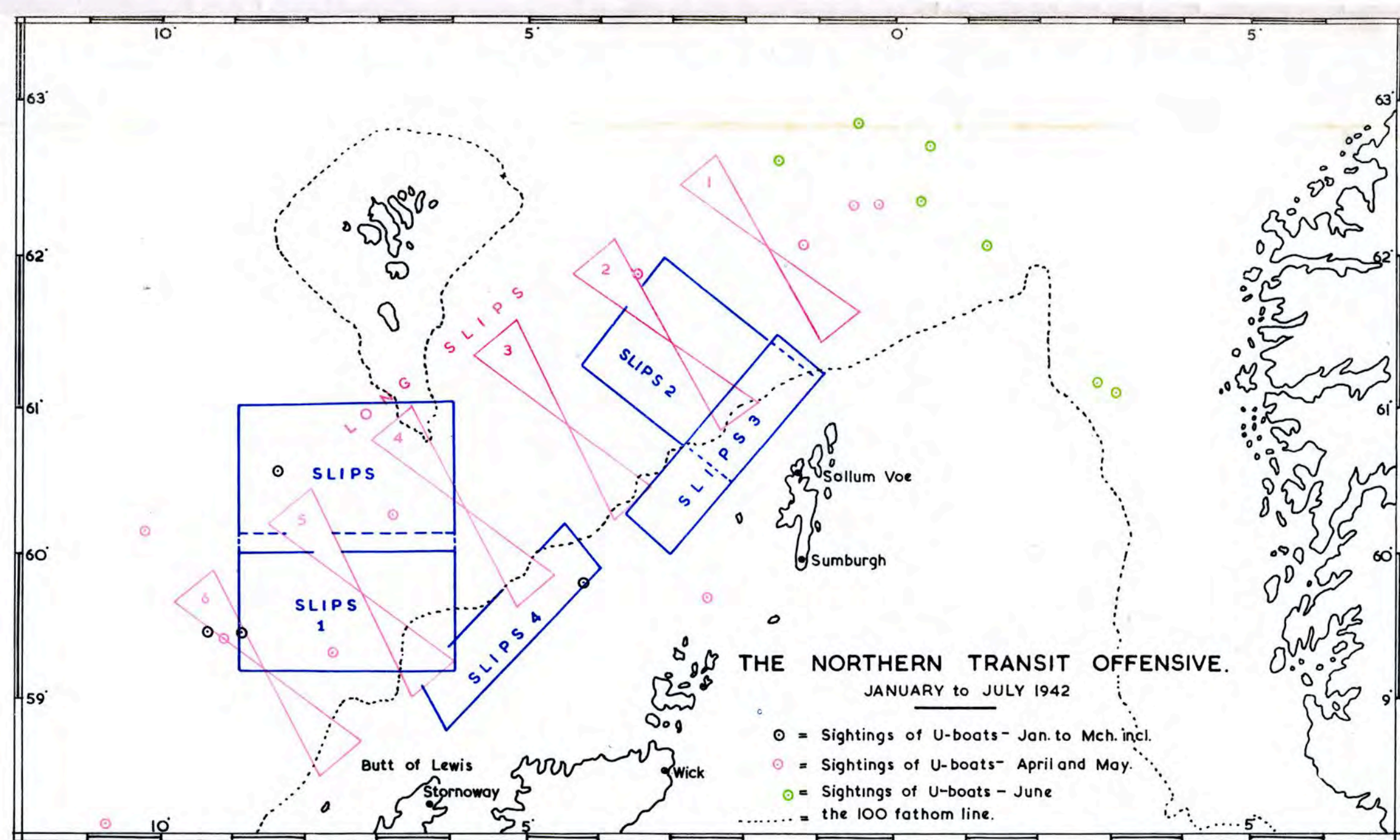


THE WEST AFRICAN AIR COMMAND IN 1942

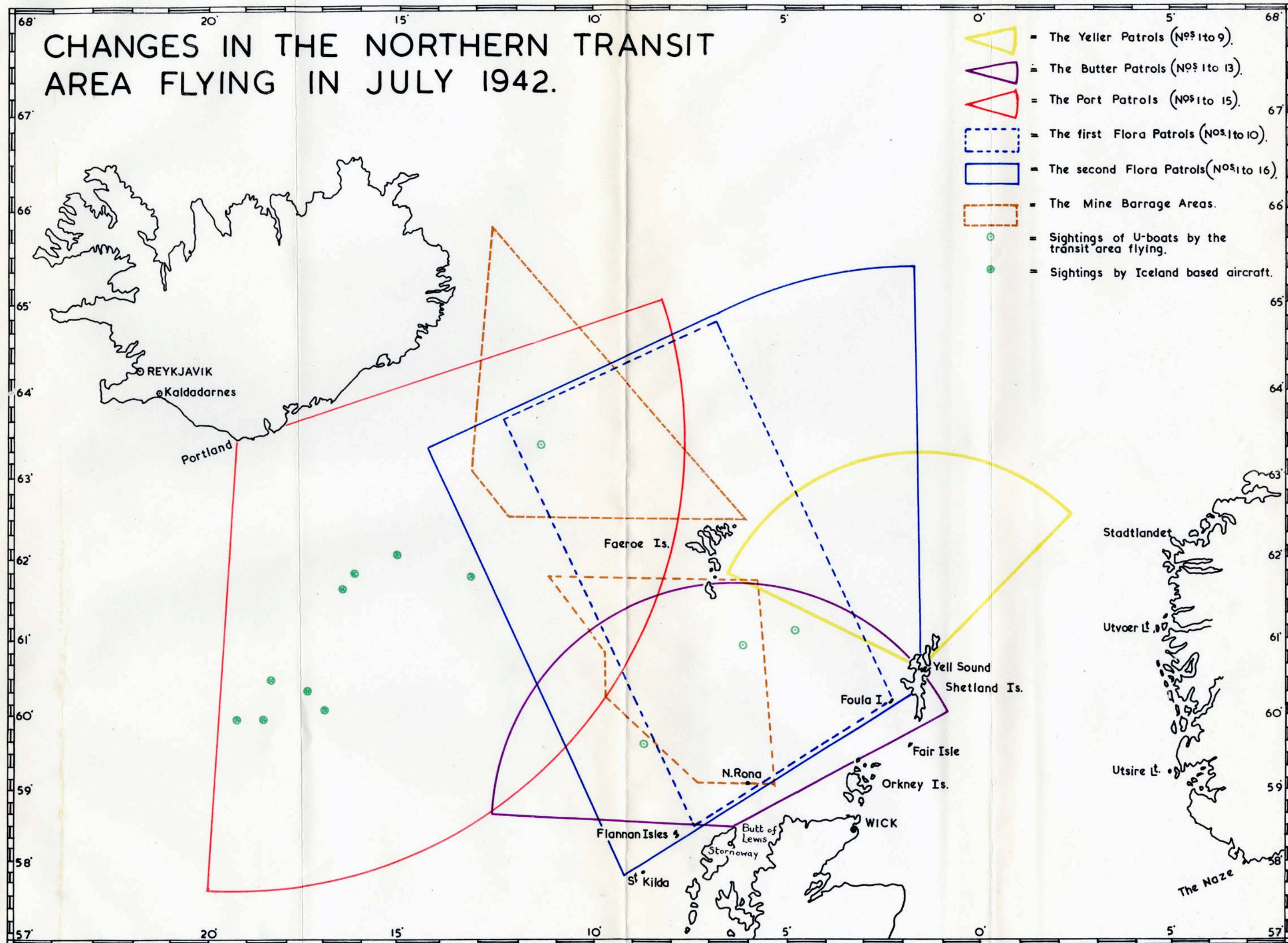
 = LIMIT OF 600 MILE AIR COVER.

