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R.A.F. NARRATIVE

(Final Draft)

THE R.A.F. IN MARITIME WAR

VOLUME II

THE ATLANTIC AND HOME WATERS - THE DEFENSIVE PHASE

September 1939 to June 1941

AIR HISTORICAL BRANCH (1)

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AIR MINISTRY

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R.A.F. NARRATIVE

THE R.A.F. IN MARITIME WAR

VOLUME II

THE ATLANTIC AND HOME WATERS - THE DEFENSIVE PHASE

SEPTEMBER 1939 to JUNE 1941

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FOREWORD

The pre-war evolution of Coastal Command forms the subject of Volume I. This volume, the second of the series, is concerned with events that happened in the maritime war from the eve of the outbreak in September, 1939 up to the end of June 1941, a period which was defensive in policy and character. Bomber Command, Fighter Command and Fleet Air Arm operations are mentioned in as far as they have a direct influence on the events described. It will be recognised that many other actions of these commands took place which were outside the scope of this narrative. Descriptions of these will be found in the appropriate individual narratives.

References to sources will be found in the left hand margin of the narrative; broadly these comprise the following categories of documentary material:-

British documents

- (i) Defence Committee conclusions and Chiefs of Staff Papers.
- (ii) Air Ministry, Bomber and Fighter Command Staff files which concerned Coastal Command operations.
- (iii) Coastal Command Staff files and Group and squadron records.

Enemy documents

- (i) Translations of High Command papers.
- (ii) Translations of naval and air records.

During the research for this narrative the author has maintained close liaison with the Admiralty Branches concerned.

D. V. PEYTON-WARD

December, 1947.

CHAPTER I

RECONNAISSANCE AND OTHER PATROLS

September, 1939 - March, 1940

(i) Introduction

A.M.W.R. Daily
Strength
Returns Vol. I

The outbreak of war saw Coastal Command with a strength of five flying-boat squadrons, 11 G.R. squadrons and two Torpedo bomber squadrons. An additional Sunderland Squadron was returning from the Mediterranean and became operational in No. 15 Group on 10th September. The establishment of this force was 242 I.E. Plus 82 I.R. (1) and there were available for operations during the first fortnight of war a daily average of 170 aircraft complete with fully trained crews. (2)

This small force was hard put to it to satisfy even the minimum requirements of sea reconnaissance and escort of shipping equipped as it was with out-of-date and short range aircraft. (3) The Anson, which 10 of the 11 G.R. squadrons were using, had a radius of action of only 255 miles and carried but two 100 lb. bombs. Only three of the six flying boat squadrons were equipped with the long range Sunderland, the other three squadrons being composed of the obsolescent types London and Stranraer. The Vildebeeste with which the two torpedo bomber squadrons were armed had a radius of action of a mere 184 miles. There were no long range fighter squadrons as the Protection of Shipping or naval units against enemy aircraft had not been considered necessary neither had it been envisaged that reconnaissance aircraft in enemy coastal waters might have to fight for their information.

Apart from reconnaissance, the striking power of Coastal Command against enemy surface units was almost non-existent and action against U-boats had hardly been considered, other than reporting their presence to naval anti-submarine craft. No full scale or realistic bomb trials had been carried out in peacetime neither had tactics been developed in the location, unseen approach to or attacks on submarines. At the commencement of the war there was no "operational training Unit" in Coastal Command. Soon after, when No. 1 O.T.U. was formed at Sillloth, it was expected to compete with all Coastal Command requirements for trained crews. These soon became very heavy consequent on replacing obsolete types with larger aircraft and the increase in squadron initial equipment figures. The

-
- (1) See Appendix 1 for details of squadrons, types, and initial equipment, strength and average daily availability.
 - (2) The discrepancy between establishment figures and operational availability was caused by aircraft being on routine inspections, repair or unserviceable for one reason or another, crews not being fully trained or incomplete; and by the fact that some squadrons were in the process of re-arming.
 - (3) The minimum necessary for this task had been fixed by the Committee of Imperial Defence as 261 aircraft made up as follows:-
 - 165 for Convoy escort and anti-Submarine co-operation
 - 84 for North Sea reconnaissance
 - 12 for co-operation with the naval northern Patrol against contraband Ref. No. 1368 - Conclusions of C.I.D. Nov. 1937

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O.T.U. rapidly became nothing more than a quick conversion course for pilots and was quite unequal to the provision of operational training. The squadrons were thus forced to undertake the final training of new crews. The cumulative effects of this procedure came to a head a year later and are referred to in Chapter VIII Sections (vi), (vii) and (viii).

(ii) Organisation of Coastal Command

At the outbreak of war the Command was organised into three operational groups with the Command Headquarters in N.W. London at Northwood. The whole of the Western Approaches from Northern Ireland round to the meridian of 3° West in the English Channel were covered by No. 15 Group.

See Map illustrating Group boundaries

The Eastern Part of the English Channel round to a line Flamborough Hd. to Horns Reef was covered by No. 16 Group, and the remaining sector round North of Scotland to a line running N.W. from Mull of Kintyre by No. 18 Group. This organisation of operational control called for the closest collaboration between the respective staffs of the Admiralty and H.Q. Coastal Command. This was preserved at lower levels by establishing Group Air Headquarters in the same place as the H.Q. of the geographically selected Naval Shore Commands. Thus the resultant organisations at Plymouth, Chatham, Rosyth were known as Area Combined Headquarters and enabled the local Naval and Air Commanders to work side by side in combined operation Rooms staffed by Naval and Air Force Personnel.

The Admiralty laid down policy for the conduct of the war at Sea, supplemented by urgent requests to meet particular situations and the A.O.C.-in-C. Coastal Command deployed and operated the forces at his disposal to meet these requirements.

The Command was required to fulfil the following functions:

See Map I illustrating standard North Sea reconnaissance and Appendix I. Order of Battle Sept. 1939 Ranges and weapons

- (a) Reconnaissance in Home Waters.
- (b) Co-operation with Royal Navy in Convoy protection.
- (c) Counter offensive action in defence of seaborne trade embracing attacks on the enemy fleet, submarines or air forces operating against our trade.

Offensive operations were thus subsidiary to the primary role of reconnaissance.

(iii) The Initial War Period

Hitler's decision, in the autumn of 1939, to overwhelm Poland in a few weeks and then to stand on the defensive in the West gave to the initial phase of the second World War a perplexing air of inaction. Those neutral observers who had expected the rapid extension of the German Blitzkrieg, did not hesitate to apply to this period of the continental warfare the disrespectful but not wholly undeserved epithet of "phoney". Such a description could not, however, be applied to the war at sea, for though encounters between the opposing surface units were then as intermittent as they had been during the war of 1914-18, the naval struggle was as real and as continuous as it ever was during the later stages of the second World War. The Germans waged unrestricted submarine warfare against Allied sea-borne trade from the outset and the consequent necessity of organising ocean convoys, particularly in the Western Approaches, made heavy demands on our scanty surface and air escort forces.

Grievous losses of British, Allied and Neutral Shipping were sustained in the intensive opening phase of the German U-Boat warfare. Naval commitments in the North Sea were even heavier. For there the important coastwise convoys of our eastern seaboard had to be protected; continuous watch had to be maintained for the main units of the German fleet, and for enemy commerce raiders endeavouring to break out into the Atlantic; the long distance blockade of Germany had to be implemented by the contraband control system; minefields had to be laid in our own and enemy waters and measures had to be improvised to meet the threat of the magnetic mine, which German aircraft began to drop in our estuaries and swept channels through our minefields towards the end of November. The Royal Navy was also engaged throughout this period in its essential tasks of securing our sea communications, preventing the enemy from making raids on the east coast, escorting the British Expeditionary Force and the Advanced Air Striking Force to France, affording protection to important troop-carrying convoys from the Dominions and interrupting the enemy's seaborne trade.

In these multifarious tasks the Royal Navy was assisted by the Royal Air Force and particularly by the Coastal Command, whose primary role was that of naval co-operation. From the first day of the war and indeed from before its actual outbreak, the air forces of this Command were called upon to operate at full intensity and as the autumn deepened into winter to fly in the bleakest northern latitudes even in the severest weather. With limited aircraft resources, with inadequate anti-submarine weapons and with unsatisfactory technical equipment, the Command performed its allotted tasks with unflagging patience, vigour and resource. In many ways, the first six months of the war were for Coastal Command a period of difficulties and trial. Aircraft replacement types proved disappointing in performance; special radio-location equipment for the detection of surface vessels was slow in coming forward; experience in the technical aspects of anti-submarine warfare had to be painfully accumulated; and few opportunities were presented for the employment of the torpedo-carrying aircraft. Routine convoy escort work was monotonous and unexciting, the North Sea reconnaissance patrols were exacting and, at times, apparently ineffective, while air-attacks on the U-Boats were definitely unremunerative. These difficulties, however, were a challenge which was overcome by experiment and improvisation and by the consciousness of the importance of the work in hand.

(iv) General character of the North Sea struggle

The first phase of the Sea War was the immediate application of blockade measures against Germany and the institution of the Sea circle of constriction together with the safeguarding of our Sea lines of communication. It was a task in which British naval superiority was exerted to enforce the long-distance blockade of Germany, to prevent enemy commerce raiders from escaping into the Atlantic, and to confine the major German naval units to the Baltic. The aim of the Germans, in this theatre of operations, seems to have been to force open, if not actually to control, the northern exits of the North Sea, so as to enhance the prospects, at a later stage, of a successful counter blockade of our sea-borne commerce in the broad Atlantic. This end they partially achieved by the conquest of Norway in the spring and summer of 1940. Their objective in the

previous period was more limited and may be described as the domination of the North Sea by the use of air power. In its larger European context this North Sea struggle may be regarded as an effort on the part of the Germans to pre-occupy and pin down superior British naval forces during the lull in the continental land warfare between the conquest of Poland and the German offensive in the West.

The distinguishing feature of this early battle of the North Sea was that the enemy were able to seize and to retain the initiative. This had the result that British naval and air policy evolved as a series of responses to changing and unexpected developments and also that the Air Ministry's pre-war plans for naval co-operation proved difficult to implement. Among the circumstances which enabled the Germans to possess themselves of the initiative in the North Sea were the British government's scrupulous observance of the rules of international law in the prosecution of naval and air warfare, the Air Staff's policy of conserving the strength of our main air striking force and Germany's lack of strategical distractions and pre-occupations. In order to understand the course taken by events and in order to do justice to the higher direction of the North Sea battle by the Admiralty and the Air Ministry, it is necessary to appreciate how seriously these handicaps embarrassed their conduct of the air-sea operations⁽¹⁾

Our general policy in respect of air bombardment at the outset of the war had been agreed with the French in the course of Staff Conversations in London in April, 1939 and had been stated as follows:-

D.H.O. Branch
Folder 'Policy'
Enclos. 25

"The Allies would not initiate air action against any but purely 'military' objectives in the narrowest sense of the word and, as far as possible, would confine it to objectives on which attack would not involve loss of civilian life."

A.M. signal
X 476 dated
27th Aug. 1939

In accordance with this policy, at the end of August both the Admiralty and the Air Ministry had issued instructions to subordinate commands concerning the action which could legitimately be taken in war against shipping at sea. These instructions clearly stated that the only forms of shipping at sea which could be attacked from the air without warning were enemy warships, troopships and auxiliaries in direct attendance on the enemy fleet, provided that these targets had been previously identified beyond doubt. The only action which was to be taken against merchant ships was that the aircraft should, if possible, identify them, shadow them and report their movements to our naval units or to a shore base. Even if merchant ships should open fire with defensive armament, aircraft were ordered to refrain from retaliation and merely to take avoiding action. The procedure to be followed by aircraft in dealing with a suspected enemy surface raider was complicated and required much skill on the part of pilots in ship recognition. This was because it was a rule of international law that, in the exercise of belligerent rights at sea, aircraft, as well as warships, were only allowed to use such force as was necessary to make a merchant ship obey an order or to overcome her resistance to visit and search. Pilots were instructed to order ships which they had definite reasons for regarding as enemy raiders to steer course to a port where they could

(1) See also Section (v) of this chapter.

be examined or to the nearest of His Majesty's ships capable of dealing with them. Alternatively, such suspected vessels could be ordered to stop and await the arrival of our surface forces capable of carrying out visit and search. If these orders were disobeyed, after it was clear that the ship had understood them, bombs were to be dropped or machine guns fired ahead of the ship as warning. If this failed, the bridge was to be machine-gunned. As a final resource the aircraft was to attack the ship in some non-vital part, such as the superstructure. Small bombs only were to be used so that there would be little risk of sinking the ship if she were hit in a vital spot. In practice, it was soon discovered that these instructions were difficult to carry out, as, in the normal course, Coastal Command's reconnaissance aircraft were only fitted to carry 100 lb. or 250 lb. bombs, which would have caused much more than slight damage to the superstructure. Moreover pilots could not always be certain that ships had understood their signals to stop. It was almost impossible for pilots to know whether captains of merchant ships were purposely ignoring aircraft signals and it was always possible for merchant vessels to reply to signals made by aircraft in a way that would be unintelligible or misleading to pilots. The consequent difficulties of dealing with disguised enemy raiders may be imagined and it is certain that the scrupulous observance of these initial instructions placed a heavy burden of responsibility upon the pilots and crews of reconnaissance aircraft.⁽¹⁾

The enemy, on the other hand, paid little or no regard, in the conduct of his operations in the North Sea, to the rules of international law. He adopted the methods of unrestricted submarine warfare against our seaborne trade from the outset; his aircraft made no scruple about attacking both British and neutral merchant shipping; magnetic mines were laid from the air, as well as by submarines, in our congested estuaries and in the swept channels through our minefields.⁽²⁾ The obvious explanation of this disregard of the prescribed rules of warfare at sea was the enemy's ability to be indifferent to neutral opinion and particularly to the Allies' limited means of retaliation.

C.O.S. (39) 20
para. 24

The second obstacle which prevented the Air Ministry from pursuing an aggressive policy in the North Sea area was the need to conserve the strength of our numerically inferior air striking force. During this period it was decided to supplement the resources of Coastal Command available for the attack of fleeting naval targets at sea from the aircraft of Bomber Command. Such aircraft were, however, employed with considerable caution and were never

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- (1) The Air Ministry's instructions to all Royal Air Force Commands at home and overseas were contained in Signal X.476 dated 27 August, 1939. The difficulties in implementing the instructions were pointed out to the Air Ministry by the A.O.C.-in-C. of Coastal Command in a letter dated 6 December, 1939. These difficulties were considered at an Air Ministry conference on 30 December, 1939, under the chairmanship of Air Marshal Sir Philip Joubert de la Ferte K.C.B. Revised and clarified instructions were issued early in February, 1940. (Reference DQNC. N5, encl. 43 and IIC /36/5 encl. 30, 32 & 43A and C.C.T.1.No. 7) See also Chapter VI⁽¹⁾. ~~Section (1)(b).~~
 - (2) Much public indignation was generated in the winter of 1939 over German air attacks on our fishing trawlers plying off the East Coast. These, however, as will be explained later, were being used partly for military purposes by reporting the movements of German reconnaissance aircraft. This cannot, therefore, be counted as an example of the flouting of international law by the Germans. See Section (XI) Chapter I.

exposed to unnecessary risks, owing to the policy of conserving the strength of the air striking force for use in its main strategical role.⁽¹⁾ That policy acted as a continual brake upon our air operations in the North Sea against the German fleet, especially when it was located in strongly defended naval anchorages or at sea within reach of the enemy fighter defences. It was a policy which departed from the principles of Maritime War, and was forced on us by our grave inferiority in the Air.

The third factor which allowed Germany to assume and maintain an air-sea offensive in the North Sea was her comparative freedom at that date from strategical distractions. Her rear had been secured by her pact with the U.S.S.R. and had not been vitally threatened by Russian collaboration in the partition of Poland; in the West she was fully confident of her ability, in due course, to overcome France; and, in the immediate future, there was no likelihood of American intervention against her, whereas there was every probability that Germany would eventually be joined by Italy and Japan. She was, therefore, free to concentrate her energies, for the time being, on the naval struggle with Great Britain. The British Navy's commitments on the other hand, were world-wide in their scope and the fleet had to be dispersed owing to the uncertain situation in the Far East and to the possibility of Italy entering the war on the side of the Axis partner. In the first weeks of the war a strong fleet was needed in the Mediterranean and naval forces were also required as ocean escorts and for the protection of our troop convoys to the continent. These various calls on our naval forces left us dangerously short of surface escorts for the protection of trade and meant that the heavy units of the Home Fleet had to be concentrated in the North of Scotland, where they were fully occupied in the watch for escaping German commerce raiders and in providing cover for the armed merchant cruisers operating the contraband control between Scotland and Iceland. Nor was the situation greatly eased when the attitude of Italy and Japan clarified in November for by that time the pocket battleship Admiral Graf Spee had begun its depredations upon our commerce in the South Atlantic and the Indian Ocean. It was not until the middle of December that this danger was laid.

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Possessing the initiative, the enemy was able to plan and combine his tactical moves so as to confuse or embarrass our defences. It is noticeable, for example, that in September, 1939 having drawn most of our naval forces to the North of Scotland by threatening to force the exits of the North Sea with pocket-battleships, the Germans simultaneously launched a destructive U-Boat campaign against our shipping in the Western Approaches. Similarly, the slackening of the U-Boat offensive at the end of October was immediately followed by the magnetic mine offensive and attacks on North Sea shipping from the air. By an aggressive, but far from reckless, use of air power the enemy was able to force the Home Fleet to retire from Scapa Flow to the west coast of Scotland at the end of October, to compel the government, on several occasions, to carry out major diversions of shipping from the East coast to the West coast ports, to make the southern part of the North Sea a dangerous area for our heavy naval units and, in general, so to complicate the problem of shipping protection that it absorbed most of our attention and aircraft resources.

(1) See also Section (v) of this Chapter.

(v) Offensive action against the German Fleet

Vol. 1.
Appendix 2

Comprehensive training of Bomber Command Squadrons for striking at enemy naval forces at sea had not been carried out before the war. Certain squadrons, seven in number, had at various times in 1937 and 1938 carried out bombing trials against the target ship Centurion. Such trials were part of the Bomb versus Battleship controversy and provided no experience in searching at sea in variable weather conditions, recognition and subsequent attack on warships steaming at high speed.

B.C. S. 21871
encl. 9B.

When the requirement for a bomber strike force became more specific in May, 1939, these seven squadrons who, at various times had been employed in the Centurion bombing trials were stated as being already trained in bombing ship targets. It was, however, pointed out that regular practice and much more systematic training was necessary before such a strike could be employed with any hope of success. At a conference held on the 22nd August 1939, it was proposed to exercise two selected Bomber Command Squadrons with the Home Fleet as a start in more realistic training. Unfortunately the decision was taken too late. The outbreak of war prevented any such exercise or training.

B.C. S. 22436
encl. 24A

A.M. S. 1764
encl. 1c

Before the war, defence plans had been prepared to meet the contingency of German attack in the west and it was assumed that our air striking force would be employed initially either in a counter-attack to reduce the intensity of enemy air attack on France and Great Britain or in assisting to hold up a land advance into France. In such circumstances we should have an early and clear indication of German bombing policy and there would be no risk of our being reasonably accused of initiating indiscriminate air action. However, if Germany attacked Poland first, it was possible she would not direct air attack against France or Great Britain until we had taken some hostile action. This attitude, while having the advantage of giving us a breathing space, would nevertheless put us in a difficult and delicate position since the onus would be on us for starting the offensive by air in the west.

The general bombardment policy to which the French and ourselves had agreed to conform was stated in Paper No. C.O.S. 961 and contained a list of military objectives which we were at liberty to attack in conformity with that policy. (1) The restrictions imposed were such that most of our effective plans could not be adopted at the outset. One general consideration had to govern our action in the early stages of war. The strength of our air striking force, although much increased since August, 1938, was still seriously short of reserves both of aircraft and personnel and it could not be foreseen to what extent enemy action would curtail production of aircraft or trained personnel from our factories and schools. The casualties we might suffer in the initial stage would reduce the total resources available if and when Germany turned to the attack in the west. It would therefore be unwise to expend a high proportion of our best aircraft and crews at the very beginning, when for political reasons we were confined to a course of action which was

(1) Approved by S. of S. Foreign affairs, the Minister for co-ordination of Defence and the three Service Ministers. The plans for attacking these objectives are in Appendix II.

neither economical nor fully effective. The objectives which were set out in the Paper No. C.O.S. 961 might appear to provide a wide scope for our air striking force at the outset but for various reasons this was not so. The best course was considered to be an attack on the German Fleet at Wilhelmshaven and an attack on the inland waterway system of Germany at certain key points well away from centres of population.⁽¹⁾

Plan K (Air Ministry ref. W.A.7(a)) dealt with an attack on the German Fleet at Wilhelmshaven but the success of this plan depended on the majority of the fleet being still at Wilhelmshaven when war broke out. On 25th August only 15 units were reported to be there. Since Plan K would absorb the whole first line strength of our bomber force and an attack at less intensity might fail in its object it was not possible to attack the key points of aqueducts on the inland waterway system simultaneously.

A.M. S.1764
encls. 1A & B

In a letter by C.A.S. to S. of S. for Air dated 26th August, 1939 the problem was examined in detail. Part III of C.O.S. 939 examined various courses of action open to our air striking force to support Poland on the assumption that Germany stood entirely on the defensive in the west. These courses of action were:-

(A) To despatch the advanced Air Striking Force to France and to take all necessary preliminary measures but not to initiate offensive action except to attack enemy war-ships at sea.

A.L.B.
II/43/98A
encl. 1A.

(B) To attack purely military objectives at the outset of war in accordance with the instructions governing Naval and Air bombardments, e.g. The German Fleet and its bases: Air Force units and establishments: The German Army on the Western Front.

(C) To attack various objectives in Germany additional to purely military objectives such as oil fuel stocks and synthetic oil plants.

(D) To "take the gloves off" from the outset irrespective of any loss of life to enemy civilians.

Courses of action C, and D, were precluded unless Germany initiated indiscriminate air action. The decision was therefore between A. and B.

The following note by C.A.S. expressed the intentions in respect of the Metropolitan Bomber Force at the very outset of war and was dated 1st September. "In mind is the urgent need to relieve if possible the enemy air pressure on Poland. On examination it appears nothing we can do at present stage will have any important effect in relieving this pressure. Equally we are agreed that nothing we can do within the restrictions of our agreed bombardment policy can seriously damage Germany. It has therefore been decided to take no major action with our bomber force at the outset but as far as possible to keep it in being and conserve our resources against the time when action of the enemy will release us from our restrictions of policy. We intend to carry out widespread dropping of propaganda leaflets over Germany and

A.M. S.1764
encl. 3B

(1) The above arguments are set out in a D.O. letter from C.A.S. to C.-in-C. Bomber Command dated 23rd August, 1939., reference II/43/98A encl. 4A.

SECRET

9

A.H.B.
II/43/98A
encl. 3B

to attack German warships at sea if we can locate them. Such attack should be carried out with the minimum force required for tactical reasons."

The political decision to adopt Course A was taken, and permitted attacks to be made only on German warships at sea or in the open roadsteads.

The policy in action

Memo by
A.O.C.-in C.
C.C. 4.9.39

A.M. D.O.N.C.
O.R.B.

On 3rd September a Bomber Command Blenheim with a naval observer carried out a reconnaissance of the Wilhelmshaven area and brought back the information that the German Fleet was under weigh and leaving the port at 1414 hours. The A.O.C.-in-C. Coastal Command was not informed of this by the A.O.C.-in-C. Bomber Command until 1717 hours. After discussion with the Admiralty the former suggested that Bomber Command should direct the strike force to make for Horns Reef (halfway up Danish Coast) and then sweep South to Wilhelmshaven in order to locate the fleet. Coastal Command G.R. observers were already at the appropriate B.C. stations in order to direct the leading aircraft. The strike of 27 aircraft, 18 Hampdens and nine Wellingtons, took off at 1815 and 1825 hours to attack but the fleet was not located before darkness set in. The following day at dawn a Hudson left Leuchars to search for the German force but when 300 miles out it met cloud at sea level and at 10,000 feet ran into icing conditions which forced a return to base. Later in the day a Bomber Command Blenheim with the same naval observer repeated the Wilhelmshaven reconnaissance and came back with news of German naval units near Wilhelmshaven in the Schillig Roads and also in and near the Kiel Canal (Brunsbüttel). Accordingly 14 Wellingtons left at 1500 and 15 Blenheims at 1600 hours to attack these targets. The results were disappointing. One Wellington attacked two warships at Brunsbüttel with 4 - 500 lb. bombs but missed. Four Blenheims attacked a Pocket battleship in the Schillig Roads and claimed two hits. Another aircraft reported one battleship with five cruisers in a position about halfway between Heligoland and the Frisian Islands steering west at high speed at 1815. He dived to attack out of cloud but on receiving a red stars recognition signal he sheered off without attacking and returned to base. One Wellington and five Blenheims were missing, believed shot down by the ships' A/A armament.

A.M. D.O.N.C.
O.R.B.

On the 5th September, No. 16 Group carried out extensive searches to locate the German force reported at 1815/4 to be steering west but the search was negative.

Inadequate training and inaccurate bombing had resulted in nothing more than possible superficial damage to one ship on these occasions so that the losses suffered by the attacking aircraft were not balanced by any worth while damage to the enemy. It was manifestly impossible to train in methods necessary to inflict severe damage before the Germans had built up efficient fighter and flak defence. The axiomatic principle governing the use of air strikes at sea targets had not been recognised. Such specialised operations in fact, could not be undertaken with success in sea warfare without further long training in location of ships and in the use of offensive weapons against moving sea targets. Fortunately for us in the early stages of the war the Germans also failed to recognise this.

A.M. D.O.N.C.
O.R.B.

A.M. S.2222
encl. 4A

C.C. S.15087
encl. 2A.
Para. 4.

H.20/D.C.A.S.
A.M. S.2222
encls. 5A. 6A.

A.H.B.
II K/36/5
encl. 4

Between the 5th and 19th September reconnaissances by single aircraft, either Hudsons from Coastal Command or Blenheims from Bomber Command, were employed to report the positions of German Naval units. The reports, which were both visual and photographic, established that no concentration of enemy fleet units existed in any one harbour, anchorage or port. The enemy had taken the precaution of dispersal. The units located at sea were of not more than three major vessels screened by destroyers or other light craft. They were always located within 80 or 90 miles of Heligoland and were obviously carrying out fleet training exercises and evolutions. The time lag between initial location, and the arrival of an air strike was such that either darkness had set in or the enemy force was close to defended ports and anchorages. In most cases the absence of homing technique prevented the strike from ever locating the target. Due to these conditions the Bomber Command strike squadrons merely stood by to take off should the enemy force be clearly reported as nearing our shores or clearly attempting to break out of the North Sea. This purely defensive policy did not satisfy the A.O.C.-in-C. Coastal Command and on 21st September he pressed for at least one squadron of bomber aircraft to be placed under his orders for strike purposes.

Reconnaissances in force

To endeavour to intercept and attack these transient targets at sea it was decided to institute reconnaissances in force by aircraft of Bomber Command. This was given effect in a directif dated 28th September from D.C.A.S. to A.O.C.-in-C. Coastal Command and Bomber Command with copies to Fighter Command and the Admiralty. This stated that experience had proved that, if one reconnaissance aircraft is sent to locate and reports enemy ships at sea, some hours must elapse before it is possible for a Bomber Command striking force, acting on this report, to arrive over the target. By this time the ships may have returned to their base. A reconnaissance in force by one squadron of bombers would henceforth take its place and could attack any battleship, battlecruiser or cruiser in the area south of latitude 5500 N. and east of longitude 0600E. If no major units were sighted on the outward journey, on the way back the squadron could attack destroyers and U-boats. It further stated that it was not the intention of the Air Ministry that this reconnaissance should seek out the German Fleet in their bases or proceed within range of the A/A defences of any German defended port. Particular care was to be taken not to infringe Dutch territorial waters or to attack any neutral warships.

Suggestions by the Admiralty

These measures together with the failure of Bomber Command to strike at the enemy squadron located and shadowed by Coastal Command off Norway on 8th October⁽¹⁾ were not considered very satisfactory by the Admiralty and a meeting between the First Lord, the C.N.S., the Secretary of State for Air and the C.A.S. was held on 9th October to discuss the co-operation of the Navy and R.A.F. in the North Sea. The Admiralty put forward a number of requirements among which the chief was that, if enemy surface forces were located by aircraft or naval craft, a bomber force adequate to strike

(1) See Section (vii) under "Ineffectiveness of the North Sea Recce. Patrols."

A.M. D.O.N.C.
N.5 encl. 11.

effectively shall be able to locate and attack them. To do this the bomber force must be trained in oversea work and be able to home on to the shadowing reconnaissance aircraft. The Air Ministry explained that the policy, approved by the War Cabinet, of conserving the bomber force was an essential part of our strategy at that time. Experience had shown that German naval forces at sea were mostly in the Heligoland area and were a target of such a fleeting nature that the existing organisation was too cumbersome to ensure contact being made and a severe blow being struck. However, they agreed to provide three bomber squadrons to co-operate in strikes at German naval units provided they were not sent into enemy defended ports and bases. There was doubt as to whether such a strike could home on to signals sent by a reconnaissance aircraft which had located a suitable target so a searching force of G.R. aircraft would accompany the bombing force and G.R. and/or Naval observers would be carried in the bomber formations to facilitate navigation and ship recognition. These three squadrons would come under the direct orders of Coastal Command operationally. In the event of its being necessary for Bomber Command to commence operations against shore targets these three squadrons would immediately be returned to Bomber Command. If there was any doubt as to whether the German force would reach a defended area before the arrival of the strike the A.O.C.-in-C. Coastal Command was to consult the Air Ministry before despatching the bombing force. A directive embodying these decisions was promulgated on 12th October to the branches concerned.

A.M. D.O.N.C.
N.5 encl. 13.

Complaints as to divided Control

A.M/S.2222
encls. 27A to
30A. D.O.N.C.
O.R.B.

In spite of concern expressed by the War Cabinet that every effort must be made to inflict damage on enemy major naval units and of the resulting measures put into force to implement this requirement, the ensuing six weeks saw only a few inconclusive attacks delivered on minor enemy surface craft. No bomber strike forces succeeded in contacting enemy major units following the few instances when they were reported. (1).

C.C. S.7010
Part I
encl. 3B

In order to find a solution to this state of affairs a meeting was held at the Air Ministry on 7th December 1939 with the C.A.S. in the chair at which were present all the Command C.s-in-C and the heads of Air Ministry operational departments. The C.A.S. presented the picture of increasing enemy effort against our shipping and observed that, although at present confined to the North Sea, these operations would doubtless soon extend to waters to the south and west of the British Isles. In a theatre of operations it was normal to have a commander of all the forces engaged but at present the North Sea war was being fought by two Ministries half a mile apart and each controlling a number of independent commanders-in-chief. This meant lack of co-ordination, loss of opportunities, delays in dealing with urgent situations and complete lack of forward planning. The ideal would be to have unified control of the whole battle area either by a sea or air generalissimo with a joint staff. As an interim measure he considered the most practical scheme was for the present naval and air staffs to retain executive control but to be co-ordinated by a

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- (1) During this six weeks 5 recce, nine sweeps and two strikes were carried out by Bomber Command aircraft in the Heligoland Bight.

especially appointed joint staff working together on a high level. On the Air Ministry side it was proposed to appoint Air Marshal Sir Philip Joubert to the Air Staff with the title of "Adviser on combined operations in the North Sea." (short title - A.C.O.). As speed in operation was one of the vital aspects in the North Sea Battle the three A.O.C.s were asked to accept verbal requests made by this joint staff in advance of written instructions. After discussion, in which the A.O.C.-in-C. Coastal Command thought the independence from the Admiralty of the C-in-C. Home Fleet might prove a weakness in the organisation, this scheme was accepted by the three A.O.C.s-in-C. and the joint Admiralty/Air Ministry Staff came into being on 12th December with Sir Philip Joubert as the Air Staff and Admiral Holland as the Admiralty Staff representatives.

Little improvement, however, was effected by this arrangement on the state of divided control of operations made inevitable when one Command supplied the reconnaissance and another the striking force both being subject to superior direction by the Admiralty and the Air Ministry. Even the advantages hoped for by a joint direction of North Sea operations were not forthcoming in practice. At an Air Ministry meeting the A.C.O. explained that Admiral Holland had no executive function but after studying the day to day situation in the North Sea and discussing aspects of this with the various Admiralty Staff Divisions he recommended courses of action to the Deputy Chief of the Naval Staff. These again were examined in the Naval Staff and if adopted were put into effect by them. In consequence Admiral Holland had no direct touch with the C.-in-C. Home Fleet or the shore Naval Commands. After discussion the meeting came to the conclusion that a similar procedure should be followed by the A.C.O. in the Air Ministry.

In effect this meant that the new joint action staff, instead of being the source of executive orders to the combined air and naval forces available for operations in the North Sea, became advisors to their respective staffs on steps to be taken in forward planning. This was admirable in itself and in the opportunity it provided for high rank officers of the two Services to be present at each others staff meetings but hardly what had been originally intended as the means to strike quickly at fleeting targets. New terms of reference along these lines were drawn up and issued on 7th February 1940. (1)

Meanwhile the vexed question of the control of bomber aircraft detailed as strike forces continued to be unsolved. In a letter dated 21st December 1939 the Director of Naval Co-operation commented on a communication from the A.O.C.-in-C. Bomber Command in which the whole question was again raised of Bomber Command's participation in operations designed to locate and attack enemy ships in the North Sea. In brief the A.O.C.-in-C. Bomber Command claimed to adopt the control of what means he thought fit for the achievement of this object. D.N.O. was against this inasmuch as it scrapped all Coastal Command's special organisation and the laboriously built up liaison with the Admiralty. He

(1) Soon afterwards the functions of this joint staff became even less clear cut and in April 1940 A.M. Sir Philip Joubert was appointed as Assistant Chief of the Air Staff for Radar development [A.C.A.S.(R)] and specialised in Air/Sea Interception problems and the use of radio-location in their solution.

A.M./S.2222
Minutes 35, 36,
38 and 39

A.H.B.
II H/135
encl. 9

Ibid encl.
1 and 10

C.C. S.7010/3/2
encls. 1B and 1C

A.M. D.O.N.C.
N.5 encl. 29

C.C. S.7010/
3/2
encl. 4A

ibid.
encl. 5A

A.M. D.O.N.C.
N.5
encls. 31, 33,
34 and 35

A.M. D.O.N.C.
N.5
encl. 36

A.M. D.O.N.C.
N.5
encl. 45

considered that the Admiralty and the A.O.C.-in-C. Coastal Command were right in that the proper answer was the permanent transference of bomber squadrons to Coastal Command. The latter command would have entire operational, training and administrative control of these squadrons and could undertake far more efficiently the particular operations against fleeting targets at sea. As a nucleus he suggested two squadrons of Wellingtons and one squadron of long nosed Blenheims, thus reaping the benefit of the experience of a Command whose primary function had been the planning and execution of similar operations and which had already been working in close collaboration with the Navy.

Discussions and letters followed in an attempt to clear up the admittedly unsatisfactory state of divided control in force viz. the three bomber squadrons placed at Coastal Command's disposal with reservations. These culminated in a meeting held on 26th January, 1940 with D.C.A.S. in the chair, and it was decided that:-

- (a) No detachment of bomber squadrons to Coastal Command should be made.
- (b) The principle should be reaffirmed that a certain number of bomber squadrons should be allocated to Coastal Command for employment within the operational limits laid down by the Air Ministry.
- (c) It would be more effective if one group in Bomber Command were specialised in amphibious air war.
- (d) A.O.C.-in-C. Coastal Command would issue requests to this group Commander who would be responsible for the method of carrying out the operation. At the same time the Air Ministry would be informed.

The meeting found it impossible to provide the two extra torpedo bomber squadrons asked for by the A.O.C.-in-C. Coastal Command but agreed that the request would be reviewed in six months time.

However, general agreement on this vexed question could not be obtained and further discussions took place during February. Finally the matter was considered at a meeting held in the C.A.S.'s room on 22nd February, 1940. The question at issue was the allocation of Bomber Command Squadrons completely to Coastal Command. This was pressed for by the Admiralty and the A.O.C.-in-C. Coastal Command but was resisted by the A.O.C.-in-C. Bomber Command on the plea that it reduced the size of the Air Striking Force and would impair the efficiency of the whole bomber force. He agreed that torpedo-bomber squadrons must be under Coastal Command and thought that there was a case for control by Coastal Command of his two bomber squadrons now temporarily diverted to stations in the north east of Scotland,⁽¹⁾ but he objected to any total transference or giving up control of their training as at any moment they might be required to take their place in the Metropolitan Air Striking Force. The C.A.S. said the existing arrangement seemed to be working satisfactorily for the time being and he would consider the position further but he was not prepared to hand over two bomber squadrons in toto to Coastal Command. It was agreed that:-

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- (1) Nos. 49 and 83 Squadrons of Hampdens.

"The operational control of the two squadrons detached from No.5 Group to bases in Scotland should rest with the C.-in-C. Coastal Command and be exercised through the A.O.C. No.18 Group. Responsibility for training should rest primarily with A.O.C. No.5 Group but suggestions would be welcomed from Coastal Command for training these two squadrons for the specific role of ship reconnaissance and operations over the sea."

See Chapter
III

This compromise arrangement remained in force until the opening of the Norwegian Campaign during which no successful attacks were delivered either by the bomber reconnaissance squadrons or the Bomber Command Squadrons detailed to stand by daily as an air strike.(1) The whole scheme was dropped during the French Campaign and was not renewed subsequently due to the gradual building up of Coastal Commands' torpedo-bomber strength.

Summary

See Vol. I.
of Coastal
Command
Narrative

The root cause of this weakness in ability to strike at located sea targets seems to have been the failure during the peace years 1918 to 1939 of the Air Ministry and Admiralty to realise the potentialities of aircraft for the direct exercise of sea power. Little had been done to bring the "marine" aircraft beyond the 1918 stage. Some thought had been given to applying air action in major fleet actions but none to the attack on transient targets in the North Sea. The result was that at the outbreak of war the command which carried out reconnaissance had no strike power and the Command which had strike power was unable to follow up reconnaissance reports navigationally or with hitting accuracy. The problem of getting the strike to the located target at sea had not been tackled before the war. No training or exercises had been carried out to develop this all important technique.

This type of work was not the primary role of Bomber Command which had neither the signals, training nor equipment efficiently to attack fleeting naval targets in the North Sea nor were their squadrons any more successful when placed under the orders of Coastal Command. Unless aircraft were kept "standing by" it was not possible to rely on getting them airborne in less than three hours and when "standing by" they were not available for any other duty.(2)

The Germans in their air operations over the North Sea had a similar problem but certain factors were more favourable to them, making it possible to be much quicker off the mark than we were. They had a much larger striking force of modern long range aircraft which made it easier to keep aircraft at immediate readiness; targets were far more numerous as our naval patrols and shipping were continuously at sea; finally, the Germans had a specialised force for this work.