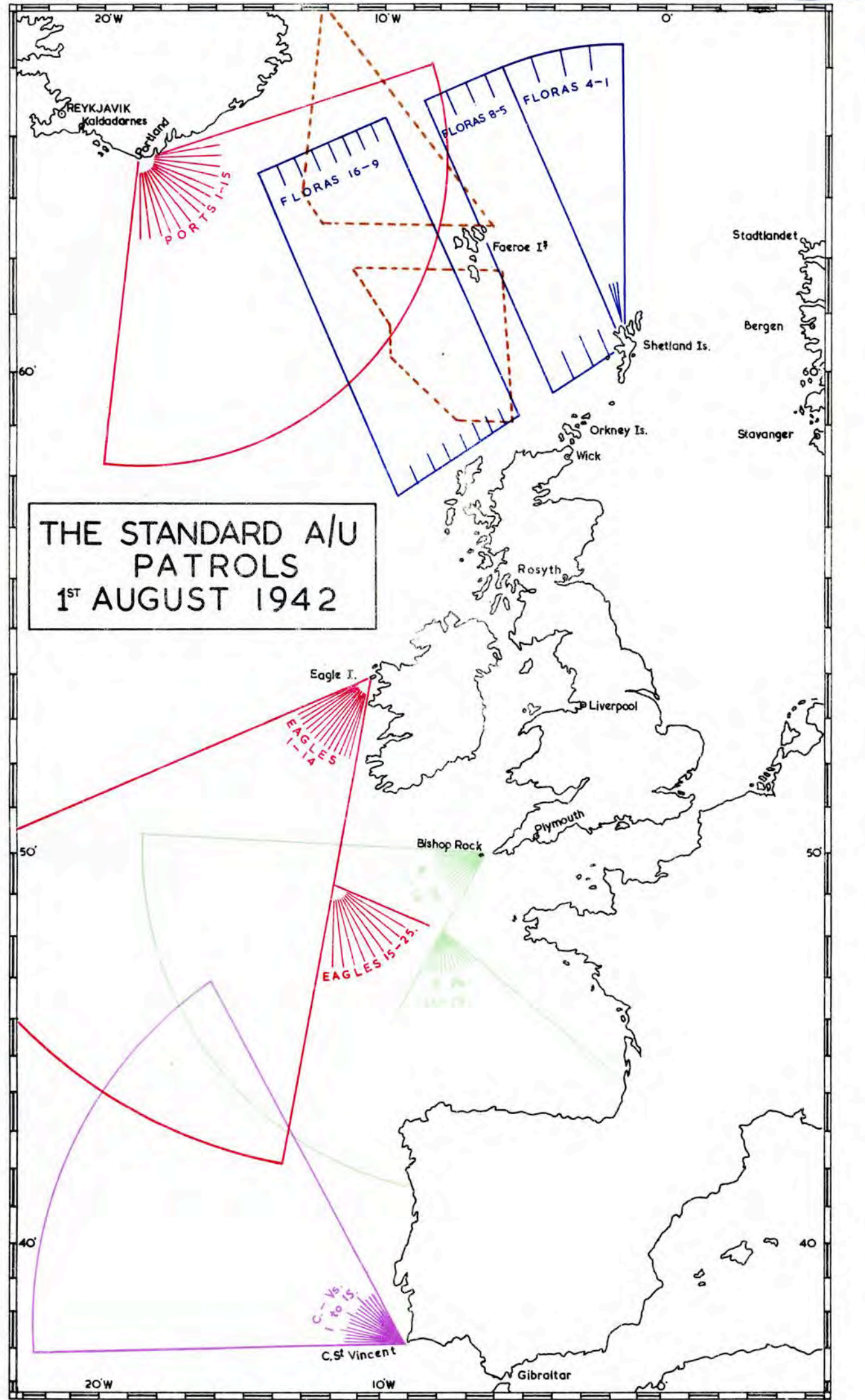




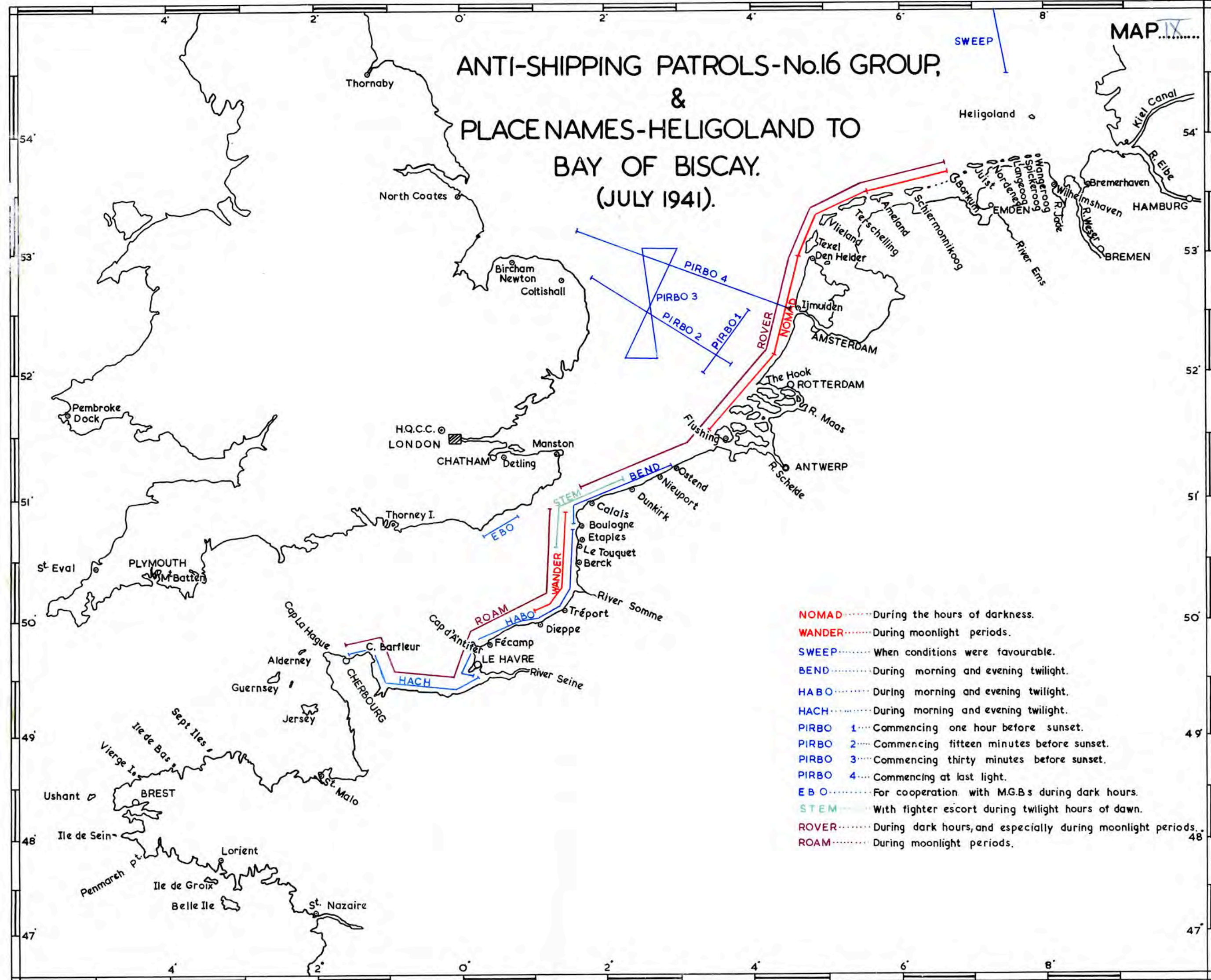


CHANGES IN THE NORTHERN TRANSIT AREA FLYING IN JULY 1942.

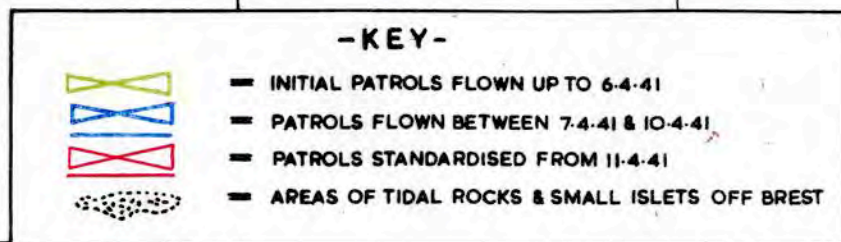




ANTI-SHIPPING PATROLS-No.16 GROUP, & PLACE NAMES-HELIGOLAND TO BAY OF BISCAY. (JULY 1941).