(vi) The North Sea reconnaissance patrols and the watch on the German commerce raiders

Before the outbreak of the war the British Naval Staff had been much concerned about the raiding potentialities of

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- (1) During the period 9.12.39 to 31.3.40 aircraft of Bomber Command carried out 21 recce. sorties, 48 sweeps and 4 strikes losing a total of 28 aircraft.
 - (2) See Bomber Command Narrative.

certain vessels of the German fleet, notably the three pocket battleships - the Deutschland, the Admiral Graf Spee and the Admiral Scheer - and the three 8" gun cruisers of the Blucher class. The primary task allotted to Coastal Command in its initial war plan was, it will be recalled, to maintain certain North Sea reconnaissance patrols between the east coast of Scotland and the south-west tip of Norway, patrols which had been designed to give early warning of any attempt by these or other naval units to escape into the Atlantic.(1)

The most vital of these patrols was the continuous blocking patrol from Montrose. This was to be flown, during daylight hours, in the form of an endless chain. From the outbreak of war till 19th September the patrol was carried out by No.269 Squadron, which was occasionally assisted by aircraft from No. 233 Squadron.(2) As both of these squadrons were equipped with Ansons, it was not possible, owing to the limited range of this type of aircraft, to extend the patrols up to the limit of Norwegian territorial waters. There, in fact, remained a gap of about fifty miles between the furthest extent of the continuous patrol and the Norwegian coast, a gap which was to be watched by a small force of five or six reconnaissance submarines. To the north of the continuous patrol, dawn parallel track searches were flown in the early days of September by London flying-boats of No. 201 Squadron based at Sullum Voe in the Shetlands and by the London and Stranraer flying-boats of Nos. 240 and 209 Squadrons based at Invergordon. No. 201 Squadron was responsible for the patrols along tracks A-D and the other two squadrons for the reconnaissance along track E-K.(3) During the same period dusk reconnaissance patrols to the south of the continuous patrol line were flown along tracks P-T by aircraft from Leuchars. The first change in this set system of patrols occurred on 11th September, when the tracks A-D were extended forty miles to the southward near the Norwegian coast. A more important change was made on 20th September, when Hudson aircraft of No. 224 Squadron based at Leuchars, took over the continuous patrol which was extended almost up to the Norwegian coastline, the patrol itself was redesigned as an endless chain patrol for four aircraft to be flown from Girdleness (near Aberdeen) on a bearing of 62 degrees to a point seven miles from Karmo (30 miles N.N.W. of Stavanger). The first aircraft on this patrol was scheduled to leave Girdleness at 0730 hours and to return from Karmo on a reciprocal track ten miles to the southward as far as a point about 140 miles from the Norwegian coast, then back to the Karmo area, before returning to the Scottish coast and base. The second, third and fourth aircraft were ordered to leave Girdleness at 0830, 1130 and 1230 hours respectively, and to fly on the same tracks as the first aircraft. The main result of this re-organisation was that the submarines, which had hitherto been filling the gap between the end of the continuous patrol and the Norwegian Coast, were no

CC/G.4/
11/9

CC/G.1/
19/9

- (1) For an explanation of these routine patrols see pre-war narrative of Coastal Command, pp.117-118.
- (2) North Sea reconnaissances had, however, been flown from 24th August onwards during the precautionary period before the actual outbreak of hostilities. See pre-war narrative, p.232.
- (3) For these tracks see the map of the Coastal Command War Plan (Operations) annexed to the pre-war narrative. Also Map I of this Volume II.

longer required for that duty and could be employed on offensive tasks.

This system of routine patrols was kept as flexible as possible and was varied from time to time, partly in order to escape detection by enemy reconnaissance patrols, partly in order to cover new areas of search as the hours of daylight diminished during the winter, partly to accord with the changes in our naval dispositions and to assist the naval watch on contraband traffic and partly to detect the movements of U-boats on passage in and out of the North Sea. (1)

The continuous patrol, for example, was ordered, at various dates in September and October, to extend, alternatively to Utsire Light (30 miles N.W. of Stavanger) to Egero (40 miles South of Stavanger), to Karmo and to Lister (60 miles S.S.E. of Stavanger). To meet anti-U/Boat requirements, new routine patrols were devised and fitted into the system.

Two new tracks A³, and B³, were introduced at the outbreak of war which were 40 miles and 20 miles respectively to the northward of the standard track A. From 21st October onwards a continuous line-ahead patrol was instituted for five aircraft between Dunnet Head and Sydero, the southern island of the Faroes, and then continuous patrol was instituted in the Fair Island Channel between the Shetlands and Orkneys, and a cross over patrol maintained due north of the Shetlands to 62° N. These patrols were to assist in the identification of neutral traffic and to detect U-Boats on passage either way round the North of Scotland. A purely anti-U-Boat patrol was standardised just to the West of the line Orkneys - Shetlands.

CC/G3/
20/10
See Map II

During November the original Coastal Command war plan, so far as the routine North Sea reconnaissance patrols were concerned, underwent radical alteration. In the first place standard daily patrols were instituted in the southern part of the North Sea designed to locate enemy forces raiding or minelaying off our coasts from the German North Sea ports. Such patrols were T.1, T.2 and B.N.I. Two further tracks U and V were added to the south of the existing track T on the Standard Reconnaissance Chart. Secondly, a system of parallel track searches was substituted for the continuous patrol from Leuchars. Two alternative parallel track reconnaissances were laid down for Leuchars aircraft. The first was carried out along tracks P.Q.R.S. and T after dawn. Aircraft were to spread out on divergent tracks from base till they reached the above tracks at a datum about half way to Norway and returned on reciprocal tracks. The second was a parallel track search made of a rectangular area off the South West Coast of Norway. These patrols were designated L1 and L2.

CC/G1/5/
11
CC/G1/
12/11
See map III illustrating the Standard Daily Patrols for 12th Nov.

C.C.
S. 5087 encl.
18A.CC/G4/13/11

In the second place a fundamental change was made at this time. On the 13th November Headquarters Coastal Command informed all groups that the destruction of U-Boats was to be rated of equal importance with the location of enemy surface craft. (2) All reconnaissance and routine

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- (1) Day to day changes in particular patrols were, of course, necessitated by weather conditions. As operational control had been decentralised to the Group headquarters such changes could be made with ease by the responsible commanders.
 - (2) See Chapter II Section (iii).

patrols were henceforth to be flown at such a height as would afford the best chance of successfully sighting enemy submarines.

CC/G3/19/11

See
Appendix III

This decision enabled patrols such as W.1, 2, 3, and 4, S.1 and 2 and O.1. and 2, to be flown almost entirely as anti-U-Boat patrols and was the underlying factor in designing L1 and L2. The effect of this new emphasis on anti-U-Boat warfare was that the proportion of anti-U-Boat Patrols carried out by the aircraft of Nos. 18 and 16 Groups was steadily increased from November onwards.

See
Map IV

By January 1940 many new standard daily anti-U-Boat patrols had been instituted following on the incessant study of U-Boat movements and habits. Very many of these patrols could be and were used equally well for reconnaissance, interception and location of enemy surface vessels.

CC/G1/
8/5/40

See Map V

During March and April other standard cross over patrols and parallel track searches in the North Sea had been introduced which re-inforced the lettered tracks to facilitate location of surface ships. After the loss of Norway to the enemy in May the general scheme of ship reconnaissance patrols was profoundly modified. Meteorological sorties were instituted in specified areas in the North Sea and off the Norwegian Coast. Reconnaissance by single aircraft in these specified areas was made a daily task depending on the Met. report and strikes were held in readiness to take off on positive reports. The old system of lettered track flying was discontinued and watch was maintained on enemy shipping movements off Norway and the increasing threat of invasion from German Ports by these area reconnaissances, standard cross over patrols and frequent sweeps into the Southern part of the North Sea together with patrols off the Dutch and Belgian Coasts.

(vii) Ineffectiveness of the North Sea Reconnaissance Patrols

Coastal
Command
Narrative
8 Oct.

On one occasion only during this period were aircraft of Coastal Command, engaged on these routine North Sea reconnaissance patrols, able to make contact with German naval forces apparently attempting to break out of the North Sea. That was on 8th October, when a single Hudson aircraft of No. 224 Squadron, flying the continuous patrol from Leuchars, sighted at 1308 hours an enemy naval force consisting of one battleship of the Scharnhorst type, one Konigsberg class cruiser and four destroyers, approximately forty miles S.S.W. of Lister. These vessels were steaming northwards off the Norwegian coast at a speed of 19 knots and were zig-zagging. The Hudson was fired on by the enemy's anti-aircraft defences and sought safety in the clouds. A Blohm and Voss seaplane twice attempted, without success, to intercept our aircraft which was able to take twenty photographs. At 1425 hours a second Hudson, of No. 233 Squadron, took off to shadow the enemy force. Precisely two hours later this aircraft sighted the fleet about forty-five miles South-West of Stavanger and shadowed it until 1725 hours, when the pilot was forced by W/T failure to return to base.(1) Shortly before he made for

- (1) Writing to the Director of Naval Co-operation at the Air Ministry a few days later, Air Marshall Bowhill claimed that the enemy naval force had been shadowed off the Norwegian coast for six hours. D.D. Ops. N.C. Branch, II/K/25/50. Enclos. 22.

home he reported that the enemy ships were steaming at 18/20 knots on a North-North-Westerly course and in position about forty miles West of Stavanger.

Acting on this information, the naval authorities were able to dispose our surface forces so as to intercept the enemy and Bomber Command were able to despatch twelve Wellington bombers to attack. These aircraft failed to locate their target owing to bad visibility and returned. No contact with this force was made by our own surface units.

In point of fact this German force consisted of the battlecruiser Gneisenau, the cruiser Koln and nine destroyers. Their orders were to operate in the area around the South Coast of Norway; to attack any light enemy forces which might be met (contact with superior enemy forces was to be strictly avoided) and to operate against merchant shipping. The other object of this sortie was to entice the British forces from their base towards the Skagerrak where they could be attacked by U/Bs and aircraft. The operation was planned to occupy two days. Early in the morning of the 8th October the German force proceeded northwards through the Heligoland Bight and up the west coast of Denmark. From 1000 hours onwards neutral vessels were examined for contraband. At 1315 a British aircraft was sighted and fired at. Shadowing aircraft were seen from time to time until 1600 hours and an air attack was expected which did not eventuate. At 1900 hours according to plan after darkness had set in the force turned about when abreast Utsire Light and at midnight entered the Skagerrak. Merchant vessels were seen in these waters but were all inside territorial limits. Reports from the German "Y" Service indicated that the British Fleet was at sea and it was thought that the other object of this sortie might be attained. By 0820 on the 9th German air reconnaissance reported three separate British forces at sea steering in the direction of Southern Norway and at 1058 hours bombers were reported to have taken off to attack them. However, only one force (the 2nd Cruiser Squadron) was attacked and no damage was inflicted. The German Squadron entered the Kattergat at 1200 and arrived at Kiel at 0100 hours on the 10th October.

During the early autumn and winter months of 1939 the Germans succeeded in passing two pocket-battleships and two battle cruisers through the North Sea into the Atlantic. One of these pocket battleships - the Admiral Graf Spee - sailed from Wilhelmshaven on 21st August, 1939. She passed the S.W. corner of Norway during daylight hours of 22nd August at an average distance of 30-40 miles off the coast, in visibility of 4 - 10 miles improving to 15 miles or better during 23rd August, when she had reached 6300N x 0200E. She then altered away to 6350N x 0900W by the 24th and then out into the Atlantic through the centre of the Iceland - Faroes Passage. She made no reports of having sighted any British Aircraft during the passage from Germany.

In fact no Coastal Command aircraft were flying. The last peacetime exercises (XKD) in co-operation with the Navy which were testing the interception of such breakout raiders came to an end on 21st August. There was an interval of two days during which all aircraft were grounded while routine examination and tests were being carried out and the regular North Sea reconnaissance patrols did not re-commence until 24th August.

Admty.
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Admty
N.I.D.
24/X84/46

CC Narrative
for August
CC/G1/23/8/39

During her cruise of approximately three months, during which she operated in the South Atlantic and Indian Ocean, she forced us to disperse our naval forces to protect the focal points of trade and to resort to the evasive routing of our merchant shipping in the threatened areas. These measures, however, were effective in reducing our maritime losses and it is significant that the Admiral Graf Spee sank only nine ships totalling 50,000 tons. In the last war the Emden had sunk sixteen ships of 71,000 tons in all, and had captured seven others, four of which she had released and three of which she had used for auxiliary purposes. The Graf Spee was brought to action on 13th December in the battle of the Plate and four days later she scuttled herself off Montevideo. Nor was the cruise of the Pocket battleship Deutschland in the North Atlantic from 24th August - 14th November a productive one - for though she sank S.S. Stonegate on 5th October and captured the U.S. ship City of Flint on 15th October, she achieved nothing further of note.

Admty.
N.I.D.
24/X84/46

The Deutschland sailed from Wilhelmshaven at 1500 hours on 24th August, 1939, steering 340° straight for Utsire Lt. off S.W. Norway which she reached at 0915 on 25th August. In a visibility of 5 miles she reported the presence of a formation of "small enemy aircraft on a course of 090°." As a precaution she adopted evasive courses to give the impression that she was steering for the Skaggerack but at 1115 hours altered away to Westward as visibility was worsening in that direction. At 1600 a course of 315° was shaped in 3 mile visibility and by 1800 hours visibility had closed to $\frac{1}{2}$ to 1 mile. Speed was increased to 22 knots on course 360° until the narrows between Shetlands and Norway had been passed in dark hours and by 0740 on 26th August thick fog was encountered making it possible to alter away to ~~the~~ N. Westward for 6800N x 0700W. which was reached at 0600 hours on 27th August. The break out was completed north of Iceland and down through the Denmark St. meeting the supply ship Westerwald in 5700N x 3700W. on 29th August. Foggy weather delayed and finally cancelled all Coastal Command routine North Sea reconnaissance on 25th and 26th August. No submarines were on patrol yet off S.W. Norway till 0500/27/8. At the end of her cruise she decided to break back the same way and after stopping a Norwegian ship in 54.06N x 37.19W on 4th November she arrived off the coast of Greenland at 0930 3th November, passed through the Denmark St. and along the latitude of 6830N till reaching 0143E longitude at 0800/11th November. Thence she altered course to the southward into the North Sea passing down the Norwegian coast with an offing of about 50 miles during the night of 13th/14th and rounding the S.W. corner of Norway during forenoon of 14th November. She met her destroyer escort South of Kristiansand at 1500/14 and proceeded round the Skaw into the Kattegat and thence to Kiel.

The Deutschland made no reports of sighting British aircraft on this passage back to Germany.

The only chance Coastal Command had of sighting her was from dawn to 1500 hours on 14th November, but no reconnaissances were carried out off S.W. Norway due to weather conditions.

Reasons for the ineffectiveness of the air patrols(a) Limitations of the Anson patrols down to 20th September, 1939.

The reasons for the comparative ineffectiveness of Coastal Command's system of routine North Sea reconnaissance patrols at this period are not far to seek. Some of them have already been indicated. Down to 20th September, when the Hudsons took over the continuous line patrol, the air reconnaissances had one obvious weakness. This was that the last sixty miles between the end of the Anson patrol line and the Norwegian coast had to be watched by an inadequate force of five to six submarines. As these submarines, for the most part, carried out diving patrols, their range of vision was restricted. In other words, in the first few weeks of the war the reconnaissance patrols were weakest precisely at the point where they needed to be strongest, i.e. immediately off the South-West Norwegian coast. There is evidence which suggests that the Germans had, in fact, discovered our continuous patrol line as early as 17th September. On that date one of our aircraft reported the presence, at the end of the continuous patrol line, of two small sailing boats, fitted with D/F loops in the cabins and moored to buoys. They were conspicuously marked by flags and were located 70 miles south-west of Obvestad. These boats were reported again in the same area at 1000 and 1720 hours on the 18th and at 0930 hours on the 19th. The Air Officer Commanding-in-Chief of Coastal Command naturally suspected that the sailing boats were engaged in reporting the movements of our reconnaissance aircraft. He, therefore, asked the Admiralty to put a stop to their activities, and during the night of the 18th the submarine Starfish was diverted to investigate. H.M. Submarine Starfish reported the presence of four of these fishing vessels in this position, and noted their registration marks and numbers. They were considered to be genuine Swedish fishing craft engaged at their trade. However, it is a fact that, on the 19th September, two separate attacks were made by German aircraft on an Anson flying the continuous patrol and on a Hudson which was engaged on a new type of cross-over patrol from Leuchars. After leaving Montrose the Anson, which belonged to No.269 Squadron, had encountered a Dornier 18 flying-boat about 150 miles East of Buchanness. The pilot was about to open fire on the rear of the flying-boat, when he was killed instantly by a bullet which came through the windscreen. The navigator took over the controls and brought the aircraft back one hundred and forty miles to base.(1) The Hudson, of No.124 Squadron, had met an enemy floatplane about 27 miles off the Lister Light. The combat was indecisive, as the Hudson was prevented from pressing home its attack owing to the lack of a rear gun turret, while the enemy floatplane eventually employed its superior speed and manoeuvrability to seek refuge in cloud.(2)

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- (1) The navigator was Sergeant W.E. Willits, who was decorated by H.M. King George VI with the Distinguished Flying Medal on 2nd November, 1939. No. 269 Squadron Operational Record Book. The Pilot of the aircraft was Pilot Officer D.S.M. Burrell - one of the first officers of Coastal Command to lose his life on active operations.
 - (2) As a result of these combats offensive patrols by three turreted Hudsons were flown on the 20th and 21st from Leuchars on the tracks of the continuous patrol as far as the Norwegian coast. These were the first occasions on which flights of three Hudsons in company were despatched with the definite purpose of destroying any hostile aircraft sighted. No further offensive patrols of this type were flown during September, as the turreted Hudsons were more urgently required for long-range reconnaissance flights into the strongly defended Heligoland Bight.

(b) The problem of enemy air opposition

Another initial difficulty was that Coastal Command possessed no long-range fighter-reconnaissance types capable of effectively maintaining the North Sea reconnaissance patrols in the face of stiff enemy air opposition. This requirement had not been foreseen when the pre-war naval co-operation plans had been prepared and the ordinary general reconnaissance aircraft soon revealed their defects from the point of view of long-distance air fighting over the sea. The Anson was reliable, easy to land by day or night and had good navigational qualities. Its range, however, was restricted and its offensive armament was light, consisting of one gun forward and one gun aft. The Hudson I, although having sufficient range for its North Sea commitments, was, unless fitted with a rear-gun turret, insufficiently armed. In air combat it lacked manoeuvrability and was initially regarded by aircrews with some suspicion as an aircraft which was difficult to fly. The enemy aircraft which were encountered on patrol over the North Sea were mainly Blohm and Voss floatplanes, Dornier 17 and 18 flying boats and later Heinkel III K's and Ju.88's.(1) With the exception of the Dornier flying boats, all these types proved more manoeuvrable and, in general, faster than our naval co-operation aircraft.

The inevitable result was that the air combats over the North Sea tended, at this period, to be indecisive. Everything possible was done to improve the air fighting qualities of our available types and energetic measures were taken to counter the enemy air opposition, even at the expense of the routine air patrols.(2) As rear turrets became available they were fitted to the Hudsons, which were then formed into "Battle Flights" within squadrons. These units, which were primarily intended for use on long-range reconnaissance duties in the Heligoland Bight and the Skaggeirak, were frequently despatched on offensive missions with the express object of destroying enemy aircraft. The first Hudson Battle Flight to operate was that of No. 224 Squadron, which on 20 and 21 September carried out offensive patrols from Leuchars along the line of the old continuous patrol. On 18 and 20 October a second Battle Flight - that of No. 220 Squadron - was employed, for the first time, from Thornaby. No. 233 Squadron Battle Flight became operational at Leuchars on 21 December.

In the middle of October the Air Officer Commanding-in-Chief of Coastal Command was also looking forward to obtaining a flight of six long-nosed Blenheims Mark IV aircraft.(3) This expectation was based on the decision taken by the Chief of Air Staff on 17 October that measures should be taken to accelerate the formation of the four trade protection fighter squadrons which had been approved

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- (1) The first time a Ju. 88 was encountered and engaged by a coastal Command aircraft was on 22 December - by a Hudson of No.220 Squadron on a parallel-track search from Thornaby.
 - (2) On 9 October headquarters of the Command gave instructions to 18 Group that every opportunity for successful attack on enemy aircraft was to be exploited and that gaps in air reconnaissances resulting from these orders were to be made good where possible (CC/G1/9/10).
 - (3) Bowhill to A.O.C. 18 Group 17 Oct. 1939 H.Q. Coastal Command File S.15087 (12A).

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in August 1939. (1) The six aircraft which arrived at Leuchars on 29 October to form the further flight of No. 233 Squadron were not, however, long-nosed but short-nosed Blenheim Is and it was not until 3rd December that they were employed, for the first time, from Birchan Newton.

F.C. S.59289

These various steps taken to counter enemy air opposition to our anti-raider patrols were thus in the nature of palliatives and did not, in any sense, remedy the lack of suitable long-range fighter reconnaissance aircraft. Even when the four trade protection fighter squadrons - Nos. 235, 236, 248 and 254 - were ultimately transferred in February 1940, it was several months later before they were all equipped with Blenheim Mark IV aircraft and only No. 254 squadron was operational in the Norwegian campaign. Two squadrons were handed back to Fighter Command on 20th May for the campaign in France and it was not till 5th July that they had returned to Coastal Command.

(c) The withdrawal of the Home Fleet from Scapa Flow,
28 October 1939 - March 1940

A.M. S.3511

A third and very important cause of the ineffectiveness of our measures to deal with the German commerce raiders was the withdrawal of the Home Fleet from Scapa Flow to bases on the West coast of Scotland between the end of October and the beginning of March, 1940. This hard decision was forced upon the Admiralty by the enemy's air attacks on our naval bases at Rosyth and Scapa on 16 and 17 October (2) and by Fighter Command's inability to provide adequate air protection for those anchorages until the spring of 1940. The effect of this withdrawal upon our system of air reconnaissances over the North Sea was pointed out by the Air Officer-Commanding-in-Chief in a review of Coastal Command's operations at the end of the year. By that time experience had shown that a German raider endeavouring to break out into the North Sea would need to be intercepted insufficient time after leaving Germany for her to be brought to action by the British Fleet shortly after she had crossed latitude 61°N. It was, therefore, essential in planning the system of air patrols in the North Sea to take into account the initial positions of the British Fleet and of the German raiders and their relative speeds. The parallel of 61° North was approximately sixteen hour's steaming (at 28 knots) from Heligoland and thirteen hour's steaming from Skaw through the Skaggerak. From the new fleet base on the West coast the north point of the Shetlands was thirteen hour's steaming (at a speed of 22 knots). In summer the above dispositions would not materially affect the North Sea air reconnaissance patrols, since the night

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- (1) S.2100 (Enclos. 19A). For an account of the early history of these four trade protection squadrons see A.H.B. preliminary narrative of Fighter Command and Section (X) of this chapter. (Page 33).
 - (2) In the air raid on the Firth of Forth on 16th October, H.M.S. Southampton, was hit by one bomb, which pierced the upper deck and passed out through the ship's side before exploding. H.M.S. Edinburgh and Mohawk were also hit by splinters and sustained slight damage. In the Scapa raid H.M.S. Iron Duke which was being used as a depot ship, was severely damaged by two near misses, Bombing Committee Paper No. 29. Naval anxiety about the continued use of Scapa had also been aroused by the sinking of H.M.S. Royal Oak by a U-boat which had succeeded in penetrating the boom defenses on the night of 13th/14th October.

steaming circle from the parallel of 61° North was so reduced that the outgoing raider would be liable to interception (provided visibility was good and provided the Germans did not make use of Norwegian territorial waters) throughout the daylight passage northwards. In winter, however, the withdrawal of the British fleet to the West coast of Scotland meant that the dusk air searches in the North Sea would need to be extended as far south as Horn's Reef and the Skaw, since the night steaming circle from latitude 61° North would be so much greater. The only consolation from the Command's point of view was that if an outgoing German raider succeeded in evading its air patrols in the North Sea there would be a second chance of interception since, during the winter months, it was thought that ice would prevent the enemy from using the Denmark Strait between Iceland and Greenland and would force him to attempt to escape between the Faroes and Iceland.

At the end of October the re-disposition of the main Home Fleet thus raised the whole question whether our routine air reconnaissances over the North Sea were of any further use, since it appeared doubtful whether our naval forces would be in a position to intercept and engage enemy raiders, even if they were located from the air. Sir Frederick Bowhill decided, however, to continue the patrols partly because early intelligence of a break-out would be still valuable as a guide to subsequent fleet dispositions, even though interception might be delayed and partly because there would always be the chance that enemy ships in the North Sea might lay themselves open to attack by the squadrons of Bomber Command which had been placed at his disposal. (1) Events were to prove that the second of these calculations was invalid, but the first was sound enough and, by itself, of sufficient importance to justify the decision.

- (d) The enemy's use of bad weather. Coastal Command and the cruise of the Scharnhorst and Gneisenau (21-27 November, 1939)

Another reason for the disappointing results of our air reconnaissance patrols was that attempts to break out of the North Sea by enemy ships were only made under cover of bad weather and in poor visibility. Our failure to locate the Scharnhorst and Gneisenau during their cruise of 6 days which included the sinking of Rawalpindi in the Atlantic on 23 November may, for example, be attributed almost wholly to this cause.

The two battle cruisers sailed in company from Wilhelmshaven at 1400 hours on 21st November, 1939. The following is an extract from the operational Orders of the German flag officer in charge (Vize Admiral Marschall) who was flying his flag in Gneisenau.

"Intentions. In accordance with the directive of the C.-in-C. Navy on the threatening of the North Atlantic shipping routes and the consequent diversion and concentration of enemy forces attainable by it, I intend to break through into the area Iceland - Faroes. From this position to advance towards the suspected enemy patrol lines, to feint a break through with the

Admty. N.I.D.
24/X.11a/46

(1) Minute to S.A.S.O. 26 Oct. 1939. H.Q. Coastal Command File S.15,087 (Enclosure 15A).

SECRET

24

battle cruisers into the North Atlantic by steering a westerly course, and finally by steering off to the North and by use of the long nights, to make for home waters again at high speed."

These German units passed about 30 miles off Egersund (S.W. corner of Norway) at 0430/22 November steering 330° and by daylight were about abreast of the Shetlands though still only some 50 miles off the Norwegian Coast. Throughout the daylight hours the same course was made good and by dusk they had reached a position only 55 miles to the N.E. of Muckle Flugga (the most northerly point of the Shetlands).

During this day an attack was made by six enemy aircraft on our flying boat anchorages in Garth Voe and off Lerwick in the Shetlands. No damage was inflicted in Garth Voe where the flying boat depot ship S.S. Manela was lying but one London flying boat was set on fire off Lerwick.

At this period (21st - 23rd November) H.M.S. Glasgow and two destroyers were patrolling close off the Norwegian Coast in Lat. 62°N. This was of course just over 100 miles to the north eastward of the German unit's track. These H.M. Ships were patrolling the area off Stadtlandet in order to intercept south bound German shipping should it venture outside territorial waters when rounding Stadtlandet Peninsula. Air patrols in co-operation had been carried out on 21st but were cancelled on account of adverse weather on 22nd November. Had this not occurred these aircraft might well have sighted the German ships when flying out to or on return from the Stadtlandet area. Bad weather conditions caused the cancellation of all other Standard North Sea Reconnaissance Patrols - what little flying was possible by No. 18 Group aircraft was carried out over East Coast convoys and well to the west of the Orkneys and Shetlands.

During the night of the 22nd/23rd November the German battle-cruisers altered away to 290° passing 15-20 miles north of the Faroes and by daylight 23rd November were 40 miles northwest of the Faroes steering to the West and West North West. Being beyond all the Standard Patrols carried out by Coastal Command nothing was seen of them until at 1545/23 the armed merchant cruiser Rawalpindi reported by wireless a battle cruiser four miles away on a Southeasterly course and gave her position as 634°N x 1129°W. Shortly afterwards she wirelessed that she was being chased by the battle-cruiser which she identified as the Deutschland. Almost immediately after this signal her W/T was put out of action and she was unable to correct the report to read Scharnhorst.

The C.-in-C. Home Fleet received the first of these messages at 1551 and the second shortly after. The messages were passed to the Admiralty and were received in the operations room of headquarters Coastal Command at 1605 hours. Owing to Rawalpindi's inability to correct the identification signal the enemy unit was referred to as the Deutschland throughout the subsequent naval and air operations.

Coastal Command was requested by the Admiralty to provide full air co-operation as the situation developed and to despatch its long-distance flying boats as soon as possible. Meanwhile orders had been given for the Home Fleet to raise steam and to sail with all despatch.

G1 RO/G2/
20/11
CC/G2/
22/11

H.M.S. Newcastle and H.M.S. Delhi, who were in the vicinity were instructed to close the Rawalpindi's position and to shadow the enemy unit while the other two ships on the Northern Patrol, H.M. ships Calypso and Ceres were ordered to act as a striking force for night attack. At 1746 the Newcastle broadcast a report of gun flashes and a few minutes later signalled that a ship was on fire. This was the Rawalpindi, which soon afterwards sank. At 1815 the Newcastle sighted a darkened ship, thought from her outline to be the enemy ship, about 13,000 yards away, and two minutes later saw another ship close by. This was in fact the Gneisenau. A signal reporting these two vessels was wirelessly by the Newcastle at 1819 hours. The signal reported that the position of the enemy was approximately 64°N x 12°W. Shortly afterwards the Newcastle lost sight of her quarry in a sudden heavy rainstorm and, although both the Newcastle and Delhi continued to search independently until dawn on the 24th, contact was not regained. In point of fact the two German battle cruisers were retiring almost due East at 25 knots. The decision to return on the night of the 23rd November appears to have been taken owing to the failure of being able to carry out the planned feint to the West, due to the rapid approach of darkness and the time lost in picking up survivors. It was realised that British Sea and Air reconnaissance forces would be immediately concentrated to the eastward between Norway and the Shetlands because it was considered that their easterly course had been detected by the shadowing men of war last seen at 1934 hours, but whose identity had not been established by the German units. This retirement to the east was changed to the north east from midnight/23rd and by midnight/24th the ships were in the vicinity of 654°N x 060°E. The Sunderland search on the afternoon of the 24th November besides being hampered by bad weather was much too far to the southward.

Admty. N.I.D.
24/X.11a/46

CC/G3/23/11

At 1852 hours on the 23rd, Headquarters Coastal Command ordered No. 18 Group to despatch its one PBY flying boat to carry out a search for the enemy from the Faeroes as soon as possible. The same evening a scheme of patrols designed to intercept the enemy on the following day was agreed between the Command and the Headquarters of No. 18 Group, and instructions were issued to No. 15 Group to reinforce Invergordon and Oban by despatching three Sunderlands from Pembroke Dock. Bomber Command ordered two squadrons of Hampdens and two squadrons of Witleys to fly to Wick and Kinloss respectively to be used, under the operational control of Coastal Command, against the enemy on the 24th. Four other bomber squadrons were also ordered to stand by at one hour's notice from 0630 hours on the 24th, so as to be ready to attack any enemy naval forces located in the North Sea.

Coastal Command's order for the despatch of the PBY (Catalina) was received at Invergordon at 1917 hours on the 23rd and the aircraft took off two and a half hours later to search to the north east of the enemy's reported position at 1819 hours. Good weather was experienced till the Faeroes were reached but at 0221 hours on the 24th heavy cloud formations were encountered and also ice, which caused the aircraft's instruments to fail. Soon after, the wireless aerial was carried away and at 0250 hours the search was abandoned and a course set for the Faeroes. By climbing to 2000 feet above the clouds

the pilot was able to make his way back to Aberdeen, where he landed safely at dawn after a hazardous and unfortunately fruitless flight.

On the 24th the weather improved but visibility was restricted by squally showers, and conditions worsened in the afternoon and evening. Between dawn and 1615 hours five Ansons of No. 269 Squadron flew continuous patrols from Wick to the Faeroes, while Hudsons of Nos. 224 and 223 Squadrons, based at Leuchars, searched between there and Selbjorn Fjord on the Norwegian coast. Four London flying boats of Nos. 240 and 201 Squadrons also operated between the Shetlands and Norway during the same period. Three Sunderlands, which had been flown to Invergordon from Pembroke Dock in accordance with instructions, reinforced these patrols. Two of these aircraft, which left Invergordon in the early afternoon, received orders to search for the enemy from datums about 230 miles North of the Shetlands (64°N 1°W) and about 120 miles further east (64°N 2°30'E). From those positions the aircraft were instructed to fly due east for a hundred miles, gradually creeping southwards and to remain on patrol until 2100 hours. The weather, however, sharply deteriorated and shortly before the flying boats reached 61°N a front was encountered which extended to the Norwegian coast. One of the Sunderlands turned back; the other aircraft persisted in its attempts to get through the front but was eventually forced to fly eastward to the Norwegian coast. On the return journey the weather still continued to be very bad and the Sunderland landed back at its base only half an hour before midnight. On all of these patrols the aircrews sighted only our own or neutral vessels.

On the afternoon of the 24th it was considered by the Admiralty that the enemy ships, having run into our Northern Patrol, had probably retired to the North East of Iceland to wait for the hue and cry to die down before making an attempt to get back to Germany. Accordingly a cruiser patrol line was established at 1600 hours on the 24th between the Shetlands and Utvoer Light on the Norwegian coast with a striking force of destroyers eighty miles to the south. On the following day both these patrol lines were moved thirty miles to the north where they remained until the 29th.

Early in this period of bad weather the German Battle cruisers had succeeded in returning to Wilhelmshaven undetected. They had remained from 1700/24th till 1100/25th November in the area around 65°30'N x 05°00'E and then shaped a Southerly course to re-enter the North Sea. This course was held until 1744/25th but the visibility was considered too good in this position (62°55'N x 03°10'E) to attempt the break-back that night, and a northerly course was steered until midnight/25th. The attempt was then resumed and by daylight on 26th November they had reached the latitude of Stadtlandet at a distance of 20 miles from the Norwegian Coast. Weather conditions were bad with a visibility varying between 1 - 6 miles. At 1100 a large merchant vessel or British cruiser was sighted in bad visibility in 60°35'N and avoiding action taken until 1200 hours when the southerly course was resumed. The identity of this vessel was not established by the Germans, and no gun action was opened as it was apparent that they had not been sighted. It seems likely that this was one of the cruisers or destroyers on the patrol line established between the Shetlands and Norwegian Coast from 1600/24th November. Bad weather continued and the two battle cruisers finally anchored in

CC/G4/23/11

CC/G1/24/11

Wilhelmshaven Roads at 1300 hours on 27th November. The only occasions on which these two ships were within the scope of the searches ordered by Coastal Command were periods of very bad weather in which it was impossible to carry out these searches.

On the 25th November the weather further deteriorated owing to an intense depression to the south west of Iceland. General rain and low cloud spread to all parts of the northern area during the day and in the North West wind blew at gale force. On the 26th conditions were even worse, gale winds prevailing in most areas with squally showers spreading from the west. It is hardly surprising, therefore, that air operations on the 25th were severely curtailed and that on the following vital day they were, for the most part, cancelled. On the 26th the aircrews of Sunderlands at Pembroke Dock, which had been ordered to undertake a reconnaissance of a large area to the west of Ireland, could not even get into their flying boats. It was not until the 28th that this reconnaissance could be carried out by three Sunderlands of No. 228 Squadron. Even then the aircraft had to contend with continuous rain and 10/10ths cloud. Gale conditions in the north subsided on the 27th and Sunderland patrols were flown to the north of the Shetlands but these operations were precluded on the next day by strong winds and rain.

On the 29th November flying was impossible. On the 30th the only air operation was a cross-over patrol by a single Sunderland from Invergordon which searched a large area some 200 miles north of the Shetlands. This flight was made between 0815 and 1052 hours, but conditions were so bad when the aircraft landed back at Sullom Voe in a 60 knot gale that the crew could not be taken off until ten and a half hours later. This was the last of the special searches undertaken by Coastal Command for the enemy naval forces reported on the 23rd November. (1) No opportunity had thus been presented for employing the Bomber Command detachments at Wick and Kinloss and these units therefore returned to their home bases between 2 and 6 December. The moral of this disappointing episode in the North Sea battle was that the detection of enemy naval units by night or in poor visibility would remain merely a remote possibility until our aircraft were equipped with A.S.V. At that time they had none.

(e) The enemy's use of Norwegian inshore waters

Finally, there can be no doubt that one of the main reasons why the enemy was able at later periods to pass his war ships through and out of the North Sea was his use of

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- (1) An outstanding search carried out by a Sunderland of No. 210 Squadron from Invergordon on 3rd December was made technically in order to locate an enemy unit believed to be the Deutschland, but the Admiralty subsequently decided that the vessel in question, which had been reported by D/F, was in fact a submarine. The flying boat had taken off at 0440 hours on the 3rd and had only returned to base at 1645 hours - well after sunset. For over ten hours the aircraft had been out of sight of land but it made a perfect land fall on the return flight. Its crew had accomplished a search of over 1,200 miles of ocean to the south of Iceland and well deserved the special message of congratulation sent to them by their Air Officer Commanding-in-Chief. Invergordon Station Record Book.

Norwegian inshore waters. The Norwegian coastline is one of the longest and most indented in the world and thus provided a kind of "Covered way", as Mr. Churchill later described it, for the passage of German ships northwards. The Norwegian fjords were, for the most part, surrounded by high hills and were sufficiently deep for big ships to hide in them. Hence it was easy at this period for German merchant vessels to make their way along the Norwegian coastline during the hours of darkness, emerging from one fjord as night fell and slipping into another just before day-break.⁽¹⁾ When it is remembered that our aircraft had received strict injunctions to respect neutral waters, the difficulty of locating from the air enemy merchant ships moving continuously and, in most cases, under cover of the darkness or bad weather, may be imagined.

It is probable that this problem could only have been overcome if destroyer patrols could have been maintained continuously near the two points where the configuration of the coastline might induce enemy ships to come outside neutral waters. (These points were at Stadtlandet (62°N) and Jaederens (58°45'N).) However, it must be realised that at no place does this configuration of the Norwegian Coast line oblige ships to leave neutral waters. This procedure of stationing our warships off suitable points where enemy might come outside the three mile limit was adopted during the efforts to intercept the "City of Flint" between 22nd October and 4th November, 1939.

It was not realised to the full until after the war started that ocean going ships could make a passage from the North Cape to Stadesnes keeping behind rocky islands the whole way except when rounding the peninsula of Stadtlandet. This made the location of enemy traffic a matter of extreme difficulty for even close air searches. This inland sea passage is called "Indreled".

(viii) The U.S.S. "City of Flint" and the German Auxiliary "Altmark"

There were two other cases of reconnaissance operations carried out in order to locate and intercept enemy ships breaking into the North Sea during this period. These were apart from searches in the North Atlantic by Sunderlands and the one P.B.Y. Flying Boat to locate four German merchant vessels which escaped from Vigo on 18th October and again on 12th February when a further six vessels put to sea from Vigo in an endeavour to make the Murmansk coast via Denmark Straits.

The two cases in question were the U.S.S. City of Flint and the Altmark.

In the former case the P.B.S. Deutschland had seized this U.S. ship on 15th October in 45.09N x 4322W and sent her under a prize crew to Murmansk with the British crew of S.S. Stonegate on board as prisoners. The City of Flint had reached Murmansk via Greenland and Denmark Straits and had left Murmansk calling at Tromso en route for Germany.

(1) In point of fact, during the period of the War before the capture of Norway, no German warship ever made use of neutral territorial waters in order to break out or into the North Sea. The first auxiliary raider did not commence operations until the Spring of 1940.
Ref. Admty. N.I.D.

The Norwegian authorities at Tromso had intervened and forced the landing of the British crew. The ship was to proceed to Bergen under escort of a Norwegian warship but the actual date of sailing was vague, neither was it certain that the ships would keep in territorial waters.

Intensive flying took place along the top three tracks of the standard reconnaissance plan and these aircraft ~~scoured~~ ~~searched~~ the coast of Norway to the North and Southwards before returning on reciprocal tracks from 23rd October onwards. In addition Sunderlands searched coastwise from Obrestad to Lat 60°N.

By 29th October after many rumours and much guessing it transpired that the City of Flint had not left Murmansk until 28th October. Searches were re-organised and on 30th October five aircraft flew tracks B1 to D on a course of 080° to the Norwegian Coast thence coastwise 40 miles returning on reciprocal course. The C.L.P. was flown from Girdleness to Karmo and dawn patrols to Lister Light. More definite news was received during the day that City of Flint had arrived in Tromso at 1300 hours and sailed at 1700 hours under the German flag accompanied by a Norwegian destroyer. The German M/V Schwabe also sailed southbound. Six destroyers were sent to patrol off Stadtlandet between latitudes 61°N and 62°15'N. An additional diverging sweep by five aircraft was laid on from Muckle Flugga between bearings of 015° and 097° to a depth of 280 miles for 31st October.

The same air effort was maintained during 1st November although the destroyers had to return to Sullom Voe to refuel. On their resumption of watch they patrolled the coast line further to the North East in vicinity of 6430N x 0830E. By 2nd November, two cruisers had joined the six destroyers as support. At 1715 a signal was received that aircraft search by a London flying boat had located a German merchant vessel at 1245 hours with the name Kiel on her stern in 6149N x 0512E. Two other M/Vs. were astern. This aircraft informed the cruisers. At 1730 hours the Sunderland search(1) reported the City of Flint and other merchant vessels southbound in 6138N x 0500E. Acting on this information the two cruisers and six destroyers proceeded to intercept and at 2356/2 hours signalled that the City of Flint was in sight in 6054N x 0440E accompanied by a warship, making south in territorial waters. The Norwegian destroyer warned our cruisers off and shadowing was abandoned.

However, Coastal Command's searches were kept up during 3rd and 4th November at full intensity at Admiralty request in order to check the whereabouts of the other German merchant vessels. They were not seen again as they were using the inner channel which lies behind islands and therefore many miles inside territorial waters. The City of Flint arrived at Bergen at 1150 hours 4th November where the Norwegian authorities interned the German prize crew and set the ship free.