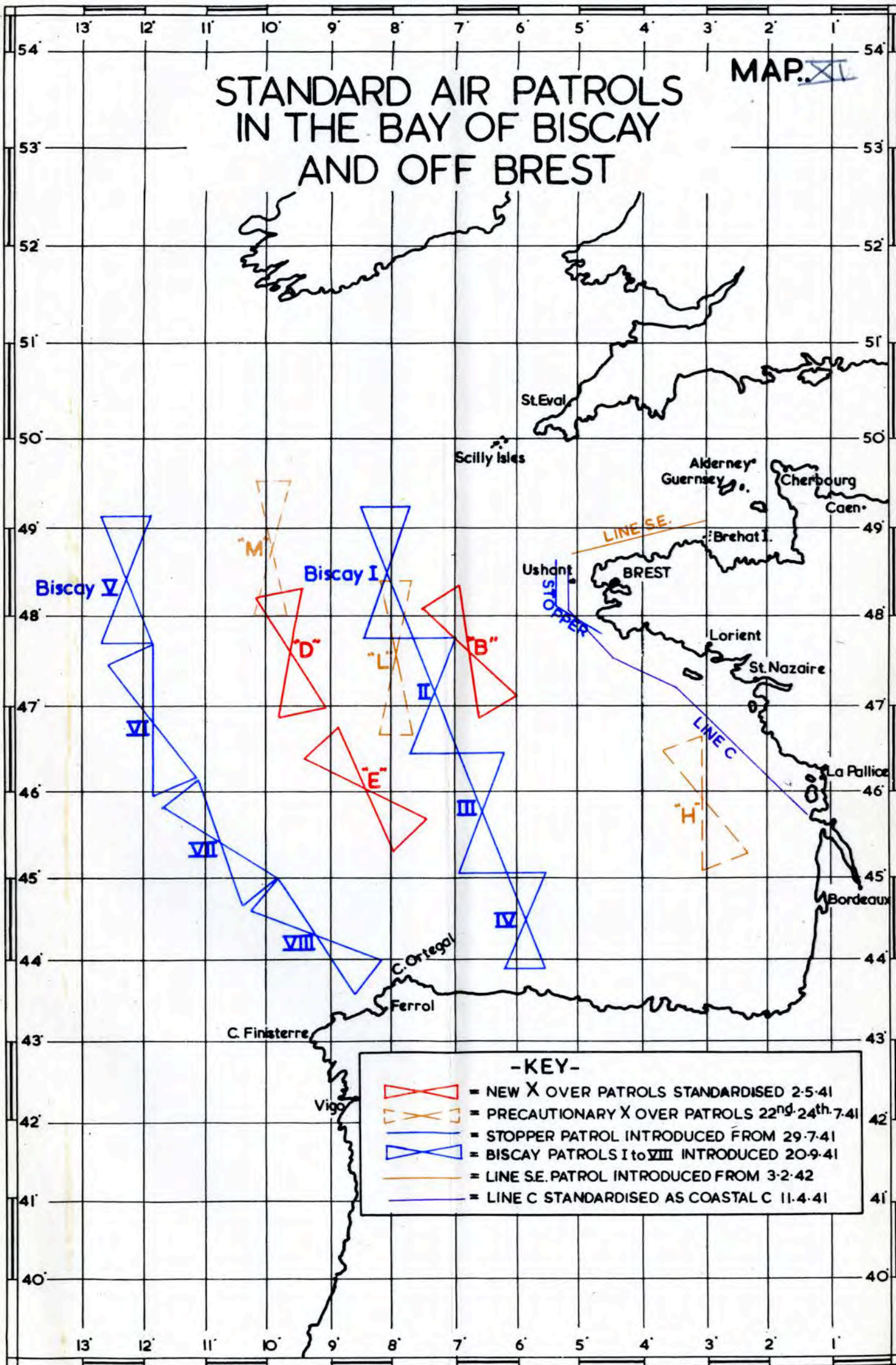


EARLY AIR PATROLS OFF BREST

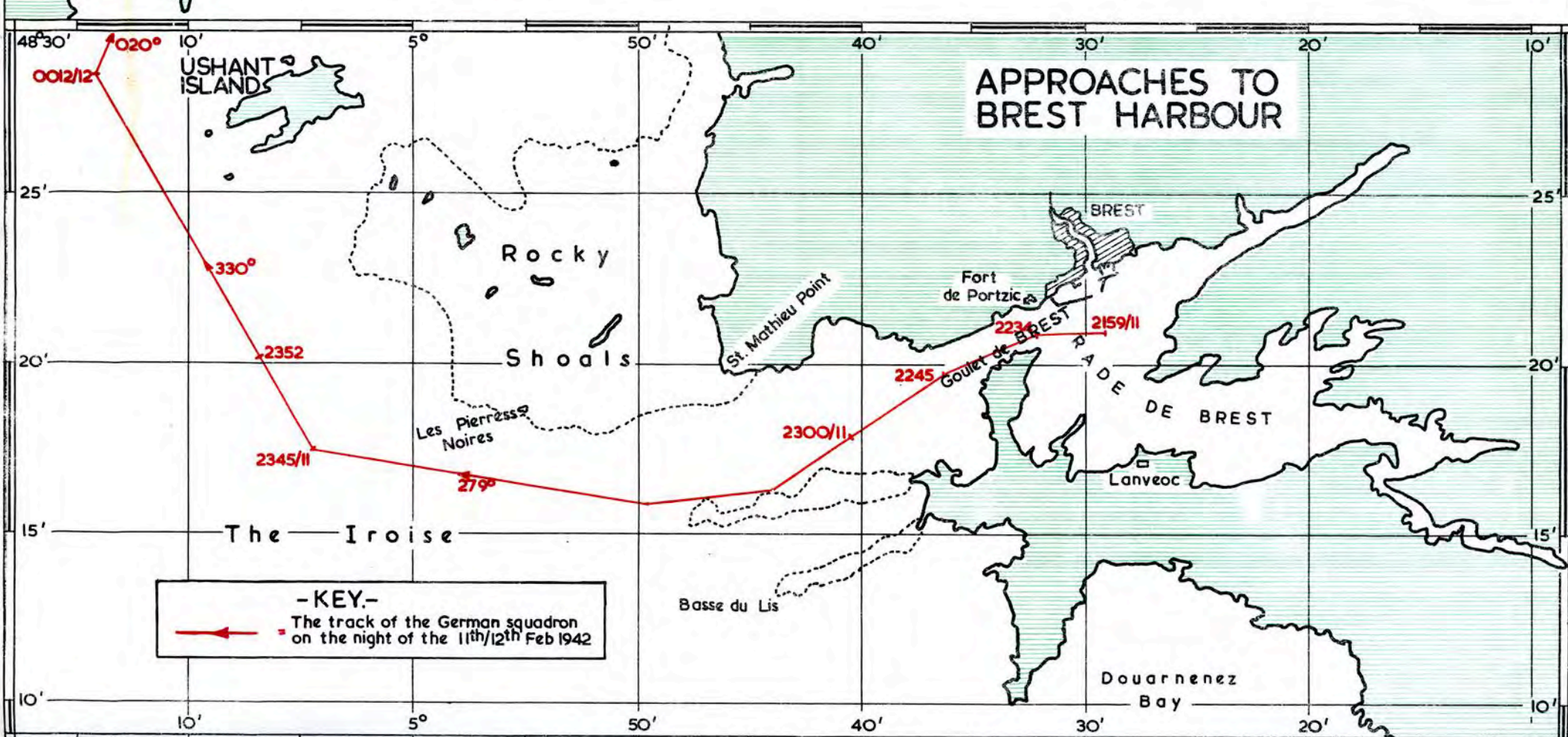
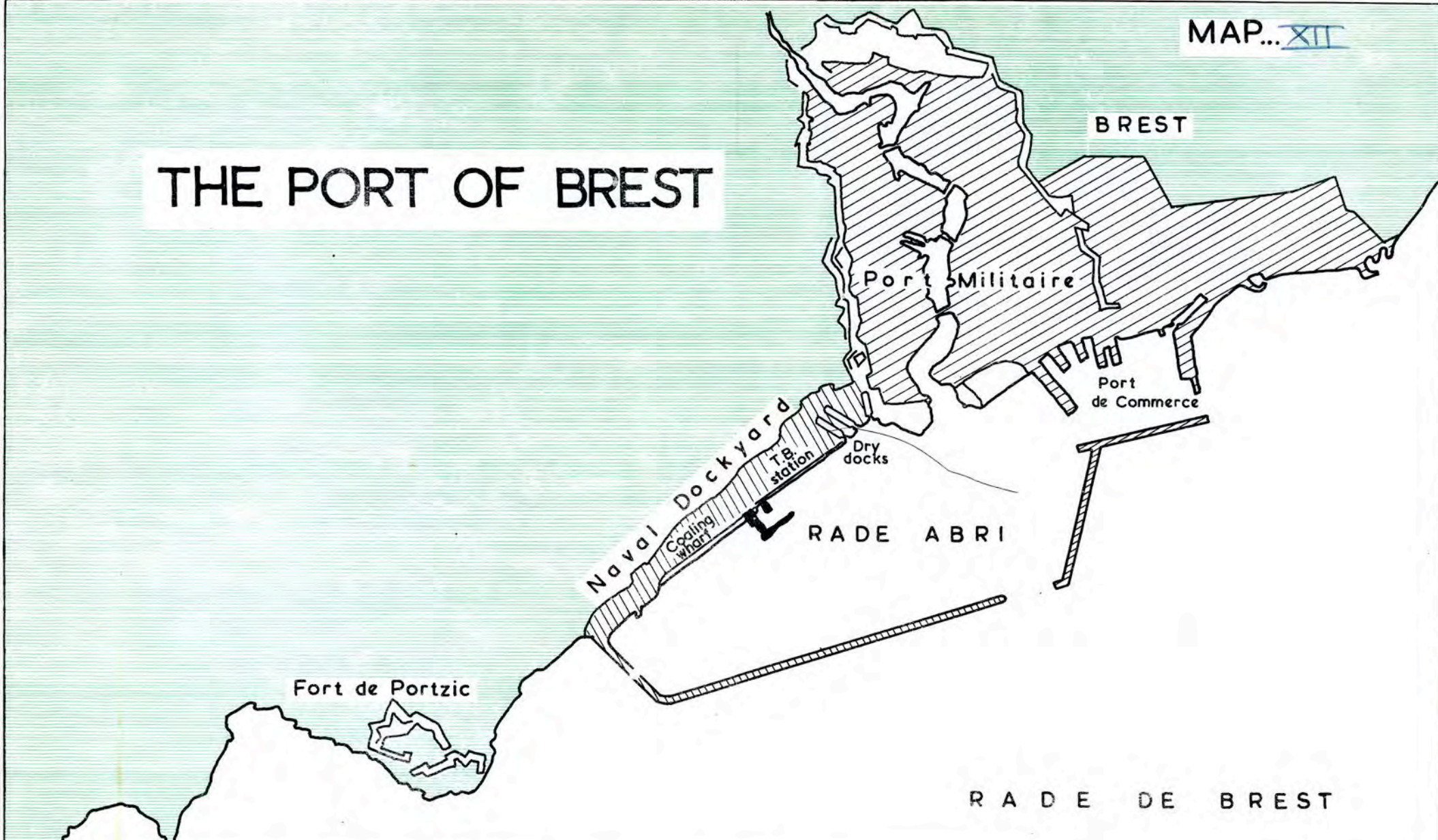