In the latter case the Altmark had been a supply ship to the P.B.S. Graf Spee and acted as prison ship for the crews of ships sunk by this raider. After the Graf Spee's destruction all trace of the Altmark had been lost, though she was believed to be in Murmansk. On 14th February an

(1) Sunderland N.9025 of No.228 Squadron.

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Agent's report stated that she might be passing Bergen soon as a large German tanker had left Tromso at 1215 hours on 12th February southbound.

Accordingly the two top tracks A' and B', of the standard reconnaissance plan were ordered to search the Norwegian Coast between 604ON and 624ON during the 15th. Further agent's reports stated that Altmark had passed Bergen using the Inner Leads (Indreled) at 1200/15.

The Admiralty attached the utmost importance to intercepting this ship and requested the Command to do everything possible to locate and report her. One cruiser and five destroyers were sent over to patrol off Jederens Reef at the S.W. corner of Norway.

On 16th February two Hudsons proceeded before dawn to locate our destroyers and to signal their position in cypher to the flight of Battle Hudsons who would take up permanent air escort. The first two Hudsons were then to carry on reconnaissance off ^{the} Norwegian Coast to the northwards, and two other Hudsons were to arrive over Horns Reef at dawn, sweep up Danish Coast and carry out reconnaissance of the Southern Coasts of Norway. Reliefs of Hudsons were arranged to fly off at intervals. All aircraft were told of the importance attached to this location and that they were not to be too particular about infringing territorial waters.

At 1255 hours a Hudson of the Battle Flight sighted the Altmark in 5817N x 0605E C⁰140° 8 knots. (1) Another Hudson was immediately despatched from Leuchars to continue shadowing and report. A further signal was received of the sighting of another tanker at 1252 in 5828N x 0547E course coast-wise at six knots. The destroyers were directed to the Altmark sighting position and the ship took refuge in Josing Fjord (5820N x 0618E). H.M.S. Cossack (Captain Vian) went in after her supported by the remainder of the destroyers leaving the cruiser Arethusa outside. At 1600 hours the other tanker which had been reported came on the scene and proved to be the German Baldur of 6000 tons. She promptly scuttled herself, the crew being taken prisoners by one of the destroyers.

Meanwhile the Altmark resisted capture and attempted to ram the Cossack. In the ensuing action both ships were damaged and several casualties were sustained by the German crew with one British casualty. The British prisoners were released and by 0200/17 Cossack reported the whole force proceeding to England with 283 rescued officers and crews leaving the Altmark grounded in Josing Fjord. A reinforcing naval force of three cruisers and two destroyers was cancelled. However, in view of the possibility of enemy retaliation, Battle Flights of Hudsons swept the North Sea to the Southward and escorted the returning force while 72 Bomber Command aircraft stood by in case of German naval activity. Our standing patrols were curtailed so as to have every available aircraft in reserve. There was no counter action and the special searches and patrols were discontinued on 18th February. Daily Photographic reconnaissance was maintained by Hudsons over Josing Fjord until 24th February after which infrequent sorties were flown to confirm the Altmark's continued presence in this fjord. She was reported by H.M. Submarine Unity at 1010/6th March as being under way off Lister escorted by Norwegian torpedo boats but in territorial waters. Two Hudsons were instructed to

(1) The Battle Flight consisted of K, M and V/220 Sqdn. The first sighting was SECRET made by K/220.

shadow her but not to bomb unless she came out of neutral waters. However these aircraft did not locate her and she was finally escorted by the Norwegian vessels into Sandefjord on 8th March for repairs.

Summary

Hard experience had thus demonstrated that the pre-war expectations of the Joint Staffs as to the assistance which air reconnaissance patrols between Scotland and Norway might provide in stopping the exits from the North Sea were over-sanguine. In view of the inadequate performance of the types of aircraft supplied to Coastal Command for this purpose, it is clear that too little attention had been paid before the war to the difficulties of implementing the initial Coastal Command war plan in the winter months or in the face of enemy air opposition, which indeed had hardly been allowed for. The enemy's use of Norwegian territorial waters had been foreseen but it had not been regarded as a serious impediment to our plans neither had it been realised that the enemy would plan his raids and returns exclusively for periods of bad weather and poor visibility. Nor had it been anticipated that the enemy would be able, by his use of air-power, virtually to dictate our fleet dispositions - although the Air Staff had given the Admiralty forewarnings on this question as far back as 1936.

Apart from the reasons already given for the ineffectualness of the patrols designed to frustrate break-outs and break-ins there was one underlying factor which was impossible to guard against. In the dark hours, even under average moonlight conditions, it was useless to fly patrols with any hope of intercepting single ships. A ship averaging 22-25 knots could, between October and February, traverse the whole distance from the entrance to the Skaggerack as far as 64°N during darkness, or vice versa thus avoiding altogether the risk of detection from the air. Some form of airborne radio-location was the only answer to this problem. Research along this line under the name of A.S.V. (Air to surface vessel) had been pursued in parallel with other forms of radio-location. During the latter part of 1939 the first sets were undergoing final tests and by January, 1940 14 Hudsons and one Sunderland were fitted with A.S.V. Mk.I but it was not till the end of April 1940 that the three Hudson squadrons in the North Sea were fully equipped. A.S.V. Mk.I was subject to many limitations but under good conditions gave ranges of about 15 miles for single ships, 20 miles for convoys of ships and 40 miles for landfalls where the land was precipitous. It was of little or no use against surfaced submarines. Like all other specialised equipment an expert operator could obtain good results out of all proportion to the average rapidly trained Service personnel. A.S.V. was destined much later to play a large part in the Air's success against the U-boats.

Nevertheless, the maintenance of the North Sea reconnaissance patrols throughout one of the severest winters of recent times undoubtedly acted as a useful limitation to the activities of the German Commerce raiders in the early stages of the war and may thus be said to have lightened considerably the task of protecting our sea-borne trade.(1)

(1) For figures of aircraft wastage on operations during this period see Appendix XIV.

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(ix) Other activities and operations by aircraft in the North Sea

So much for the reconnaissance side purely to detect enemy forces breaking out of or back into the North Sea. There was also over the North Sea a mass of flying performed in these early months on tasks which had never been envisaged prior to the war. From the earliest days the North Sea was swarming with enemy reconnaissance aircraft and by mid-October east coast convoys and H.M. ships were constantly being shadowed by enemy aircraft who in many cases homed bombers on to the target. The subsequent bombing was not very accurate but on all these occasions the cry went up for Coastal Command to investigate and to drive off the shadowers. Battle flights of turretted Hudsons were formed on 10th October to carry out these purely long range fighter tasks. Other Hudson sorties were called for to do long range reconnaissance tasks in the Skaggerack, down the Danish Coast and into the Heligoland Bight.

Rescue operations formed another call on the Command and the following are examples of this work.

25th September H.M. submarine Spearfish reported she had been depth charged and damaged in 5712N x 0800E. Three Hudsons were sent to locate her, drive off enemy aircraft and facilitate the meeting of a surface rescue force of two cruisers and four destroyers. This was effected and on the 26th three Hudsons continued the escort of the returning party until the 27th.

27th November. H.M. submarine Triad reported she was disabled off S.W. corner of Norway. A battle flight of Hudsons located her and exchanged visual signals regarding her condition. On the 28th continuous cover was given to her and two destroyers were despatched to her rescue. On the 29th two cruisers were sent as support and further air cover was provided all day by relays of Hudsons. Shadowing enemy aircraft were driven off on several occasions. Finally the submarine entered Stavanger to make temporary repairs and the rescuing force was escorted back to Rosyth.

27th December H.M. submarine Triumph signalled she had struck a floating mine and was disabled in 5644N x 0500E. Battle Hudsons were sent to locate and escort her. Five destroyers went to the rescue and air escort was given all day. The submarine and rescue party were given air escort until arrival in the Firth early on the 28 December.

(x) Protection of shipping against enemy aircraft.

The possibilities of attacks on shipping off the East Coast by enemy aircraft made it necessary to call on Fighter Command for defence. The protection of seaborne trade was not the specific concern of Fighter Command as was the defence of London or the aircraft industry but, as the Air Defence of Great Britain, it had to provide protection for all ports, anchorages and naval bases within its system as well as for the isolated fleet anchorage at Scapa Flow. The general cover of the air defences was supposed to extend sufficiently far out to sea to give some security for coastal convoys over much of the East Coast route. Scapa Flow was especially difficult because of its remoteness. Fighter

See "The Origins and Pre-war Growth of Fighter Command"

(19884)42

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D.C.O.S.
(39) 10
19th Sept.
1939

aircraft had only been allocated to its defence, on paper, in the summer of 1939, and there were none there when war broke out. The position was re-examined on the 6th and 7th September but no fighter aircraft could be spared. As an interim measure two Fleet Air Arm Squadrons were provided by the Navy for defence when the fleet was there.

F.C. S.2413
Enc.1A

C.O.S.(40)
10th Mtg.
18th Jan.
1940

Enemy air raids in October on Scapa and Rosyth, which had been intended as main North Sea bases for the fleet, caused a transference of the major fleet units to the Clyde area with all its disadvantages of distance from scene of action and maintenance of sea blockade. Concurrently Fighter Command made preparations for operating three Hurricane Squadrons from Wick for the protection of Scapa to be completed by 15th February 1940 and also to accelerate the expansion programme so as to provide some protection for shipping off the East Coast of Scotland.

The Four Trade Protection Squadrons

C.I.D.
1557-B

C.I.D.
371st
Mtg.
1st Aug.
1939

W.M.47
(39) Con-
clusion 6.

F.C. S.2110
Enc.19A.

In June 1939, a joint memorandum by the First Lord of the Admiralty and the Secretary of State for Air had approved the provision of four squadrons of long range fighters for close escorts to shipping between the Firth of Forth and Southampton. If protection further north was required another two squadrons would be wanted. However, none of these squadrons could be ready until the financial year 1940/41. The enemy attacks in October 1939 on shipping, inaccurate at first but becoming more serious from December onwards, caused special measures to be taken to combat them, although the C.-in-C., Fighter Command reckoned that in the absence of any "low looking" ground R.D.F. these attacks could not be prevented. However, he agreed to move some of his squadrons of short range fighters to forward airfields near the east coast. The four trade squadrons were formed by order on 17th October, considerably earlier than had been planned, and allocated to Fighter Command.

D.H.O. Folder
"defence of
the Aircraft
Industry"
Enc.23A.

A.H.B.
IIH/120
Enc.44

There were doubts as to whether these squadrons should be given to Fighter Command or Coastal Command. The C.-in-C., Fighter Command did not want them as it would mean redeploying a number of his existing squadrons and much enlarging his warning system without which it was impossible to provide the necessary intelligence to operate fighters more than 5-10 miles out to sea. Also the task was an additional drain on his chief defence commitments. He therefore asked the Air Ministry for guidance. In answer the Air Ministry intimated that it was a Fighter Command commitment and that the long range fighters should be used for distant escort and protection of shipping so that when attack actually threatened the short range fighters could go straight to the danger point indicated by these "outposts". However, towards the end of 1939 and before they were operational these four squadrons were transferred to Coastal Command as being primarily responsible for maritime air tactics. They were only temporarily so transferred until either enemy aircraft activity diminished or Fighter Command was capable of assuming control over all fighter operations based in the United Kingdom.

A.H.B.
IIH/120
Enc.56

Both the Commanders-in-Chief disliked this ruling. Fighter Command because, if trade protection was ultimately going to be his task, he saw no reason for temporary transference to Coastal Command and the latter because he wanted these squadrons badly for an entirely different task,

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the importance of which had not been realised prior to the war, that of long range fighter reconnaissance.

In due course the four squadrons, Nos. 235, 236, 248 and 254 all armed with the Blenheim IV, were transferred at the end of February 1940 to Coastal Command. They were used as fighter reconnaissance, long range fighter cover to naval operations(1) and during the Norwegian campaign as long range escorts to bombing raids but only on occasions were they used in protection of coastal convoys and the fishing fleets on the Dogger Bank(2).

The East Coast

Thus from October 1939, to May 1940 the protection of coastal convoys from enemy aircraft fell almost entirely on Fighter Command. During this period Fighter Command organisations were pushed north and east to improve the shipping protection. Fighter detachments began to operate regularly from coastal airfields such as Bircham Newton, North Coates, Dyce and Montrose. These stations kept continuous W/T watch on convoy frequency so that any emergency calls for help could be met with the minimum delay. A "Running plot" of all convoys and H.M. ships on passage along the East Coast was kept by the naval staff attached to Fighter Command H.Q. which was duplicated in the fighter stations on the coast. Convoys and naval units were allocated code words to be used with the W/T call for help, thus O-A Help Arena' meant that enemy aircraft were attacking or threatening the convoy or ship whose code name was 'Arena.' The plot showed where Arena' was and the emergency flight of fighters at the nearest station would be briefed and take the air. This procedure was inaugurated on 14th October. Another code word Shad' was introduced on the 27th October for use instead of Help', to be used if the enemy aircraft was obviously only shadowing the convoy or ship. Initially, O-A calls made from positions over 20 miles from the coast were answered by the despatch of any Coastal Command aircraft that could be spared or were available, but latterly from May 1940 only calls over 40 miles out to sea were delegated to the turreted Hudsons, and Blenheim fighters of Coastal Command.

By the end of February 1940 a daily routine of cover by Fighter Command was stabilised by agreement with the Admiralty at one standing patrol for each of the four convoys that were usually moving along the east coast, one patrol over the Dogger Bank fishing fleet and occasionally a special detachment to cover naval mining operations along the coast.(3)

F.C. S.2295
Encl. 14B

- (1) By the end of 1939 there was a general requirement from the Admiralty for long range squadrons to operate in support of the Fleet in spite of the fact that the naval staff had previously held and stressed the view that the Fleet at sea was able to look after itself and had no fear of bomb attack from the air. Now, it was stated, "H.M. ships cannot face the threat if operating within range of German long range bombing forces." This was still another task for the air which had not been envisaged before the war. S.3553 encl. 10A. Review of the Air Defence System. March 1940.
- (2) During the French campaign Nos. 248 and 236 squadrons were sent back to Fighter Command for the emergency. No.248 squadron operated under Fighter direction from Dyce on the Scottish Coast between 22nd May and 20th June. No.236 Squadron operated in the Middle Wallop sector from 10th June to 4th July chiefly in defence of the Portsmouth and Southampton district. After which both squadrons reverted to Coastal Command.

Fighter Command on East Coast Protection

D. of Plans
O.R.B.
W.S.No.284

(3)	Patrols	Sorties
October	386	1080
November	347	971
December	377	1137
January	911	2521
February	887	2252

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Further extension of Protection

F.C. S.3553
Encs. 1A
and 2A

In February the C.-in-C., Fighter Command asked the Air Ministry for re-inforcements to complete the chain of Fighter Defence to the Shetlands and also foresaw the necessity of a chain in south-west England. The three Hurricane Squadrons - Nos. 43, 111, and 605. - operated from Sector Headquarters at Wick by No. 13 Group, were installed by 1.3.40 for the Protection of Scapa, to which the Fleet was proposing to return. One Spitfire Squadron - No. 603 had been stationed in January at Montrose and Dyce for shipping protection, and steps were taken to develop ground R.D.F. and signal facilities north of the Tay. The sequel was the extension of the continuous air defence system right up the east coast to the Orkneys and involved the formation of No. 14 Group at Wick to operate the sectors north of the Tay. At the same time two squadrons of Hurricanes were deployed to south west England to initiate the chain in this area and involved the formation of No. 10 Group. Approval to these measures was given in April 1940. (1)

(xi) Special reporting Ships

C.C.OP/
Instr.
No. 11

By the 1st October 1939 it became apparent from intercepted German W/T signals that the enemy had an extensive observer system installed in trawlers, light vessels and coastline stations in the Heligoland Bight area for the report of aircraft. The code used was of a self evident type and was soon broken. These reports were of value to us as the German observers reported their own aircraft movements as well as British thus providing a useful check on the plots of D/F fixes from enemy aircraft W/T signals and additional warning of strikes probably proceeding to "home" on enemy aircraft already shadowing our convoys or naval units. Indeed so efficient compared to our own efforts, was this homing method that as soon as the shadowing enemy aircraft commenced to make homing signals it was possible to forecast to within half an hour the time of arrival of the German strike. A similar organisation of reporting vessels was set up by the Admiralty on 11th October off our East Coast. It consisted of a line of trawlers and drifters moored in an arc off the Yorkshire, Lincoln and Norfolk coast but at first these stations only reported by W/T if raids of more than five enemy aircraft were seen and left the reporting of fewer numbers till return to harbour perhaps a week later. Thus the real value to the building up of a picture of day to day enemy activity was lost and it was not till 12th November that orders were given to report every enemy aircraft seen by W/T immediately. Even then the delays in transmission and decoding vitiated the planning of protection or interception of these very low flying enemy aircraft. Consequently the trawler/drifter line was fitted with R/T and used plain language for reporting to the Humber Area H.Q. In the early months of 1940 this line was frequently bombed and shot up by the enemy aircraft and was finally withdrawn on 4th March. However, by this time "low-looking" R.D.F. Stations had been erected along this coast.

(1) See Chapter X for the further narrative of Fighter Command protection to coastwise shipping and the evolution of the CAM ships.

(xii) Protection to our minelayers

Enemy aircraft were, however, only one of many forms of attack which the enemy might use across the North Sea against our shipping and indeed against the country itself. To guard against the minelaying by U-boats and small fast surface craft and above all to place an obstacle before heavy warship raids on the East Coast or even Invasion Flotillas the Admiralty commenced on 22nd October a defensive mine barrage extending from the Dover Barrage(1) to the North of Scotland. Provision of air escort and protection to minelayers engaged in this task gave additional work to an already fully extended Command.

C.O.op.
Instn.
No.2

Fishery Protection

Enemy aircraft activity in the North Sea took a sharp upturn from the latter half of October; Fleet anchorages were attacked at Scapa, Sullon Voe and Rosyth, much low flying was done off the East Coast, the herring fleet was increasingly molested which necessitated the institution of regular Fishery Protection Patrols from October 25th (done by Ansons) and frequent though comparatively harmless bombing of convoys and naval units by small flights of enemy aircraft occurred.

C.C. Op.
Instn.
No. 3

(xiii) The Enemy's Mining Offensive

By early November much of this low flying was taking place at night as well as by day. This crescendo of effort was undoubtedly to harass our defence under cover of which our traffic channels and movements of shipping were systematically plotted, experience given to crews in low flying at night and familiarity gained with the areas in which Hitler's First Secret Weapon - the Magnetic Ground Mine - was laid from the Air. This air minelaying offensive commenced on the night of 20th/21st November and was backed up by intensive minelaying by surface craft and U-Boats using the same type of Magnetic Ground Mine which had started somewhat earlier in November.

Our immediate counters to this offensive which claimed an increasing number of victims from 13th November onwards were:-

(a) Institution of special moonlight aircraft patrols off the Tyne, Humber and Yarmouth commencing 25th November and increasing in extent by 24th December to Firth of Forth and Thames estuary. Aircraft on these patrols used flares, not only to illuminate suspicious sightings but to drop at random as a scare against U-Boats or surface craft engaged in laying mines and to discourage enemy aircraft minelaying.

(b) The fitting up of Wellington aircraft with a dynamo energised loop to touch off the Magnetic Mines which were immune from the ordinary surface craft sweeping gear. These Wellingtons (called D.W.I.) (2) were manned by Coastal Command crews and worked up at Gosport.

C.C.
S.7011/1
Part 1
encl. 74A.

CC/G1/22/11
CC/G3/24/11
CC/G4/26/11
CC/G1/27/11
CC/G2/28/11
CC/G5/1/12
CC/G2/2/12

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- (1) The Dover Barrage had been commenced on 13th September.
(2) D.W.I. stood for "Directional Wireless Installation" and was a meaningless term to avoid disclosing its real use. See also Chapter IV Section (i)(b) for further details of the work carried out.

The first successful sweep took place on 8th January, 1940 in the Thames estuary. The second aircraft commenced work on 2nd February and the third aircraft by 22nd March. This mine sweeping was continuous till June 1940, by which time the naval sweepers were in adequate numbers.

(c) Naval authorities developed a prototype surface craft (H.M.S. Borde) for the same purpose, which commenced operations on 7th February.