STANDARD AIR PATROLS IN THE BAY OF BISCAY AND OFF BREST

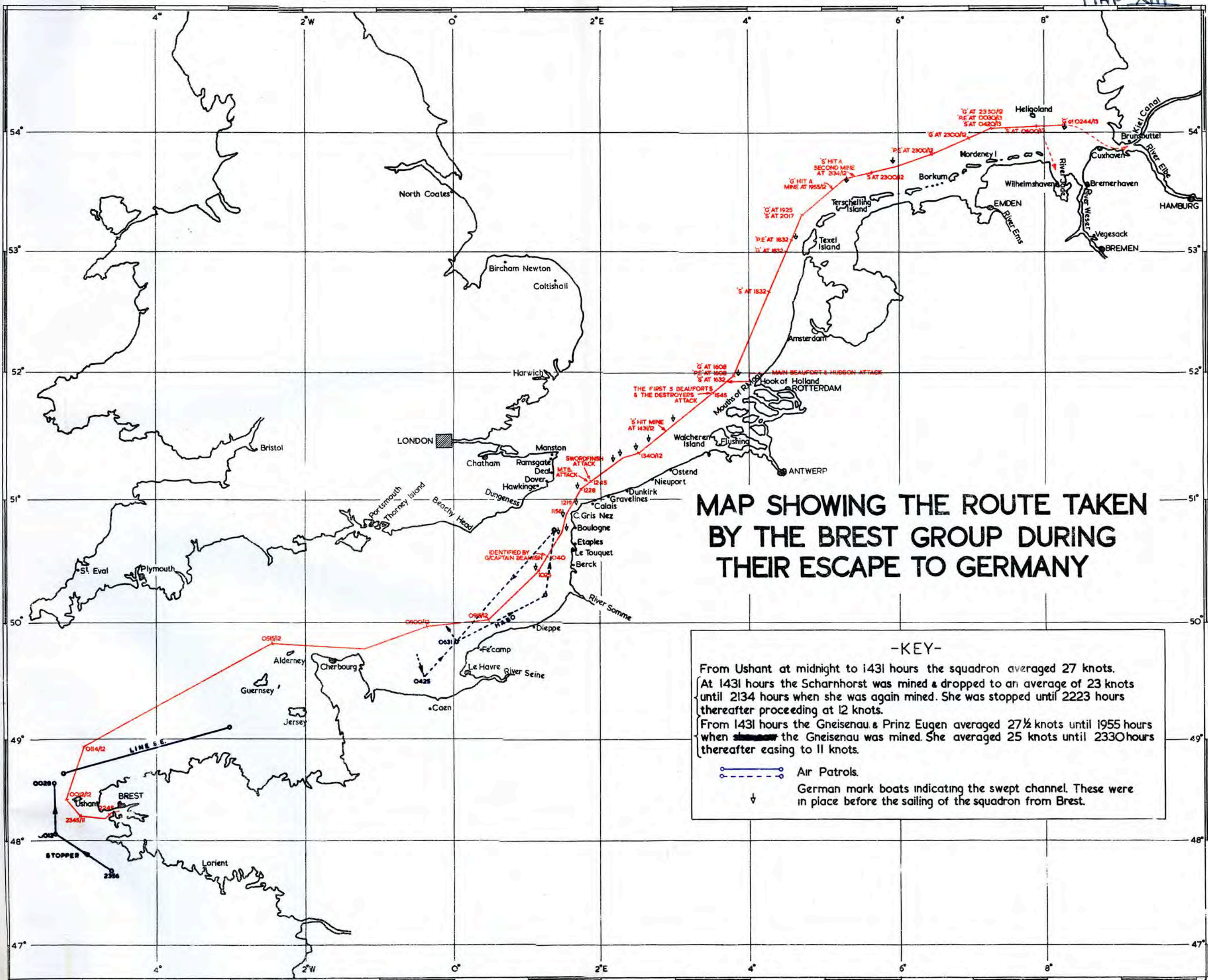
MAP. XL

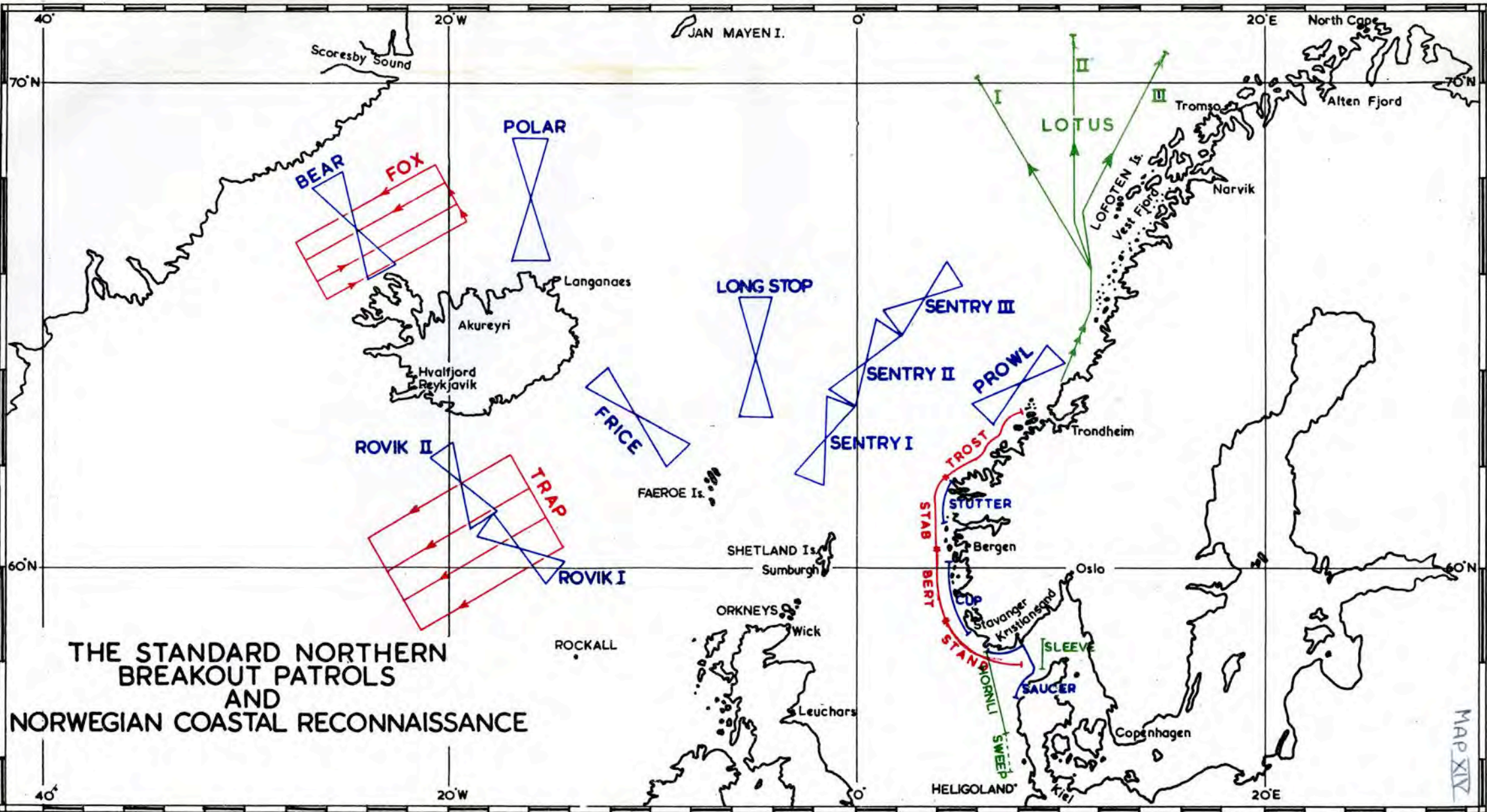


THE PORT OF BREST



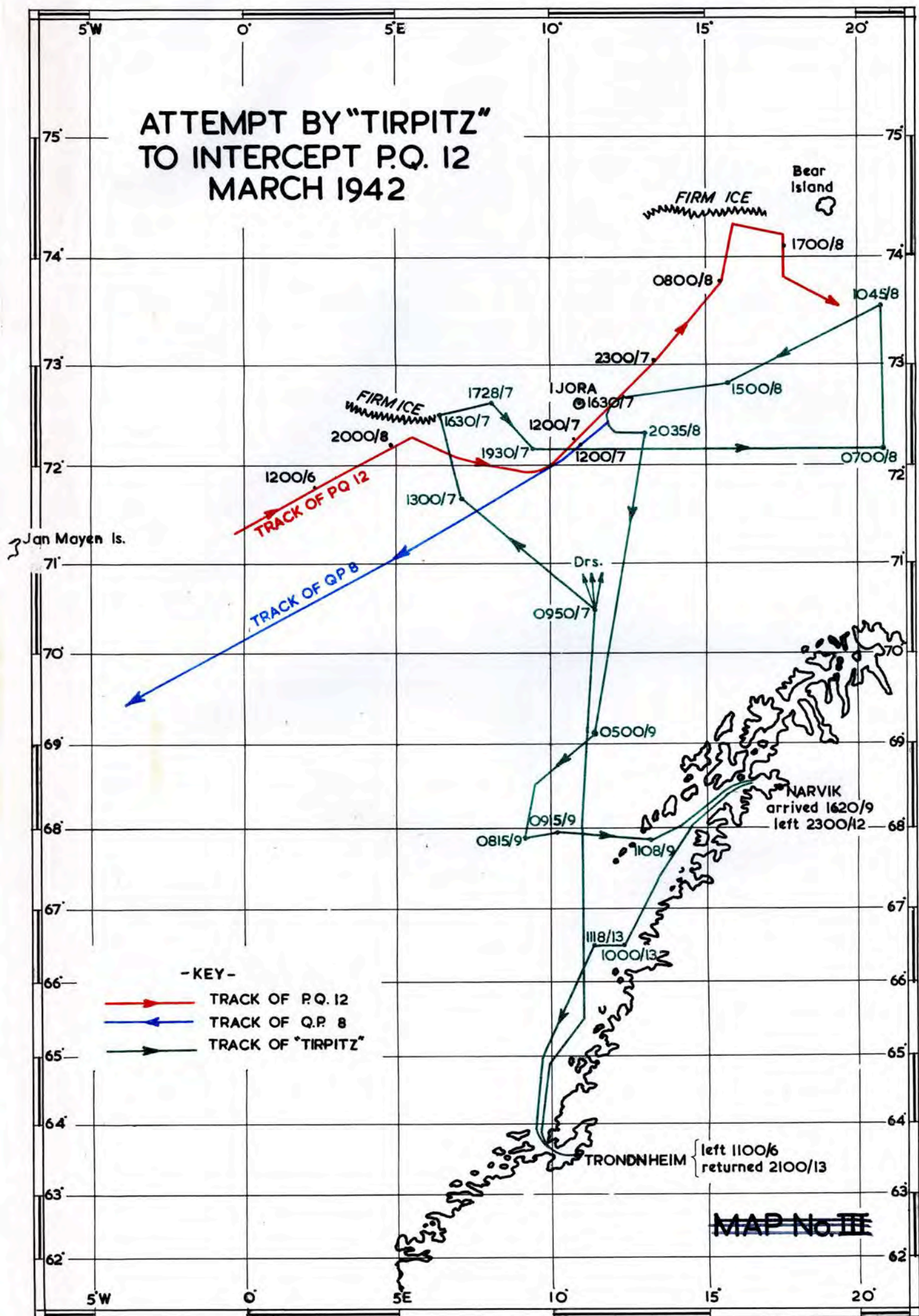
-KEY-
 The track of the German squadron
 on the night of the 11th/12th Feb 1942





MAP XIV

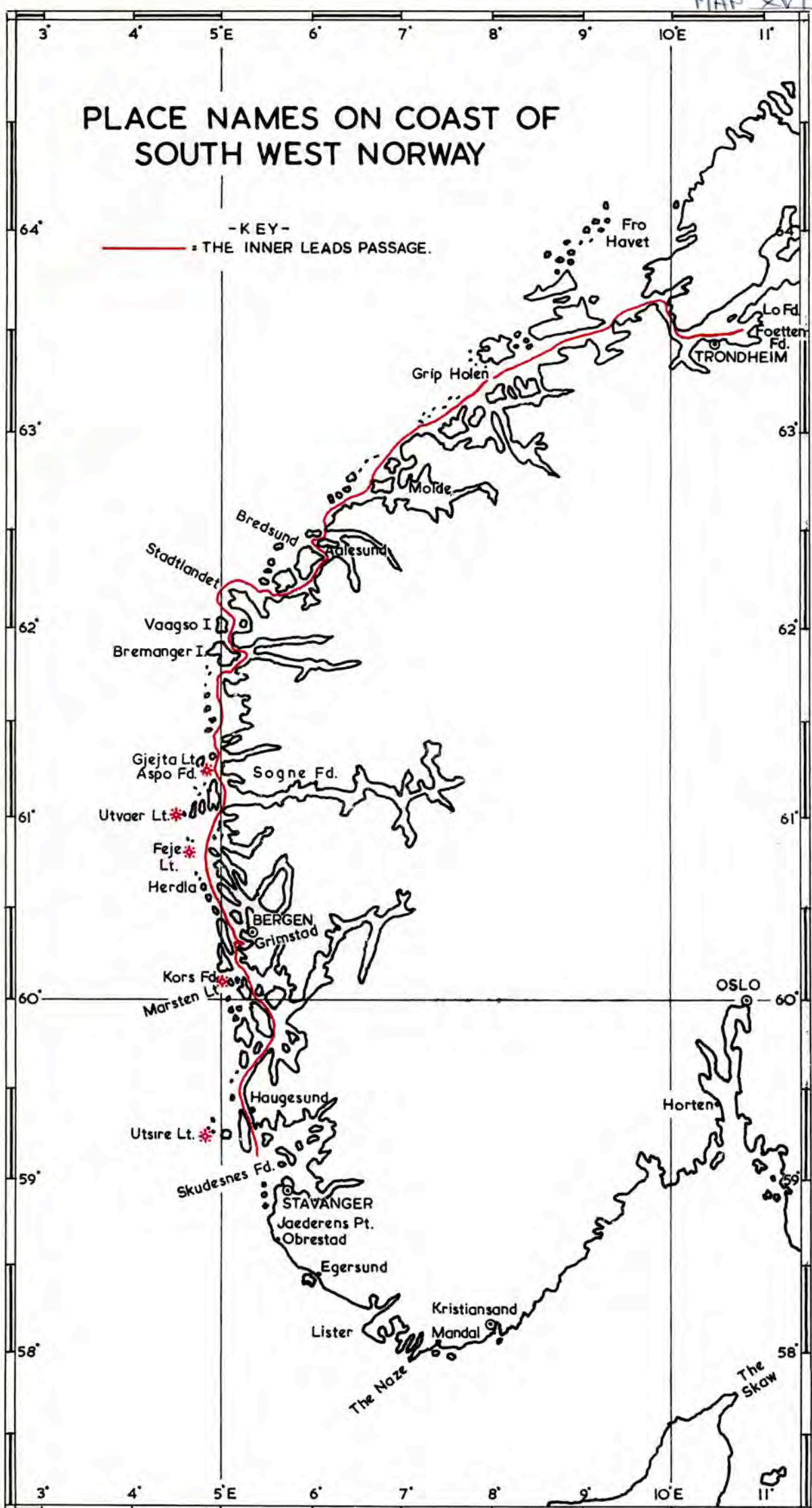
ATTEMPT BY "TIRPITZ" TO INTERCEPT P.Q. 12 MARCH 1942



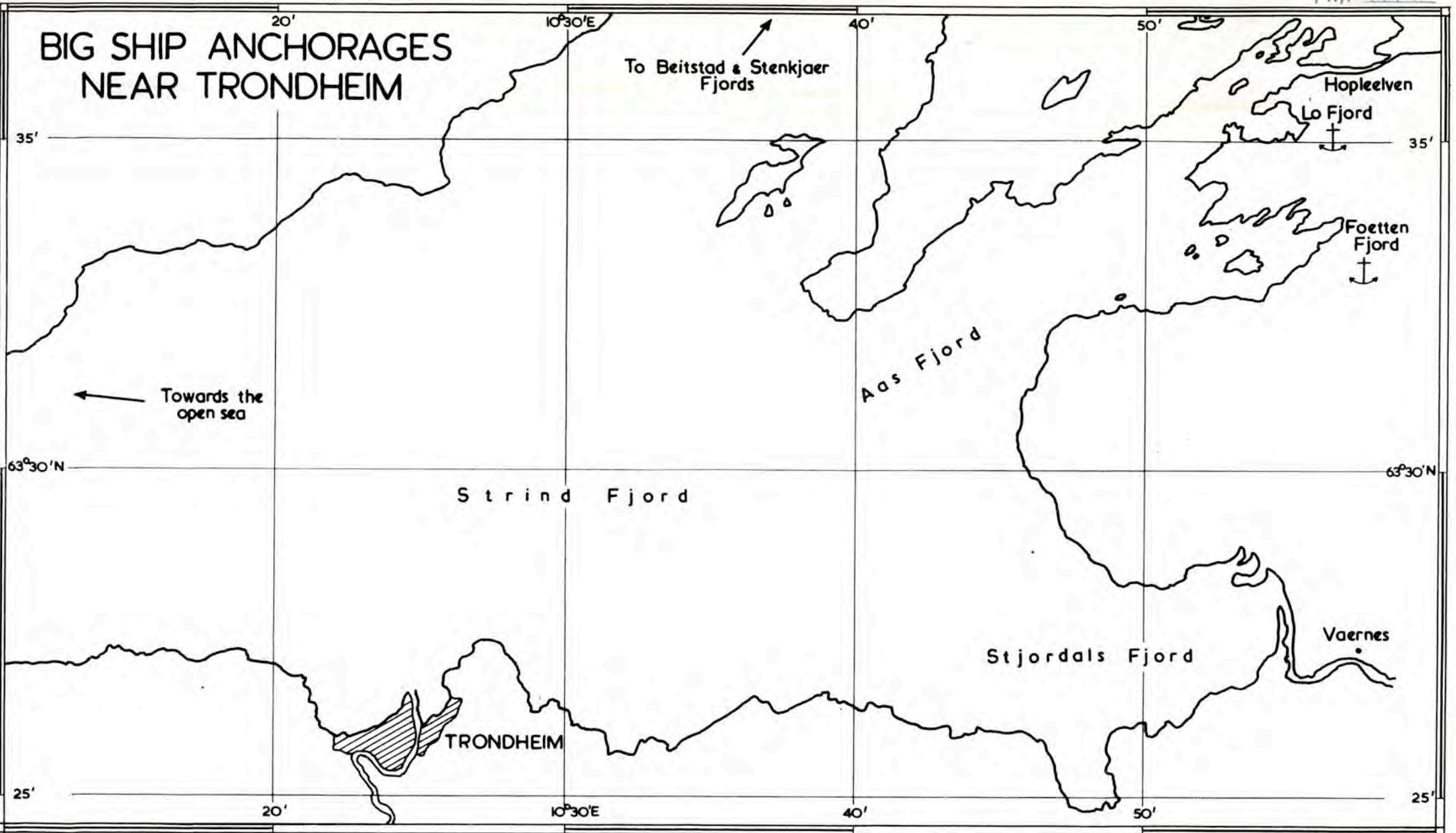
PLACE NAMES ON COAST OF SOUTH WEST NORWAY

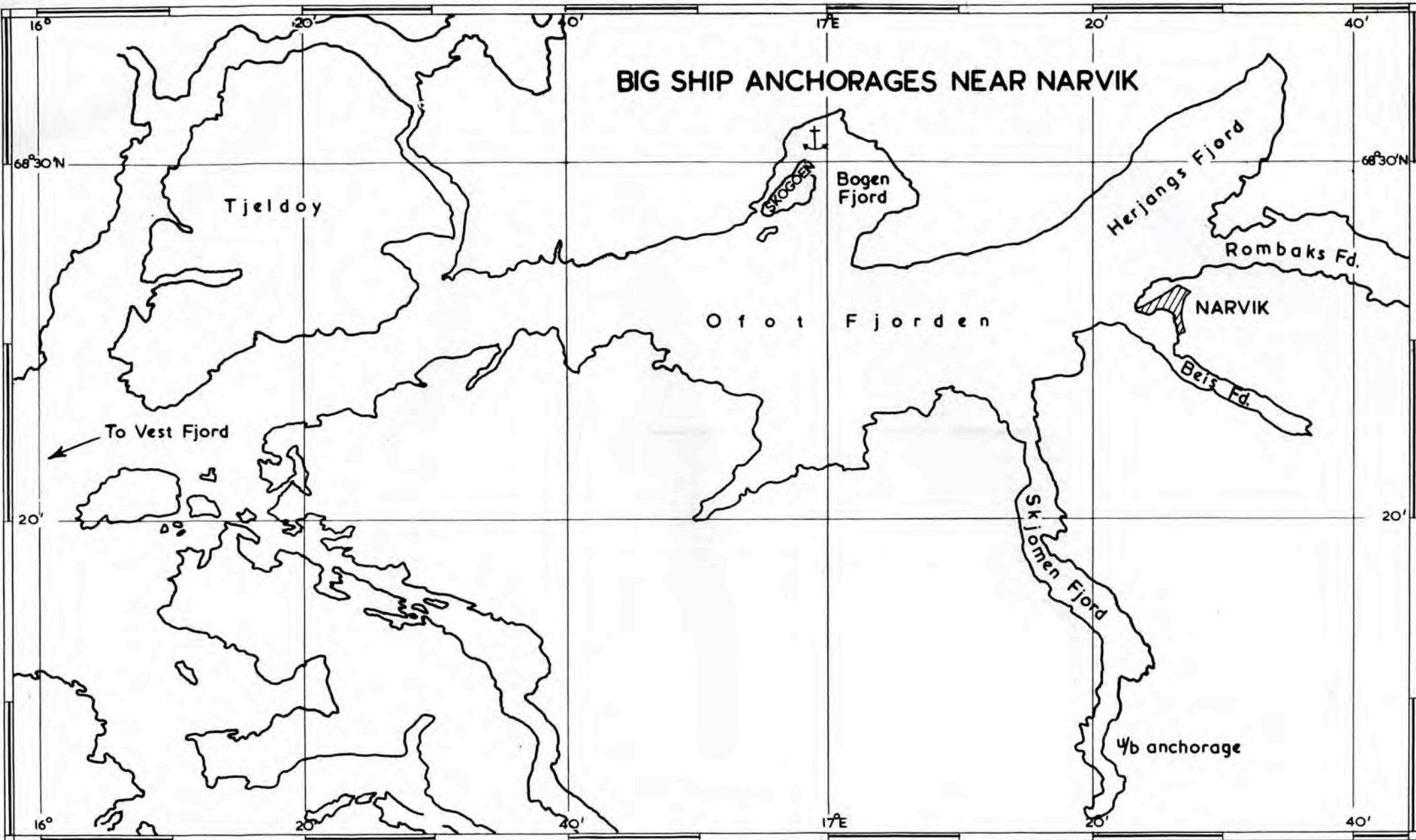
- KEY -

— THE INNER LEADS PASSAGE.