C.C.
S.7008/5
encl. 13A

(d) Bomber Command organised nightly sweeps by flights of aircraft over seaplane bases in the Frisian Islands from which these minelaying enemy aircraft worked. (1) Flares and occasionally bombs were dropped on seaplane moorings. These flights were known as "Security Patrols" and did much to limit enemy operations by night. (2)

(xiv) Additional sweeps and sorties

CC/G6/31/10
CC/G1/1/11
CC S.7010/9
encls. 1A
to 19A.
CC/G1/4/12
CC/G3/4/12
See Maps
III, IV and V

A further call was made on the Command when the Admiralty requested that an area to the West of the German Mined area (5530-5330N x 0200-0430E) should be kept under observation. This was effected from 12th October by Hudsons and Ansons and by 1st November had developed into standing reconnaissance patrols under the nickname of Armada Patrols as they were designed against a rumoured invasion expedition from the German North Sea Ports. (3) By early December they had changed in intention and scope to reconnaissance sweeps (B1. B2. B3. B4) and a continuous line patrol (B5) covering the Belgian and Dutch Coasts and up to the latitude of 53°N in order to clarify the mass of reports at this period from neutral agents and Bomber Command reports of the presence of enemy destroyers, mine-sweepers, possible minelayers and other suspicious shipping.

In addition to obtaining numerous intercepts and d/f fixes of enemy aircraft W/T signals the Y Service organisation frequently d/f.ed transmissions from small surface units (not U-Boats) scattered about in the North Sea. These were called "Unidentified enemy units (U.E.U.). Coastal Command were required to send sorties to try and locate the authors. Many flying hours were expended on this duty which was regularised in C.C. operation Instruction No. 9 dated 27/11/39.

Light Vessel Protection

In January and February 1940 when minelaying by enemy aircraft was at its height the amount of low flying close off our coasts both day and night rose to a maximum and enemy aircraft viciously bombed and shot up everything afloat which they could find. Among the innocent sufferers from this outburst of Hitlerism were the Light Vessels and scattered fishing boats other than the concentrated Herring Fleet. Casualties to the former necessitated occasional Light Vessel Protection Patrols which by

CC/G1/9/3

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- (1) In addition dusk raids were carried out by Blenheim Fighters. On 28th November 1940 twelve aircraft attacked the seaplane base at Borkum.
 - (2) On 19th March Bomber Command dispatched 50 aircraft in dribbles to bomb the seaplane station at Hornum on Sylt. This was done during the dark hours and damaged the adjacent airfield, setting fire to hangars and dumps.
 - (3) Chapter V gives a more detailed account of these Patrols.

8th March had become a recognised "Light Vessel Morale" Flight, done by our slender resources of Blenheim fighters when possible, but more often by Ansons in conjunction with their Fishery Protection Patrols.

Protection of fleet anchorage

During March the enemy devoted more attention to attacking the larger vessels among the shipping using the East Coast routes, even extending such attacks to the eastern half of the English channel and to further raids on Scapa, Kirkwall and the F.A.A. airfield at Hatstone. In consequence of Fighter Command's inability to provide defence for the various fleet anchorages in Northern Scotland six Blenheim fighters (No.254 Squadron) were sent up to Dyce to form an interception force in addition to the five Gladiators transferred from No.152 Squadron F.C. to Coastal Command on 18th December and now operating from Sunburgh.

(xv) Operation Wilfred

In order to interrupt the German iron ore trade from Narvik the Admiralty planned a minelaying operation to force these ships out of territorial waters at two places on the Norwegian Coast where our submarines or surface forces could hope to intercept them. To provide air escort and protection for this expedition, No. 204 Squadron of Sunderlands were transferred from Mount Batten to Sullom Voe in the Shetlands and two Sunderlands from No.201 Squadron at Pembroke Dock went to Invergordon. These dispositions took place on 1st April.

The first four days of April saw an intensification of enemy aircraft activity against convoys and shipping in the North Sea(1) and prior to the minelaying operation the flying boats were used on convoy escort duties. On 3rd April F/204 was in company with convoy ON 24 from Norway to Scotland, when six J.U.88s. attacked the convoy and were engaged single handed by the Sunderland. The attack was frustrated, one J.U.88 being shot down and another forced by damage inflicted to crashland at Stavanger.

On 5th April the minelaying operation (Wilfred) sailed for Vestfjord and Staätlandet with a smaller force to lay dummy mines between these two positions. No air escort was given to the forces but suitable patrols were maintained to the south and southwest of them to give warning of any enemy interference.(2)

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- (1) In fact these were preliminary measures to the German plan for the invasion of Norway.
 - (2) A small expeditionary force was embarked on the 7th April in transports together with military detachments on board certain of H.M. Ships. These forces known as operations "Avonmouth" and "Stratford" were held in the Clyde ready to proceed for Norwegian Ports if the German reaction to the mining operation took the form of an offensive against Norway. Operation "Wilfred" completed the minelaying in the early hours of the 8th April.

SECRET

39

In the meantime, on the 4th April, two Bomber Command aircraft reported on landing back from nickel raids that they had sighted two battle-cruisers in the Schillig Roads some three hours earlier. At 1610 hours Bomber Command sent six aircraft on an armed reconnaissance to investigate the report but, on landing back, the sortie reported only one vessel of cruiser size in the Jade Roads which had been unsuccessfully attacked. At 0800 hours on 5th April nine Blenheims took off to attack this ship but, owing to thick weather, had to return before reaching the objective. Coastal Command also sent a flight of three Hudsons to reconnoitre but they too ran into the thick weather. Precautionary flying during the day of the lower Standard Reconnaissance tracks out to the Danish Coast saw no movement of enemy ships.

Attempts to view the Schillig and Jade Roads were continued on the 6th April and during the afternoon a P.R.U. Sortie over Wilhelmshaven reported the two battle-cruisers still lying in the roadstead. During the night of the 6th/7th, Bomber Command had a number of aircraft engaged on various missions over northern Germany and its coastal waters. Many of these aircraft, on landing back, reported intense shipping activity in the Kiel, Eckenforde, Hamburg and Lubeck areas, heavy flak fire in the Jade Roads and one report of a large warship steaming northwards near Heligoland. All these reports were passed to the Admiralty and as a Precaution Coastal Command detailed a first light reconnaissance across to the Danish coast together with immediate readiness for the two Bomber Command Wellington Squadrons under their operational control. An attack on the battlecruisers lying off Wilhelmshaven was planned by Bomber Command but was abandoned at dawn 7th in view of the clear sky and maximum visibility.

Coastal Command's first light reconnaissance, consisting of three turretted Hudsons, reported by W/T at 0848 hours the sighting of one cruiser and six destroyers escorted by eight Me.110.s in position 5330N x 0640E steering 350°. This was at first thought to be an attempt to interfere with Operation Wilfred but was in fact part of the invasion of Norway. The sequence of events is told in detail in Chapter III.

CHAPTER II

THE OPENING OF THE U-BOAT WAR

SEPTEMBER, 1939 - MAY, 1940

(i) Introduction

Parallel with the enemy's endeavours to break our blockade and threaten our sea communications by surface warships was his launching of a U-boat offensive.

War Diary of Flag
Officer U-boats

U.28, 29, 33, 34
U.30, 37, 38, 40, 41, 26
U.27, 39, 45, 46
U.47, 48, 52, 53

At the outset the Germans had a U-boat fleet of 57 operational units of which eleven were used as school boats. 29 were of ocean going type and 28 were of limited range and endurance suitable only for North Sea or Channel operations. (1) Of the ocean going boats some 17 or 18 were already in waiting positions to the west of the British Isles when war broke out. Attacks on our shipping commenced on 3rd September 1939, with the sinking of S.S. Athenia in the N.W. approaches. (2)

Admty. Letter K.00697/
39 Sect. VII Paras.
177, 185 and 204

Shipping had not been ordered into convoy during the precautionary period just prior to 3rd September. This was partly due to uncertainty as to whether Germany would employ full scale air attacks on shipping, partly to a belief that unrestricted U-boat warfare would not eventuate until later and partly to reliance placed in the ability of asdic fitted groups of naval craft to hunt down and liquidate any U-boats disclosing themselves.

Admty. Letter M.06405/
38

In lieu of convoy a controlled route was instituted for inward and outward bound ocean shipping which was sparsely patrolled by units and small groups of Anti-U-Boat vessels in the St. George's and English Channels. Thus this first U-boat offensive found numerous and widely scattered targets.

(1) For the Pre-war growth of the U-boat fleet see Appendix XIX

(2) By Lemp in U.30

U/B sailings prior to the outbreak of war -

	(7th flotilla, U.45, 46, 47, 48, 52 from Kiel for the Atlantic)	500 ton U/Bs
19th Aug. 1939	(6th flotilla, U.37, 38, 39, 40, 41 from Wilhelmshaven for the Atlantic)	740 ton U/Bs
	(2nd flotilla U.28, 29, 33, 34 from Wilhelmshaven for the Atlantic)	500 ton U/Bs
22nd Aug. 1939	U.30 (2nd flotilla) from Wilhelmshaven for the Atlantic	500 ton U/B
23rd Aug. 1939	U.27 (2nd flotilla) from Wilhelmshaven for the Atlantic	500 ton U/B
29th Aug. 1939	(U.26 (2nd flotilla) from Wilhelmshaven for the Atlantic)	740 ton U/B
	(U.53 (7th flotilla) from Kiel for the Atlantic)	500 ton U/B

All these U/Bs proceeded north about round the British Isles, returning to Germany from 15th September onwards till the end of the month.

On the	(1st flotilla, U.9, 13, 15, 17, 19, 21, 23.)	All 250 ton U/Bs.
25th Aug. 1939	(3rd flotilla, U.12, 16, 20, 24)	These operated in the North Sea and Straits of Dover for periods up to 14 days.
	(5th flotilla, U.56, 58, 59)	

Reference - War
Diary of Flag
Officer U-Boats

The number of sea-going (as opposed to Coastal type) asdic fitted craft was, in this disposition quite inadequate to protect or avenge the helpless victims.

Shipping casualties during the first week of war due to U-boat action forced the Admiralty to hasten the inauguration of the ocean convoy system but by the very nature of such a drastic change in ship sailing it was not completed until early October, and by then 150,000 tons of shipping had been sunk. Even then the paucity in numbers and limited endurance of existing destroyers permitted convoy escort only as far as 130° W. Outward bound convoys dispersed at this point and the escort then transferred to an incoming convoy. By mid-October the enemy had appreciated this fact and relief U-boats were sent to areas further still to the west.

However, U-boats were chary of attacking convoys east of longitude 130° W escorted as they were by surface escorts but the shortage of such craft precluded the protection of the numerous inward bound ships not yet in convoy and stragglers from existing convoys so that the sinkings continued to be heavy (100,000 tons in October).

Admty. Letter
M.00697/39 Para.
210

See order of
Battle Sept. 1939
Appendix I
S.7011/1 Part I
encls. 50A, 64A,
69A & B and 72A

Owing to shortage of aircraft in Coastal Command, priority was given to the North Sea Standard recce and the residue did not allow of Air escort to all convoys in danger areas. The inadequacy was pointed out by the C.-in-C. in letters to the U.S. of S. dated 12th September and 30th October. The limited radius of such aircraft further confined close or continuous escort to little more than Coastal Waters. (1) This enforced policy made the U-boats free to sail to and return from their appointed areas without hindrance. When aircraft were available, every opportunity was taken to carry out divergent sweeps from navigational headlands such as Lands End, N.W. Ireland, Rattray Head, Flamborough Head and North Foreland to locate and harass U-boats in their waiting positions.

C.C. S.7011/1
Part 1 encl.60A
Plymouth/G3/7/10

Organised and regular anti-U-boat patrols were further hindered in No. 15 Group by the constant stream of S.O.S. signals from sinking ships, D/F fixes of U-boats using their W/T and sighting reports from sources ranging from fishing trawlers to errand boys on cliffs, in most cases of which the Command was asked to send aircraft to help or investigate.

Regarding the purely convoy escort work done by Coastal Command in the first six months of war, it was inevitably a case of doing as much as possible while leaving the Groups with sorties in hand to fulfil emergency calls. This adjustment to circumstances makes it impossible to give a concise escort chart illustrating the anti-U-boat cover afforded during the period.

C.C. S.7011/1
Part 1 encl.74A

By October it had become established that all East Coast Convoys had one attendant aircraft for anti-U-boat duties from dawn to dusk. These convoys were in operation as early as 7th September and although consisting at first of one north-bound and one southbound every other day they gradually increased in numbers until there was a stream of convoys in either direction; in fact by March 1940, owing to stragglers and the single line formation enforced by the narrow swept channel the traffic was nearly continuous. Under these conditions

(1) The possibility of bases in S.W. Ireland was raised in October, 1939 but came to nothing due to the political difficulties. Ref. C.C. S.7011/1/Part 1. encls. 66A and 67a.

CC/GS
27/2

Home Fleet
War orders-
Germany
No. 11
S.7011/1

Part 1
end 73A

individual convoy escort was dropped except in the case of important convoys and single aircraft patrolled stretches of coast under the name of "Police Patrols". The aircraft also reported on landing the exact positions and description of all convoys and shipping on their beat in order to assist accuracy in the "running plot" of East Coast traffic kept at Admiralty and at Fighter Command.

From October onwards these escort aircraft in addition to purely anti-U-boat duties gave battle to shadowing enemy aircraft and warning where possible of the arrival of enemy strike formations. This applied particularly to the Norwegian convoys which started regularly on 4th November (though one from Bergen to the Forth had sailed on 4th October), Ocean Convoys Outward bound commenced on 7th September and in those days such convoys proceeded down both the Irish Sea and English Channel finally dispersing about 200 miles to the S.W. of Fastnet Lt. Gibraltar bound convoys, which started in October, united off the Scillies and continued as one convoy.

Fairly consistent escort was given while in the English Channel, Irish Sea and St. Georges Channel but was intermittent outside 100 miles from the Scillies due to shortage of flying boats. Ocean Convoys Inward bound did not start leaving Freetown, Halifax and Gibraltar until 14th, 16th and 26th September respectively so that between 3rd September and early October there was a stream of single ships not yet in convoy arriving in U-boat infested waters from all parts of the Atlantic. These provided sitting and safe targets for the U-boats in the Western Approaches and No. 15 Group had to further curtail escort on the outward bound convoys to fly divergent fan patrols from Lands End covering as much dangerous water as possible. By 18th September this unprovided-for flying had itself to be curtailed on account of over wear of the aircraft. To make up for the thinness of A/U measures in the Western Approaches and to harry the U-boats in the Atlantic west of Ireland the Fleet Carriers Ark Royal, Courageous and Hermes with destroyer escorts were employed on A/U cruises in Mid-September. However the narrow escape of the Ark Royal and the sinking of H.M.S. Courageous by U-boats on 17th September in the S.W. approaches put a stop to this employment of vulnerable aircraft carriers.

Western
Approaches
Convoy Instruc-
tions Sects.
E & F

The full extent of convoy traffic did not commence until early in October and from then onwards there were never less than 4 ocean convoys daily in the area within reach of No. 15 Group aircraft. By December it was understood that convoys would be afforded continuous daylight escort up to 200 miles from our bases but outside that range escort could only be given occasionally by Sunderlands, which with their long range, were being used continuously to answer S.O.S. calls, to patrol dangerous areas on the convoy routes and to investigate D/F fixes obtained from U-boat W/T signals. Much use was made of the ability of these aircraft to locate survivors boats and direct rescue ships to the spot. In one outstanding case the locating Sunderlands landed on the sea and themselves rescued the crew of a torpedoed vessel.(1)

(1) S.S. Kensington Court, torpedoed 18th September in 5050N - 0818 W. The crew of 34 were rescued by N/228 and L/204 Sunderland Sigs.

(ii) The U/B War

U/boat tactics in the early days of the war were governed by the submarine principles learnt in the First German War. Passage to and from base was made on the surface. While on patrol a surfaced watch was maintained until a target was sighted when the U-boat dived and developed the attack from periscope depth making its get-away afterwards, if necessary by diving deep, and then re-surfacing and repeating such tactics as often as targets were sighted. The aircraft could do little to hamper such tactics except to force the U-boat to dive earlier than it had intended and to give warning of the sighting to shipping or convoys in the neighbourhood. The weapons carried by aircraft were innocuous to U-boats and the shortage of naval escort craft made a follow-up asdic hunt to the death a rare occurrence. Once the submerged attack had commenced the aircraft had little chance of being aware of the U-boats presence as a periscope skillfully used is seldom sighted from the air. The U-boat Commanders of these early days were highly skilled and commanded well trained crews.

See Appendix
III for reasons

Many sightings of U-boats were obtained by the Standard Recce. Patrols in the North Sea but only few by the aircraft in Western waters. Attacks were delivered when possible but in most cases the U-boat look outs were able to give warning of approach and the U-boat to be beneath the surface before bombs could be released. The bombs carried were too few and too small to inflict any damage in these conditions. The naval staff at H.Q. Coastal Command, being composed of ex-submarine officers, realised this weapon limitation very early and with the backing of the A.O.C.-in-C., pressed for the adoption and development of a depth charge designed for use in aircraft.⁽¹⁾ This view was supported by conversations with the U.S.A. naval attache on 27th October who had had experience of trials carried out in U.S.A. on an old submarine. Such movements were, however, somewhat slow and it was to be September 1940, under a far greater threat, before depth charges were recognised as the proper armament for anti-U-boat work.

Coastal Command
Naval Staff Log
for October 27th

C.C. S.7011/1
Part 2 encl.
64B

C.C. S.7010/9
encl.1A

Coastal Command
Naval Staff Log
Sept.- Dec.1939

Amongst many measures taken against the potential threat of U-boat and surface craft raids on East Coast shipping was the employment of our own submarines as the outer line of defence and for offensive recce in enemy waters. A patrol line of billets bordering the western edge of the German declared mined area extended from the Dutch coast to the S.W. corner of Norway at Skudenes. Offensive cruises of our submarines also frequently penetrated the Heligoland Bight and the Kattegat. Submarines proceeding to and returning from such positions as well as maintaining the patrols in the billets were inevitably much flown over by our various recces, sweeps and sorties. From the first days of the war it was the special concern of the ex-submarine Naval Staff at headquarters Coastal Command to safeguard our own submarines from air attack by the imposition of areas in which no submarines of any kind were to be attacked and by the hour to hour briefing of the Groups as to the position of any of our submarines on passage.⁽²⁾ Further extension of our own submarine operations as the months went on made this duty one of ever increasing scope. From comparatively small beginnings the liaison between Coastal Command and the Submarine Service became closer and closer developing into a very complete co-operation covering combined submarine and aircraft operations together with the necessarily complicated

(1) See Appendix IV for the development of the Depth Charge in aircraft.
(2) The need for this was made apparent as early as 5th September when an Anson on the C.L.P. attacked H.M. submarine Spearfish and later on the same day another Anson attacked H.M. submarine Seahorse. In neither case was the submarine more than slightly shaken up by the inadequate anti-submarine bombs in use but measures were promptly taken to guard against further mistakes. Ref. S.1859/1 encl. 10B.

Coastal Command
Naval Staff
Officers Log
Dec. 1939

submarine bombing restrictions. H.Q. Coastal Command naval staff was not only the authority initiating restrictions against attacks for Coastal aircraft but controlled Bomber and Fighter Command aircraft in permission to attack surface ships as well in particular areas. A daily signal was made to the latter commands giving such "free bombing areas".

By November the first U-boat offensive had slackened off considerably owing partly to the comparatively heavy casualties⁽¹⁾ inflicted on the as yet small ocean going portion of the U-boat force, but mainly to the enemy decision to launch a heavy mining offensive against our coastal traffic with particular attention to our East Coast and using U-boats, aircraft and surface craft to lay the magnetic mine in shallow shipping channels. This mining offensive developed during the winter months, the U-boat minelayers going as far afield as the West Coast Ports and the estuaries from C.Wrath to the English Channel. The resources of the Command were quite unequal to providing additional anti-U-boat patrols and the substitute measure was adopted of using unarmed Tiger Moth aircraft to flutter around and over such waters acting purely as scarecrows. Coastal patrol flights of 6 I.E. plus 6 I.R. Moth aircraft were affiliated to existing squadrons of G.R. aircraft at Dyce, Abbotsinch, Carew Cheriton, Aldergrove, Hooton Park and St. Eval. Institution of these inshore patrols commenced at the end of November and continued until July 1940, when U-boat operations shifted entirely to ocean waters.