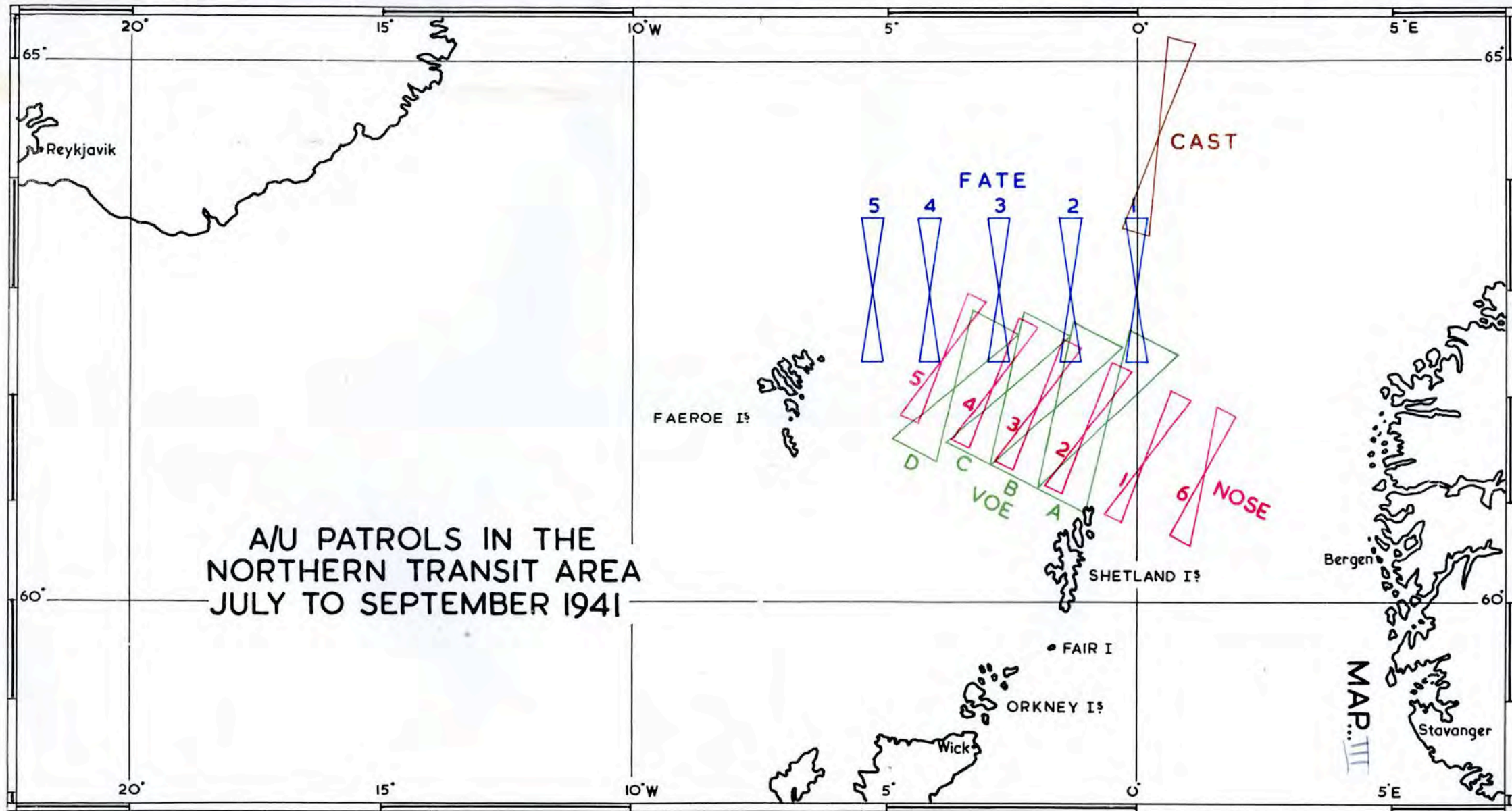
BIG SHIP ANCHORAGES NEAR TRONDHEIM





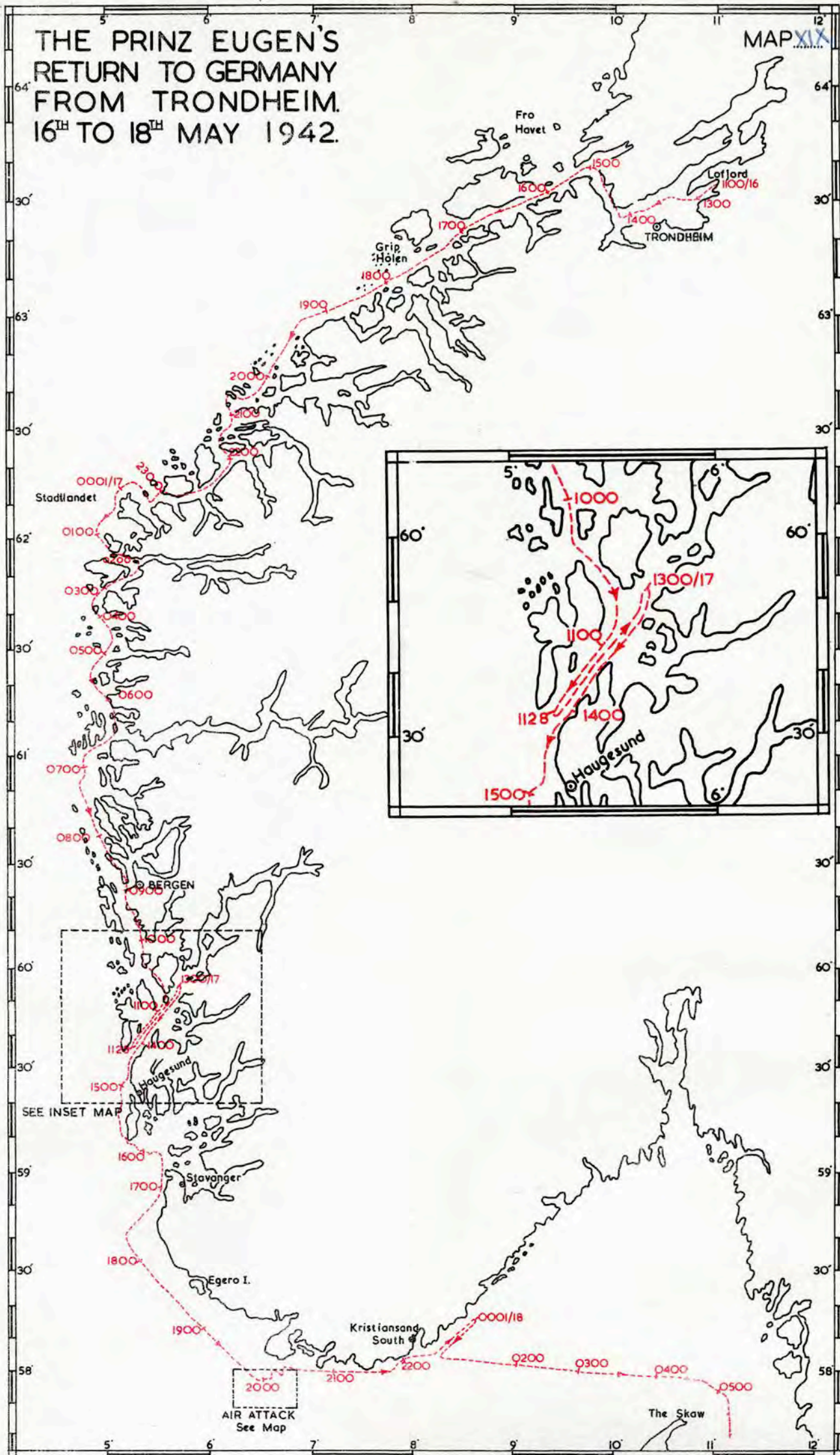
MAP XVIII

A/U PATROLS IN THE
NORTHERN TRANSIT AREA
JULY TO SEPTEMBER 1941



THE PRINZ EUGEN'S RETURN TO GERMANY FROM TRONDHEIM. 16TH TO 18TH MAY 1942.

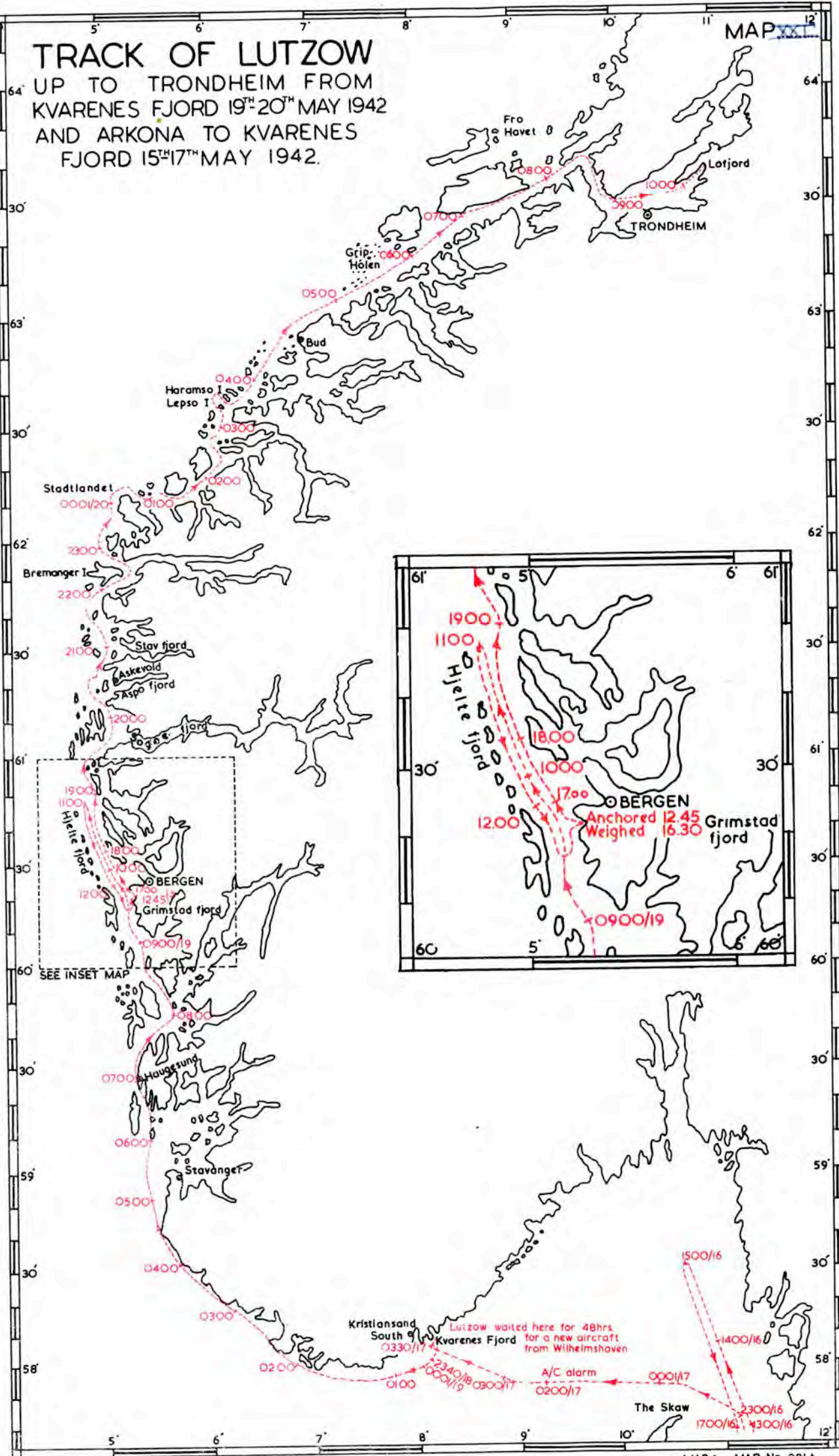
MAP XIX



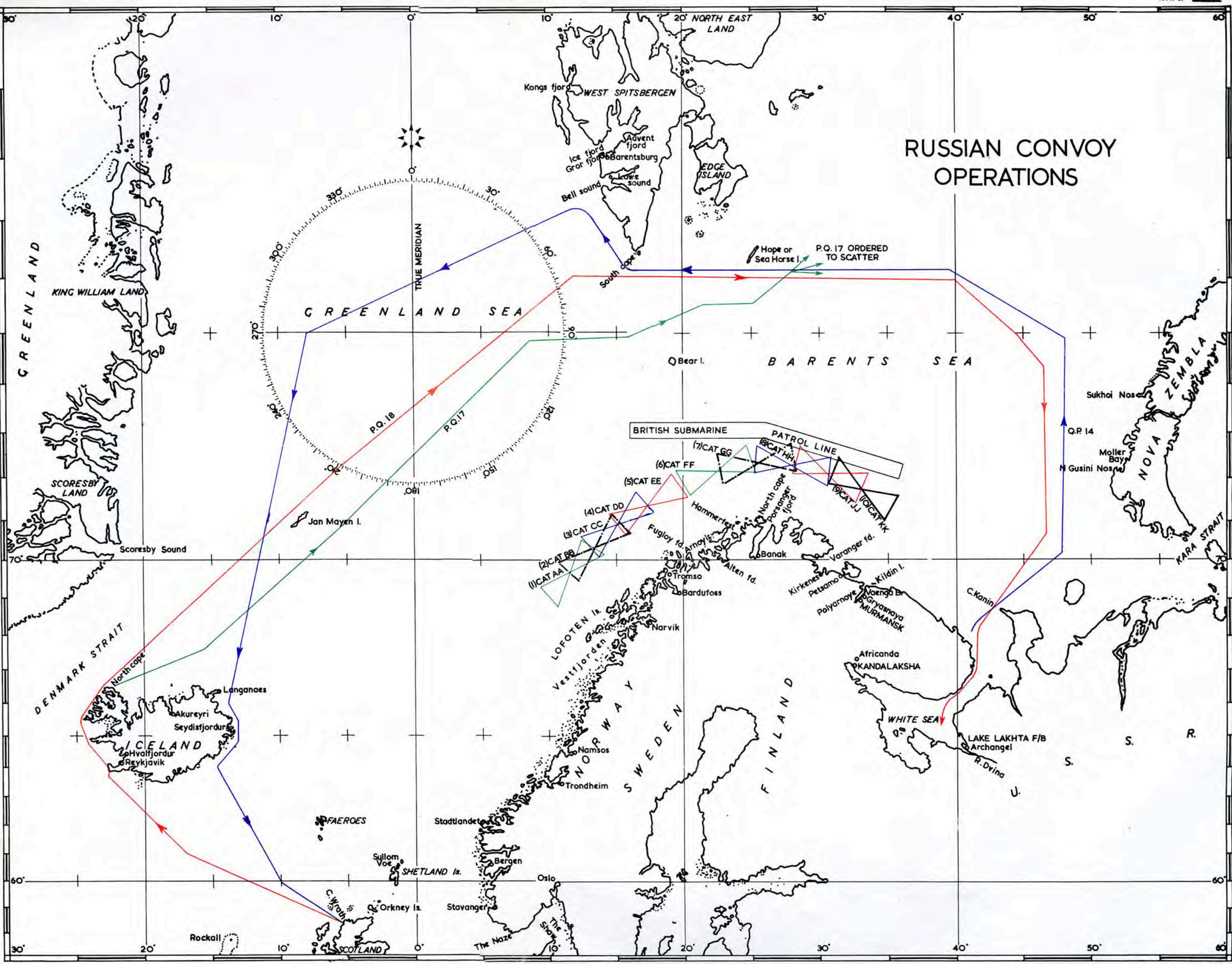
TRACK OF LUTZOW

UP TO TRONDHEIM FROM
KVARENES FJORD 19TH-20TH MAY 1942
AND ARKONA TO KVARENES
FJORD 15TH-17TH MAY 1942.