C.C.Op. Instrn.
No.8

C.C. Naval Staff
A/U File. Encls.
1, 3, 4 and 5

From September the frequency with which the Standard North Sea recce patrols were sighting U-boats, obviously on passage, enabled schemes to be drawn up estimating their passage route and time schedule. This enabled areas to be delineated giving high probability of sighting at dawn and dusk just to the N.E. and N.W. of the Orkneys and during daylight in the North Sea and off the Hebrides. When any aircraft were available these areas were patrolled on anti-U-boat duties and the North Sea patrols adjusted accordingly. The height at which ordinary recce patrols had been flown was adjusted to give the best chance of sighting U-boats on passage; in fact, emphasis grew on the importance of anti-U-boat measures, and as the resources of the Command grew so the flying hours on anti-U-boat work increased in proportion to purely recce time. By December No. 18 Group had a set of anti-U-boat patrol areas designed to harry and attack U-boats on Passage in the North Sea and round the north of Scotland; No. 15 Group were entirely concerned with ocean convoy escort duties, the flying of anti-U-boat sweeps over U-boat patrol areas and the police work of flying out to S.O.S. positions, D/F fix positions and other sightings. The importance of the Air in anti-U-boat operations had at last been realised but by reason of the poor weapons supplied it was still no more than a nerve irritant to U-boat commanders and crews, though scarecrow effect undoubtedly limited their freedom of action and was apt to draw the asdic fitted surface craft's unwelcome attention to them.

See Maps III &
IV

(iii) The growth of Air Menace to U/Bs on Passage

In commencing the task of designing air searches to locate U/Bs on passage between Germany and the Atlantic due regard had to be paid to -

- (1) 7 sunk and 15 damaged out of about 50 operational U-boats.

- (a) Reconnaissance for enemy surface forces was first priority for Coastal Command.
- (b) Patrol areas must not be within easy reach of counter measures by enemy aircraft.
- (c) Aircraft were limited in endurance and few in numbers therefore only high probability areas could be adequately patrolled and those closest to aircraft operational bases had preference.
- (d) In the absence of any form of A.S.V. it was no good patrolling those parts of a U/Bs passage which were estimated to be carried out during dark hours.

The study of U/B movements with these patrols in view was commenced at Coastal Command during the first month of the war. It was started by the Naval Staff⁽¹⁾ consisting as it did at that time of ex-submarine officers. The Admiralty, of course, had its own "submarine tracking room" manned by picked individuals and fed with U/B intelligence from a variety of sources. Very early contact was established between this department at the Admiralty and the little band of patrol designers at headquarters, Coastal Command. This contact developed into the closest co-operation during the war and was of inestimable value in all the subsequent air war against the U/B menace.

At first, however, the analysis and conclusions leading to the design and operation of anti-U/B patrols was carried out at headquarters, Coastal Command, by the command navigator and Naval Staff under the direct interest of the A.O.C.-in-C. The resulting measures were successful in locating U/Bs on passage and gave rise on 13th November, 1939, to the emphasis on the equal importance of A/U measures with ship reconnaissance already mentioned in Section (vi) of Chapter I.

The story of the designing of these patrols can best be told by a summary of extracts from the command staff appreciations.

On 21st September, 1939, two plans were drawn up estimating in the one case that U/Bs would time their arrival off the Fair Isle Channel or Muckle Flugga soon after dusk and in the other case that they would time their night passage through or round these positions just before dawn. In both cases there would be a maximum probability daylight sighting area off the S.W. part of Norway and another daylight probability sighting area between Muckle Flugga and the island of Lewis. Accordingly, A/U patrols were flown in the latter area and the S.W. corner of Norway watched with special reference to U/Bs by the tracks J.K.P.Q. and R together with the continuous line patrol of the Standard reconnaissance scheme. It was realised that only actual sightings would enable more detailed and permanent patrols to be established.

By the end of October sufficient sightings together with the U/Bs courses when first observed enabled a further scheme to be drawn up. It was apparent that there was a high daylight probability area extending from halfway across the North sea to the S.W. of Norway covered by tracks J - P and another close off the Norwegian Coast covered by tracks A - D. Dawn and dusk sightings had been obtained just to the S.E. of the

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- (1) While the placing and timing of these patrols was studied by the Naval Staff the design of the Patrols was worked out by the Command Navigator.

C.C. Naval Staff
A/U File Encl.1

Naval Staff
Officers Log
Oct. 28th

C.C. S.15087
encl. 18A
CC/G 4/1311

C.C. Naval Staff
Officers A/U
Records File
Encls. 1

List of Standard
Patrols CC/G3/
20/10 & Map II
of A/U Patrols
for 20th, Oct.

C.C. Naval Staff
Officers records.
A/U File Encl.3

SECRET

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CC/F1/5/11 &
CC/G1/12/11

Fair Isle Channel. Daylight sightings also had occurred in the area from Cape Wrath to the Faroes. Permanent patrol areas to suit variations in weather and for different types of aircraft were created. These were given letters and numbers and were embodied in the list of Standard Daily Patrols. The continuous patrol line in the North Sea was discontinued and the aircraft were employed on a daily parallel track search using tracks P - T. An alternative to this latter was a parallel track search of an area off the S.W. corner of Norway. These patrols were numbered L1 and L2 respectively and were flown from Leuchars.

See map III of
A/U Patrols for
12th Nov.

The W1, 2, 3 and 4 Patrols were close to the North Coast of Scotland and were flown by aircraft from Wick. S.1 was composed of the top four tracks (A' B' A and B) of Standard North Sea Reconnaissances. S2 and 3 were areas to the N.W. and North of Muckle Flugga. These "S" patrols were performed by flying boats based at Sullom Voe in the Shetlands.

C.C. Naval Staff
A/U File
Encls. 4 and 5

See Map IV of
A/U patrols for
4th Jan. 1940

In the ensuing months of November and December new patrols were added and old patrols were modified or altered to conform to observed changes in the enemy's timing or routing and because of shortening daylight hours. By the early days of January 1940 a very complete set of Standardised Patrols had been built up and it was apparent that given adequate weapons, the Air would prove an important factor in the harrying of U/Bs on passage.

At the end of January 1940, the U-boat offensive reopened against shipping and the sinking figures climbed once more to 169,000 tons for February. In November, December and January, the torpedo sinkings had dropped to 51,000, 81,000 and 111,000 tons respectively, but mine casualties had added a further 90,000 tons to each of these months.

The full effects of the new offensive showed themselves in the Moray Firth area which was at the then open top of our East Coast mine barrage. Significantly enough in the light of after months the U-boat tactics had changed and here the majority of the sinkings from November onwards took place during the hours of darkness. Neutral tonnage for the first time was the main sufferer and on 18th February the enemy somewhat belatedly issued a declaration of unrestricted warfare(1).

In the Atlantic the offensive took the form of more extended cruises by U-boats, sinkings taking place off the coast of Portugal and in the outer Western Approaches beyond the reach of air and surface escorts. In Western waters occurred the first successful co-operation between surface and air escorts. This was on 30 January when, after attacking a convoy the U-boat was hunted by H.M.S. Fowey and other escorts. The weather was foggy in patches and the U-boat, which had been damaged, came to the surface and made off on its engines. It might have got clear away in the low visibility but Sunderland Y/228 Squadron, on a protective sweep, spotted it and attacked. The anti-U-boat bombs did no lethal damage but the U-boat commander's nerves were

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- (1) In reply to a protest at the German declaration, their government replied that they were entitled to attack all neutral shipping that:-
- (i) Sailed in Allied Convoys.
 - (ii) Were without ordinary lights or nationality marks.
 - (iii) Used their W/T to give military information.
 - (iv) Refused to stop when called upon to do so.

SECRET

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so shattered by his inability to escape from the air's unwelcome eye that he scuttled his boat and the survivors were picked up by H.M.S. Fowey who was directed to the spot by Y/228 Squadron.

After mid-March the U/boat activity died away. The North Sea offensive slackened and shifted up to the waters around the North of Scotland. Only 6,000 tons were sunk in March, the U-boats having been held in harbour for most of the month in readiness for the invasion of Norway. In the first days of April every available U-boat left German ports to take up patrol positions for their operations against Norway.

(iv) Measures against the U/Bs

Much thought had been given during these first six months of the War to evolving methods of air attack on U-boats. Systematic plotting of U-boats sightings and positions of ship sinkings had succeeded in placing air patrols in the best areas to locate U-boats on passage and to indicate the rough patrol areas occupied by U-boats. The great problem was how to make the air attack lethal or at least seriously crippling. It was recognised at H.Q. Coastal Command that really decisive success lay in close co-operation with surface asdic craft but at this time and indeed for many years it was not possible to form "killer groups" or to specialise in the necessary training. The next best was to make the aircraft into a killer before the U-boat could dive deep. Although circles in direct contact with this problem were convinced of the uselessness of the existing anti-submarine bombs there was a large and influential body of fixed opinion which refused to admit this. The result was that attacks on U-boats developing out of intelligent design of anti-U-boat patrols and sweeps came to nought as regards inflicting any serious damage.⁽¹⁾ All we could do was to harass and frighten. Shortage of asdic craft prevented full co-operation in U-boat hunts whereby location by the aircraft could be quickly turned into an asdic hunt. Efforts had been made to hunt the once located U-boat by air alone but shortage of aircraft precluded the necessary relief sorties to keep a U-boat down until battery exhaustion and bad air forced it to the surface; in addition the absence of A.S.V. made it useless to keep up a night search except in very favourable moonlight conditions. Much experience was gained in the technique of approach when attacking but even if a U-boat was surprised on the surface or still visible in the act of diving, the nature of the anti-U-boat bomb prevented a really low level and therefore accurate attack. Nothing less than a bullseye shot was of the slightest use against these elusive but extremely tough targets. However, optimum methods and technique were worked out on paper and distributed to groups and stations in readiness for the day when numbers of aircraft and weapons should improve. For the time being the experience of submarine officers was utilised to find out and apply those measures which cause the maximum irritation and danger to a U-boat at sea, i.e. setting a thief to catch a thief.

(v) U/B failures during the Norwegian Campaign

See Map No. XXII

During the Norwegian Campaign every available U-boat was employed in the waters between Scotland and Norway and on the

(1) Of the 85 attacks on U/Bs carried out by Coastal Command aircraft between September 1939 and May 1940, one resulted in the sinking of U.55 in conjunction with H.M. ships, four attacks (2 shared with H.M. ships) were assessed as probably compelling the U/B to return to harbour immediately, and eight were considered to have possibly caused slight damage to the U/B. See Appendix III

Norwegian Coast up as far as Narvik. The tonnage of merchant shipping sunk during April dropped to the lowest figure since the outbreak of war (32,467). One reason for this is not difficult to find. For the first time the U-boats were concentrated against a military venture in which the full power of naval and air escort was deployed. In place of defenceless scattered single merchant ships or feebly escorted and straggling convoys there were comparatively few but well screened convoys together with fast naval units equally well screened by large numbers of fleet destroyers. However, it is established from enemy documents that a number of hitting attacks were delivered by U-boats but their torpedoes failed to detonate or detonated at safe distance from the target. This arose partly from re-arming their U-boats on this campaign with a new magnetic pistol which was uncertain in its function and partly from another and totally unlooked for reason. The long daylight hours in these latitudes together with the stiff anti-U-boat measures meant that U-boats dived for a much longer period in the 24 hours than when operating hitherto in the Atlantic or North Sea. Small air leaks from the high pressure air system consequently built up a very considerable air pressure inside the U-boat. This affected the depth keeping mechanism in the torpedo while waiting for a target, causing it to run at a much greater depth than set and thus occasioning further failures not only with the erratic magnetic pistol but with the orthodox impact pistol. These faults were not rectified throughout the U-boat fleet until June, 1940.

Admty. N.I.D.
1/GP/10 24.9.45

Admty. C.B.
04050/45 (7)
P.22

Preoccupation with their operations in Norway, Denmark, Holland and the opening of the French campaign, together with the reasons outlined above, limited the scope of U-boat activities, and May losses were small at 55,000 tons.

(vi) A lull in the U/B War

The efforts of Coastal Command were at a low ebb at this time. The aircraft situation was bad. The Lerwick flying boat with which the three obsolete F.B. Squadrons were to have been re-equipped was a complete failure and although the initial order of 21 had been taken over the bulk order for a further 39 was cancelled. In the meantime the Sunderland order had lapsed and the jigs dismantled by Shorts Co. Frantic efforts were made to renew construction but the output was very small; deliveries being forecast as one in May, nil in June, one in July, one in August rising to four in September. To fill the gap 30 American P.B.Y. flying boats were ordered but deliveries of these could not commence before October. The Anson squadrons which were still the backbone of the G.R. squadrons of the Command should have been re-equipped with the Botha but this aircraft also proved a failure from its inability to fly any distance on one engine, and had to be withdrawn.

This pre-occupation of both sides with material and with the special features of the opening of the land campaign in the West combined to form an uneasy lull between the opening phase and the development of the main U-boat Battle of the Atlantic.

(vii) Summary of the opening phase

It is appropriate at this point to sum up the experience of this opening phase:-

(a) From the German view point the use of U/Bs in small numbers operating far from their bases was limited in effect

to a guerre de course irritating to the British but holding out little hopes of becoming a decisive menace. The long passage out and back from the Atlantic shipping routes had been made even longer in time by the harassing effects of aircraft which necessitated diving most of the daylight hours. The British asdic had made the U-boats reluctant to attack escorted convoys and successes were only achieved by picking off stragglers and intercepting independently routed ships in focal areas.

The use of Magnetic Mines against our coastwise shipping had provided satisfactory initial dividends but the rapidity with which this menace was reduced by our countermeasures led to the opinion that no mining in any form could ever of itself prove a decisive blockade weapon. No better results were obtained by bombing attacks carried out against shipping. Here again, initial immunity from counter-attack had vanished with the ever increasing fighter and A/A measures developed off the East coast.

Individual brains were at work these on problems. Tactics formulated among the leading U/B commanders to nullify the asdic had made a tentative appearance in the night attacks on shipping from November 1939 onwards.

Special attention was being given among certain units of the G.A.F. to the attack of shipping targets both by bomb and torpedo. U/B design was standardised into two main classes - the 500 ton and 740 ton types. Approval had been given to a policy of large scale production of these types together with the necessary expansion in personnel.

The success of the Norwegian campaign had opened wide the northern exit to the Atlantic and the initial successes in the French campaign gave hopes that German bases on the Atlantic might not be an impossibility in the near future.

(b) For Coastal Command the opening phase had provided a new outlook. From being concerned predominantly with reconnaissance the Command had become 60% U/B minded, while an unlooked for role - that of the long range fighter - had been added to its functions. The reconnaissance side had been complicated by many additional tasks never envisaged before the war so that the slender resources of aircraft bade fair to result in none of these duties being adequately performed. However, even at that time, enthusiasts maintained that it was in the war against U/B's that the Command would take its place in history.

See
appendix III

The experiences up to May, 1940 had shown that from the air the U/B was far more easily located than had been appreciated. Given intelligent direction, efficient approach tactics, and above all, adequate weapons, the aircraft would be the equal of the surface craft in defeating any underwater threat. At this time the weapon was the weak point. The anti-submarine bomb still held the stage. Up to the end of 1939 except in the Hudsons there was no efficient distributor whereby a properly spaced stick of bombs could be dropped. This meant that bombs were dropped singly or in a ragged salvo. The majority of aircraft carried only 100 lb. bombs which were not lethal to the U/B even if a direct hit was obtained on the surface.⁽¹⁾ The 250 lb. bomb carried by flying boats was not much better as it had to detonate within six feet of the pressure hull before inflicting serious damage. The minimum height of

(1) H.M. S/m "Snapper" sustained a direct hit at base of conning tower from a 100 lb. A/S bomb on 3/12/39. No damage to pressure hull. 4 electric light bulbs broken in control room.

release was 600 ft. to avoid damage to the aircraft with the rather uncertain fuze supplied, and if dropped at less than 300 ft. the bombs seldom went off. Accuracy was a matter of luck as no sights were fitted which could be used below 3,000 ft.(1)

The weight of evidence against the A/S bomb grew under the stress of war and early in November, 1939 the Vernon Torpedo and Mining Establishment at Portsmouth turned their attention to the possible use of naval depth charges as an aircraft weapon.(2) On 4th June 1940 live dropping trials were successfully conducted from an aircraft off the Needles, using a modified Mk.VII 450 lb. depth charge. During July, 1940 a few Sunderlands carried two of these D.C.'s on operational sorties. See appendix IV for the account of Depth Charge development.

Generally speaking at this period the state of the sea war, and in particular the war against U/B's, was not considered unsatisfactory. Germany's sea raiders had not inflicted heavy losses and, though the over-optimistic peace-time prophecies of the innocuousness of U/B's had been falsified, the tonnage of shipping sunk by them had been a comparatively moderate average of 87,000 tons per month. It was confidently hoped that increasing numbers of new escort vessels together with longer range aircraft with improved weapons would substantially reduce these figures.

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- (1) This sight - the Mark IX - required a steady run up to the target at an altitude in excess of 3,000 ft. It was quite useless against elusive and momentary targets such as quick diving submarines.
 - (2) This line of experiment was supported by Admiralty opinion, expressed at an Admiralty/Air Ministry meeting held on 8th December, 1939, that R.A.F. bombs were ineffective against U-boats.

CHAPTER III

THE NORWEGIAN CAMPAIGN APRIL TO JULY 1940(i) Plans for the Allied occupation of Norwegian bases

"A review of the
campaign in
Norway" pp.1-28.

During the early months of 1940 allied plans had been in preparation to occupy at least the Northern part of Norway and Sweden and cut Germany off from the vital supplies of Swedish iron-ore and assist the Finns with men and materials in their fight against Russia. During their discussions of this plan in its various forms, the Chiefs of Staff had continually emphasised that Norwegian and Swedish co-operation in the allied action was indispensable to success and also to forestall the inevitable German reaction, which was expected to take the form of an invasion of Southern Scandinavia. It was thus the firm rejection of our proposals at the beginning of March by both the Scandinavian governments, followed a few days later by the Finnish surrender, which forced the British Government to order the dispersal of the expeditionary force.

It was however felt for various reasons that the project should not be allowed to lapse completely. A further plan was made to take over Narvik as a permanent allied base⁽¹⁾ and to occupy Trondheim, Bergen and Stavanger⁽²⁾ if the German reaction to the mining operation "Wilfred" took the form of hostile measures against Norway. On 5 April, notes stating the attitude taken by the Allies towards the Scandinavian situation and the threat to allied interests from both German and Russian activity in that sphere, were presented in Oslo and Stockholm. By 7th April troops allotted to the two operations had embarked and on 8th April the Allies declared that they had mined the Vestfjord and laid two further minefields in Norwegian territorial waters between Kristiansund (N) and Bergen⁽³⁾

CC file
S.7010/18/1
Encl. 2A
& 11A

Coastal Command's part in this plan was mainly concerned with providing anti-U boat protection for the convoys involved. No. 15 Group was to provide air escort for the French contingent in the Western Approaches and Irish Sea as far as the Clyde, where the French were to receive further routing and convoy instructions, and for a British convoy from Newport to the Clyde. Number 18 Group were to provide anti-U-boat protection from the Clyde round the North-West coast of Scotland to Narvik and Trondheim and from Leith and Rosyth for the forces sailing to Stavanger and Bergen. It was further thought that long range fighter protection would be required during daylight for the forces sailing to Trondheim, Stavanger and Bergen, and that dawn and dusk searches of the Southern half of the North Sea would be necessary to give warning of movements of enemy surface units. Furthermore the withdrawal of cruiser support from the Northern Patrol⁽⁴⁾ might require reinforcement of air patrols between the Faeroes and Iceland and between the Faeroes and Shetlands, which would be met by withdrawing Sunderlands from units in Number 15 Group to operate from both Shetlands and Invergorden.

"A review of the
campaign in
Norway" p.14

The allied expeditionary force was at immediate readiness from 8 April but reports received from our air patrols indicated

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- (1) Operation "Avonmouth"
 - (2) Operation "Stratford"
 - (3) Operation "Wilfred". See Chapter I ~~Section~~ Section (xfv)
 - (4) Four cruisers were to transport the troops and stores required for the Stavanger and Bergen landings.

that major German naval units were at sea and the first convoys were, in consequence, held in port. Early in the morning of 9 April the news came that the Germans had invaded Norway and forestalled us - a possibility which had been foreseen by the Chiefs of Staff in their report on the original proposal to occupy the Swedish orefields.

(1)

(ii) An outline of the Norwegian campaign

The Norwegian campaign falls into two clearly defined periods - the struggle in the South and Centre which came to a close on 5 May and operations in the North centring around Narvik, which lasted from 6 May until 10 June.