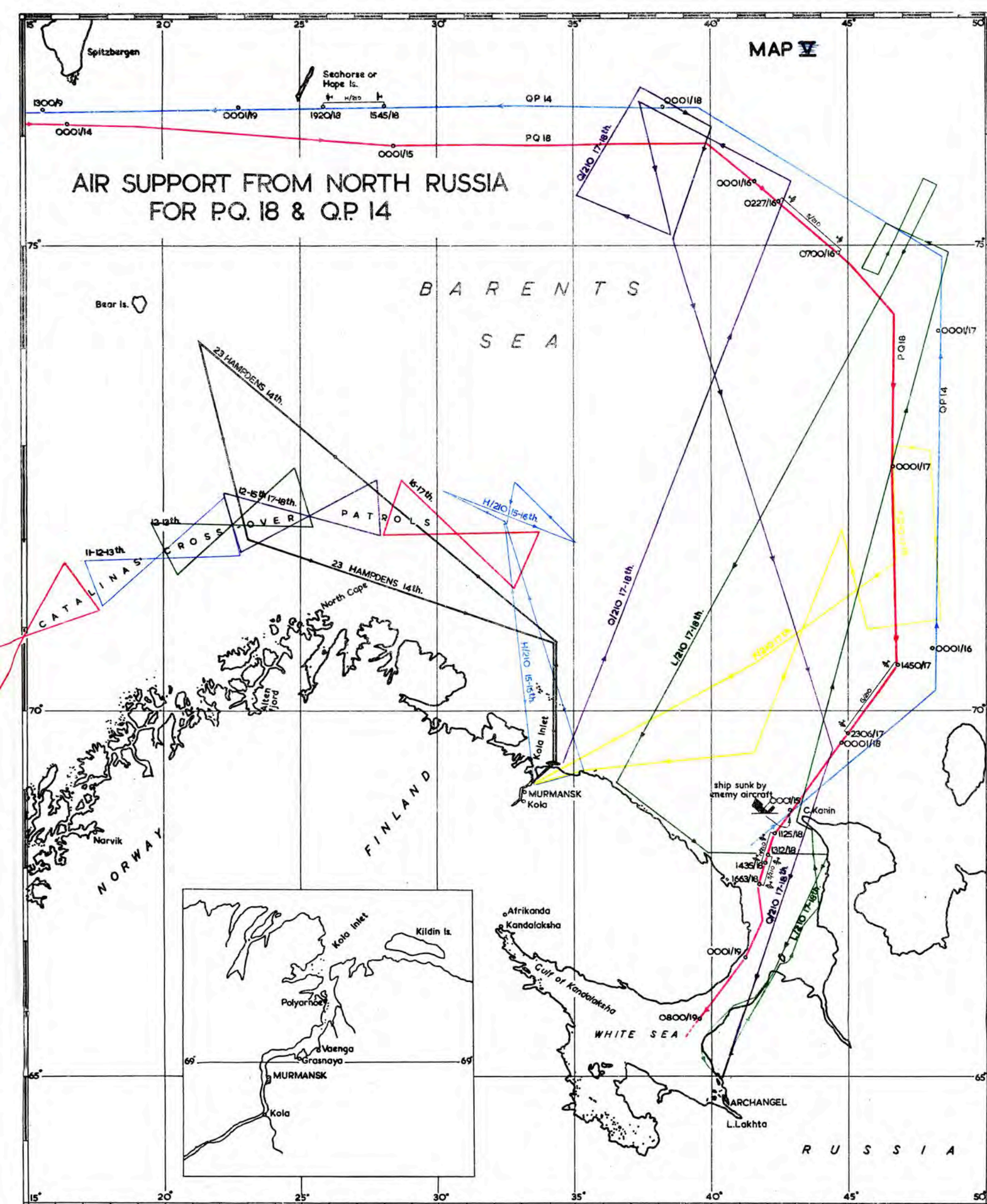
MAP 281A

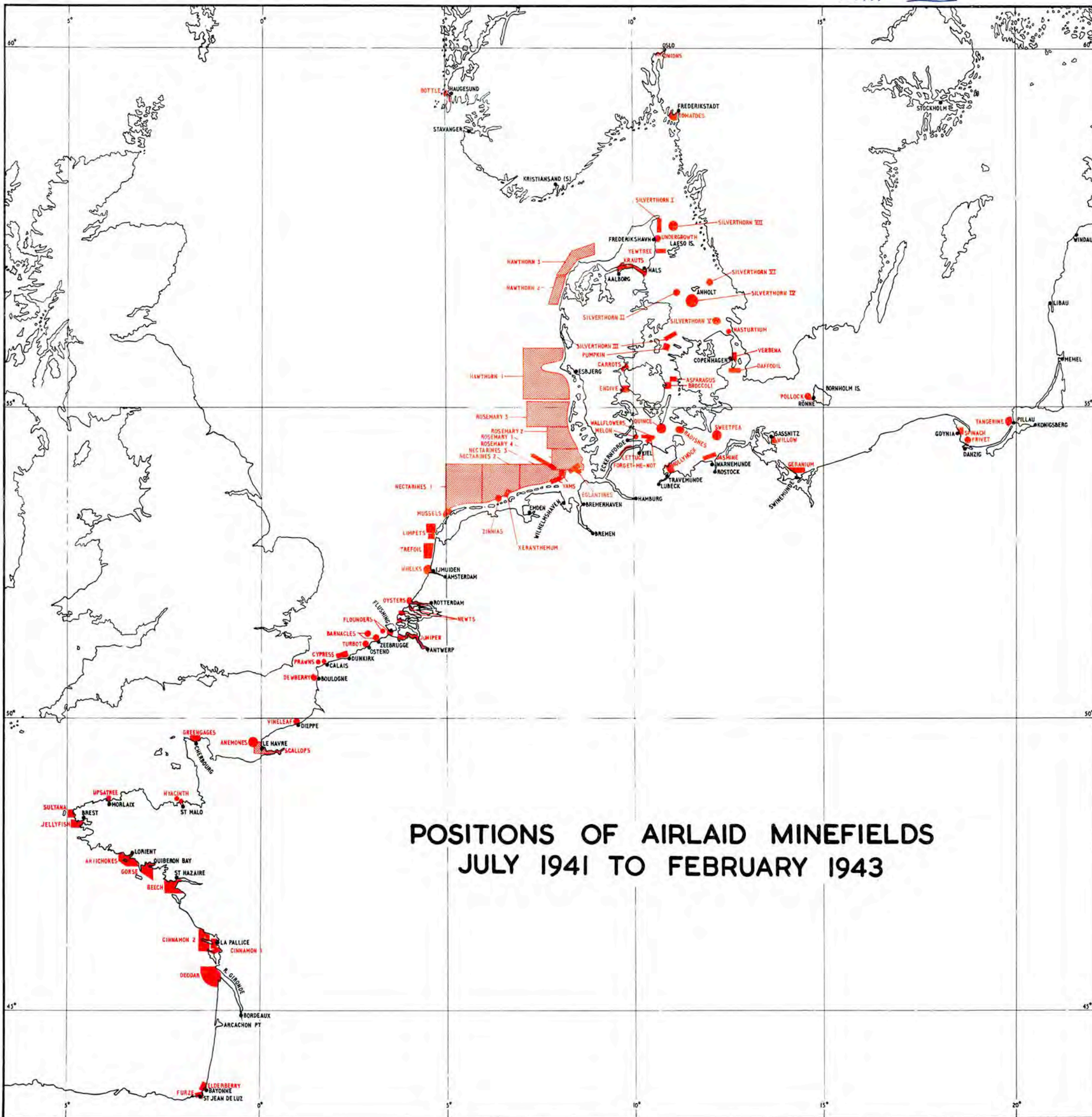


RUSSIAN CONVOY OPERATIONS



AIR SUPPORT FROM NORTH RUSSIA
FOR P.Q. 18 & Q.P. 14





POSITIONS OF AIRLAID MINEFIELDS JULY 1941 TO FEBRUARY 1943

AUGUST 1942

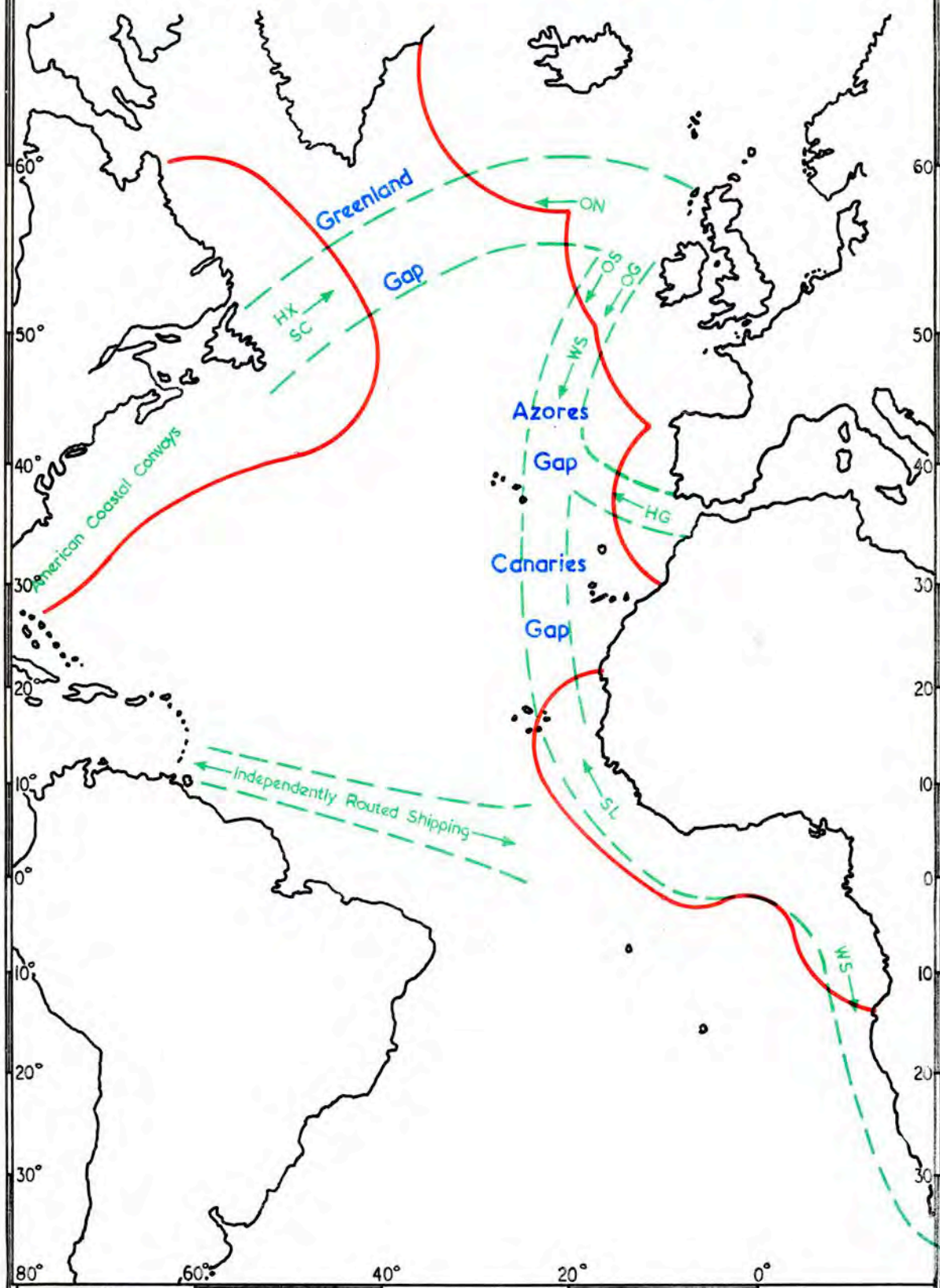
AIR COVER ON

THE CONVOY ROUTES

LEGEND

LIMIT OF CONSISTENT AIR COVER. —————

MAIN CONVOY ROUTES =====



30°W.

20°W.

10°W.

SECRET

MAP No. XXVI

TORCH FORCES

1ST. NOVEMBER 1942

LEGEND

NAVAL FORCES

TORCH CONVOYS

S.L. 125.