During the early hours of 9 April, German troops were landed by sea and troop-carrying aircraft at Narvik, Trondheim, Bergen, Stavanger, Egersund and in the Oslo area and by the end of that day they were in possession of all the important harbours and airfields. The situation which confronted the Allies thus called for immediate and powerful action in a theatre of operation where all the strategic advantages were held by an enemy who also possessed undisputed air superiority. Furthermore, during the first week of the campaign the Germans prevented effective mobilisation of the Norwegian Army by seizing the main railway centres and succeeded in dividing the Norwegian Army into four groups.

The first essential for the Allies was to recapture a port as a base for operations. Trondheim offered the best facilities and it was planned to retake this harbour by landing forces at two small ports to the north and south, Namsos and Aandalsnes. The first landings at these places were made by naval forces on 14 and 17 April respectively. Harbour facilities were hopelessly inadequate in both cases and communications with the interior were equally bad. German reconnaissance aircraft soon discovered our bases which were subjected to heavy and accurate bombing attacks, against which no effective defence could be made.

Equally no effective opposition could be made to the German forces advancing steadily up the Gudbrand valley from the South towards Trondheim particularly in the face of the complete superiority of the German Air Force and the marked inferiority of allied forces both in numbers and equipment.

An attempt to provide air protection for Aandalsnes by No. 263 Gladiator Squadron based on the frozen lake at Lesjeskogen failed with the destruction by enemy bombing of all but five of the squadron's aircraft on 25 April, the day following their arrival in Norway. The remaining five serviceable aircraft were flown that night to a small landing ground at Setnesmoen and were also out of action by the end of the following day. Petrol was likewise exhausted. On 28 April the squadron personnel re-embarked for the United Kingdom.

The continuous enemy bombing of our bases and ships, and the efficiency of German operations in their advance towards Trondheim, left no course open to the Allied Commanders but to withdraw our forces from Central Norway as soon as possible. Evacuation from Aandalsnes was carried out on the nights of 30 April, 1 May and 1/2 May. At Namsos the embarkation was carried out on the night of 2/3 May. The Allied evacuation made it impossible for the Norwegians to attempt to hold Central Norway and this decision was made public on 5 May.

(1) This is intended to give only such details as are necessary to understand the part played by Coastal Command. In the nature of things operations by this Command had at most only a loose connection with land operations in Norway. Operations against German naval forces are dealt with in detail in sections (x) and (xi). For further details of the land campaign see 'A review of the Campaign in Norway' produced by A.H.B.1.

Direct support by home-based aircraft for our land forces in the Trondheim area was limited to attacks on the main G.A.F. airfields in use in Denmark and Norway, particularly on Stavanger, and on elements of the German Navy which had transported the first enemy troops to seize the main Norwegian harbours. Coastal Command aircraft also carried out extensive reconnaissance flights over sea and the coastal areas, during the course of which a number of opportunity targets were attacked.

Support by home-based aircraft for our land-forces in the Narvik area was not possible, as that area was out of range of all but the few Coastal Command flying boats. Bomber Command aircraft were no longer available for operations over Norway when the German attack on the Low Countries began.

Allied troops landed in the Narvik area on 15 April and although preparations for landing grounds to receive the two promised fighter squadrons⁽¹⁾ were put in hand, German air superiority decided every land action which was fought against the enemy troops advancing from the South. Before the final assault on Narvik was begun on 28 May, the decision to withdraw all allied forces from Norway had already been taken.

It was clear that we could not afford to spare a single man or gun, much less one aircraft for what was regarded as a secondary theatre when disaster upon disaster was overtaking our forces in the West. The capture of Narvik was, however, completed in order to ensure the destruction of the port facilities and the interruption for at least one year of the supply of Swedish iron-ore to Germany through that port. On the same day the Belgian army surrendered and the evacuation of Dunkirk began.

The evacuation from Narvik was carried out gradually from 3 June until 8 June. On the final day the culminating misfortune occurred when H.M.S. Glorious was sunk by the two German battle cruisers.

(iii) Summary of Coastal Command's Work during the Norwegian Campaign

The primary object of all operations by Coastal Command in this campaign was reconnaissance in the North Sea and in Norwegian waters, searching for German naval units and merchant shipping, which was attacked, although without great effect, whenever an opportunity offered. Secondary roles played by the Command were numerous and brought a severe drain on the limited aircraft resources, as the two Groups engaged in the Norwegian Campaign (numbers 16 and 18 Groups) had a daily total average of less than 150 aircraft available to carry out all tasks. No appreciable increase was made in the allotment of aircraft to the Command to enable it to meet the fresh commitments resulting from the German invasion of Norway. The two Groups actively concerned with these northern operations were Nos. 16 and 18. It is convenient to consider their roles separately.

(1) No. 263 Gladiator Squadron and No. 46 Hurricane Squadron. These arrived on 21 and 26 May respectively and, operating from Bardufoss, maintained local air superiority over the Narvik area.

(iv) Number 16 Group - General Summary

The main effort of number 16 Group was devoted to escort of coastal convoys in the English Channel and in the North Sea - in fact convoy escort duties occupied nearly half the total flying time for Coastal Command as a whole.⁽¹⁾ Anti-U-boat precautions played a large part and included the routine lettered patrols, special searches for individual reported U/B's, the regular patrol of the swept channel through the East coast mine barrage (police patrol) and the Channel and Leave boat patrols in the Dover Straits. Miscellaneous duties included the lightship patrol, intended to re-assure the lightship crews, who were being attacked by enemy aircraft; the Dutch patrol to search for enemy surface mine-laying and minesweeping vessels off the Dutch coast; searches for aircraft reported down in the sea and a patrol at dusk off the Dutch islands from Texel to Ameland (T5)⁽²⁾ to observe enemy surface vessels, anti-submarine nets, patrol craft and minefields.

(v) No. 16 Group Operations in the Norwegian Campaign

Three squadrons in No. 16 Group were particularly concerned with operations in support of the Norwegian Campaign. The Blenheim IVs of No. 254 Squadron⁽³⁾ partially filled a very urgent need for long range fighter reconnaissance aircraft, especially over the more active areas where increasing enemy fighter opposition entailed the use of an aircraft which could, if necessary, fight for the required information. In addition to general reconnaissance of Norwegian harbours and airfields, this squadron provided long range fighter cover for our naval, land and air forces⁽⁴⁾. A number of attacks on enemy aircraft and minor naval units were made in the course of these flights. A regular patrol over the North Sea ~~was~~ was flown daily from Bircham Newton to search for enemy surface vessels and attack enemy aircraft encountered.⁽⁵⁾

The other two squadrons of No. 16 Group directly engaged in the Norwegian Campaign were Nos. 22 and 815 (F.A.A.), both equipped with torpedo-bomber aircraft. The latter had been

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- (1) 4975 hours 10 minutes out of 11,189 hours 25 minutes during April; 1,050 sorties involved.
 - (2) T.5. Landfall at Dutch coast 5300 N., thence coastwise to 0600E., and 5330N. X 0400E. (RO/G5/21/1).
 - (3) One of the four trade protection fighter squadrons transferred to Coastal Command from Fighter Command in January and February 1940. The other three squadrons did not become available for operations under Coastal Command until after the Norwegian campaign.
 - (4) Apart from carrier-based F.A.A. aircraft, No. 254 Squadron provided the only fighter aircraft to operate over our ground forces in the Aandalsnes area.
 - (5) Sweep patrol: Bircham Newton - 5300 N x 0420 E - 5500 N x 0500 E - Bircham Newton (CH/G6/10/4).

Admiralty Signal
1259/28/3

instructed by Admiralty to move to Bircham Newton by 8 April and had been placed under the operational control of Coastal Command until it was required to embark in the Fleet Carrier Illustrious. No. 22 Squadron, the first of the two Coastal Command torpedo-bomber squadrons to re-arm with Beaufort aircraft(1), moved from Thorney Island, where it had been re-arming, to its war station at North Coates on 8 April.

A.M. File S.48345
Encs. 74A, 75A,
77A, 78A, 83A,
84A & 86A

Discussions between the A.O.C.-in-C., Coastal Command, the Air Ministry and the Admiralty had begun some time previously concerning the proposed location of the two Beaufort squadrons. The Admiralty, emphasising the need for a strike force based in North East Scotland for use against enemy naval units attempting to break out of the North Sea, pressed for the establishment of one of these squadrons at Wick and the other at Catfoss. Air Chief Marshal Bowhill, however, foreseeing, in view of the general shortage of aircraft in the Command, that these squadrons could not be reserved solely for use against German naval units(2), urged the Air Ministry at the end of 1939 to allow both squadrons to be based at Catfoss. He contended that the two squadrons would form a very much more effective force if operating together, that training and maintenance problems would be simplified and that Catfoss was very favourably situated for operations in the southern part of the North Sea(3). Both squadrons would remain on a mobile basis and could, if required, be detached rapidly to Wick, where torpedo storage and maintenance facilities would be established. The Air Ministry acknowledged the force of these arguments and it was agreed that both squadrons should be based at Catfoss. This aerodrome subsequently proved unsuitable for Beaufort aircraft and North Coates Fitties was transferred to Coastal Command for this purpose. As no torpedo facilities were available there by the time No. 22 Squadron took up its war station, the question of using Wick as a base was again raised but the urgency of the mining operations in implementation of plan W.A.15(4) was pressed and the squadron remained at North Coates. Bombs were to be used for attacks on naval units unless time allowed the aircraft to load up with torpedoes at Bircham Newton.

No. 22 Squadron commenced operations on the night of 15/16 April, laying six mines in the Jade approaches. One aircraft was lost. On the night of 17/18 April seven

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- (1) The other was No. 42 Squadron. Both these squadrons had been equipped with Vildebeest aircraft at the beginning of the war and plans had originally been made to re-arm them with Bothas. This aircraft proved a failure and the two squadrons were eventually re-armed with Beauforts.
 - (2) Events during the French campaign and the duties carried out by these Beaufort squadrons, subsequently proved that this view was correct.
 - (3) Attempts by enemy ships to break out of the North Sea had only been made under cover of bad weather and poor visibility. Plans for interception by aircraft patrols had therefore yielded disappointing results, no objectives for an air striking force having been found south of 59 degrees North.
 - (4) Designed to cause maximum interference with German shipping by laying airborne mines outside the most important harbours. Operations were planned to commence on the first suitable moonlit night in April 1940, using the Hampden (No. 5) Group of Bomber Command and No. 22 Squadron of Coastal Command. See Chap. IX.

No. 16 Group
Narrative
23/4/40
Para. 2

Beauforts laid mines in the Ems river estuary and on 22 April six Swordfish of No. 815 Squadron laid mines in the same area for the first time, beginning a long series of minelaying sorties by Fleet Air Arm squadrons under the operational control of Coastal Command(1).

(vi) Summary of the work of No. 18 Group during the Norwegian Campaign

The onus of support by Coastal Command for our sea and land forces thus fell on 18 Group. Routine convoy escorts and anti-U-boat patrols were flown as usual, but although the Norwegian campaign entailed an increased amount of escort duties of both naval and merchant vessels, the main effort was directed to fulfil the heavy requirements for reconnaissance of the North Sea particularly at the opening of the campaign when major enemy naval units were at sea. The Norwegian coast, inlets and fjords, the harbours, the airfields, particularly Stavanger, Bergen and Trondheim, and the coastal stretches of railway between Stavanger and Egersund and between Arendal and Grimstad similarly entailed a number of sorties. Hudson aircraft of Nos. 220, 224 and 233 Squadrons based at Thornaby, Leuchars and Wick, carried the main burden of this reconnaissance. During the week ending 14 April, which included the period of maximum activity, an average number of between 27 and 28 Hudsons available for operations flew 704 hours 45 minutes on reconnaissance duties. The total flying time for all No. 18 Group squadrons on reconnaissance was 753 hours.

Other duties carried out by aircraft of No. 18 Group will be dealt with more fully in the course of this chapter. It may be mentioned here that bombing attacks were carried out on Stavanger airfield; that fighter escort and offensive fighter sorties were made by the long range Blenheims of No. 254 Squadron;(2) that enemy naval and merchant shipping was attacked with bombs and machine guns and that, last but not least, the Sunderland "taxi service" was run from Invergordon to Namsos, Aandalsnes, and the Narvik areas.

No. 18 Group ORB
Narrative

(vii) Squadrons available in No. 18 Group

To carry out these tasks, at the opening of the campaign, No. 18 Group had 11 squadrons and 5 special flights at its disposal with an average total of 95 operationally serviceable aircraft. Two Squadrons of flying boats, No. 240 (Londons)⁽³⁾ and No. 204 (Sunderlands), the latter having moved from Mount Batten on 1st April, were available in the Shetlands, together with a fighter flight of five Gladiators at Sumburgh⁽⁴⁾ used to intercept enemy aircraft attacking our convoys in the vicinity of the Orkneys and Shetlands. Other flying boat squadrons were No. 209 Squadron⁽⁵⁾ at Oban, whose main care was

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- (1) See Chapter IX.
 - (2) Transferred from No. 16 to No. 18 Group on 23rd April.
 - (3) No. 240 squadron moved to Pembroke Dock on 27th May, 1940.
 - (4) This was a detachment of No. 152 Squadron transferred from Fighter Command to Coastal Command w.e.f. 18th December, 1939.
 - (5) In the process of exchanging its Stranraer aircraft for Lerwicks.

H.Q.C.C.C.R.B.
Form 540
28/3/40

C.C. Form 540
20/12/39 H.Q.C.C.
Org. Branch
acquaints Nos.
124 and 127

the escort of convoys off the North-West coast of Scotland and thus played no direct part in the Norwegian Campaign, and No. 201 squadron, (1) which had moved to Pembroke Dock on 3 April to convert from Londons to Sunderlands and was not available for operations at Invergordon until 23 April. This squadron moved again to Sullom Voe on 27 May, 1940 to replace No. 240 squadron. Two other Sunderlands were stationed at Invergordon. These were the "C" class flying boats "Cabot" and "Caribou" which had been chartered by the Air Ministry for Coastal Command from Imperial Airways from the 18 December, 1939. The two Imperial Airways crews were called up for service in these aircraft and four Vickers gas operated guns were fitted as defensive armament.

Three Hudson squadrons (2) and three Anson squadrons (3) were used for general reconnaissance, anti-U-boat searches and convoy escort. Battle flights had been organised from the turretted Hudson aircraft, available for duties in which enemy aircraft either shadowing or attacking our surface units might be expected and for long range reconnaissance in areas in which enemy fighter opposition was a likelihood.

A.M. signal
X756/29/3

Two squadrons of Wellington bomber aircraft (Number 9 and 115 squadrons) had been ordered as a temporary measure to Kinloss and Lossiemouth on 4 April to operate under Coastal Command control in support of our naval forces in the North.

They assisted in the search for the German naval units at sea and in the bombing of the two "K" class cruisers at Bergen and of the airfield at Stavanger and eventually returned to their parent stations on 13 and 14 April.

C.C.O.R.B.
Narrative
CC/N4/10/4/E1

When the Germans landed at Narvik, which was out of range of the land based reconnaissance aircraft then available at Coastal Command, two long range Wellingtons were ordered by Air Ministry to Wick, whence one of these aircraft carried out its first operational flight to Narvik on 12 April.

Two flights of aircraft remain to be mentioned, Nos. 1 and 2 Coastal Patrol flights of Tiger Moths stationed at Dyce and Abbotsinch, which carried out the "Scarecrow" patrols already described. (4)

(viii) Operational difficulties encountered by aircrews

Intelligence preparations for operations over Norway had been negligible with the result that no large-scale maps were available and navigators were frequently reduced to identifying their target from a tracing of a town plan in Baedekers guide to Norway. Serious difficulty was met in navigation along the Norwegian coast with the small-scale maps available, errors in reporting the position of vessels

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- (1) As No. 201 squadron re-armed with aircraft withdrawn from the other three Sunderland Squadrons of Coastal Command - Nos. 204, 210 and 228 - the aircraft establishment was reduced from six to four aircraft in each case, with an initial reserve of two. The aircraft establishment for Nos. 209 (Lerwicks) and 240 (Londons) squadrons remained at six plus an initial reserve of two.
 - (2) 220 Squadron at Thornaby: 224 and 233 squadrons at Leuchars.
 - (3) 269 squadron at Wick (converting from Ansons to Hudsons but remained operational): 608 squadron at Thornaby: 612 squadron at Dyce.
 - (4) Chapter II of this volume.

sighted being unavoidable. No photographs or mosaics such as were afterwards produced of the more intricate stretches of coast were yet available.

Apart from the task of making a successful crossing of the North Sea and striking the Norwegian coast in the neighbourhood of the target frequently under bad weather conditions, enemy air opposition over Norway made it necessary to rule that operations over the more dangerous areas were only to be carried out if cloud was available. Clear skies with conditions of perfect visibility, offering no cover for our aircraft, seem to have alternated with very bad weather and poor visibility.(1) A graphic example of this is the account given by the captain of the first long range Wellington flight to Narvik, when, in spite of trying to reach the target with great perseverance, he was finally forced to abandon the task by the weather. A number of attempts at locating both friendly and enemy surface units were unsuccessful solely because visibility was so poor. Interference with operations was particularly evident on 8 April when bad weather over the North Sea seriously interrupted our reconnaissance patrols on the day before the German landing, and towards the end of April when fog over our airfields prevented our aircraft from taking off. 26 April, for instance, was particularly bad in this respect, the majority of operations by 18 Group being either postponed or cancelled.

As objectives were often barely within the range of our aircraft, the time spent in the target area was very limited and the search for targets, if these were not found at once, could not therefore be extensive. Other important objectives were out of range of the aircraft otherwise most suitable for carrying out a particular task. Examples are found in the evacuation of Allied troops from central Norway, when Namsos was beyond the range of the long range fighter aircraft then available. Patrols over Aandalsnes by Blenheim IV's were limited to an endurance of one hour.

The Mark I ASV equipment with which a few Coastal Command aircraft had been fitted by this time, had a limited range and was not very efficient compared with the later models. The Hudsons which were sent out on 7 April to locate the vessel reported by an aircraft of Bomber Command, picked up the enemy force on the "special equipment", (2) as it was then called, just after the force was sighted visually, although the pilot of the aircraft using the apparatus was able to re-establish visual contact with the force by means of the equipment, after he had altered course and lost sight of the enemy.

(ix) An analysis of No. 18 Group effort on 9 April 1940

This day's operations are interesting as showing the manner in which the Group met the demands made upon it and as indicating the trend of activity during the next three or four weeks.

(1) Sunderland Q/228 carried out a reconnaissance of Trondheim on 10 April in a "blizzard of snow and sleet".

(2) A.S.V.

No. 18 Group
Narrative
12/4/40
pp.137/8

No. 18 Group
Narrative
8/4/40

No. 18 Group
Narrative
26/4/40

No. 18 Group
Narrative.
7/4/40 p.66

No. 18 Group
Narrative
9/4/40

All aircraft, with the exception of the Ansons and Gladiators, neither of which had sufficient range to operate over Norway, were engaged to the full extent of their operational strength. A total of seventy-one sorties were flown by the eighty-seven aircraft available for operations at 0800 hours on 9th April.

The main task was to locate the German naval units known to be somewhere in the North Sea. Only one convoy was given air escort and the routine and lettered patrols flown were designed to intercept the enemy naval units which might be returning to their home bases. The theme of the search for these naval units is treated in some detail in the next section.

O.C. form green
CC/G3/9/4

General reconnaissance was flown by single aircraft as frequently as possible to provide details of rail and troop movements and of shipping and aerodrome activity. The main centres of interest included the rail heads on the coast at Arendal, Grimstad and Kristiansand (South), where shipping in the harbour and bay was also of interest, the rail head at Flekkefjord and the stretch of coastal railway from Egersund to Varhaug, as well as Trondheim, Stavanger, Haugesund and Bergen and its neighbourhood. Reports were made on naval and merchant shipping, on aircraft on the airfields and at the seaplane bases, on railway activity and on general activity on land. A detailed reconnaissance was also made of the Faeroe Islands to locate enemy warships or other suspicious vessels sheltering in the fjords. A Sunderland of No. 210 squadron(1) was sent off from Invergordon to carry out a reconnaissance of Oslo and the surrounding fjords, the captain being briefed to make a landfall at Stavanger and proceed to Oslo across country if weather conditions were suitable. In view of the efficiency with which the German Air Force occupied and operated from the Norwegian airfields and the scale of air support given to the German ground forces, it is not surprising that this aircraft failed to return.

Sixteen of the lettered tracks and two sweeps along the Norwegian coast covering the Northern half of the North Sea and the Norwegian coast from a point a few miles South of Bremanger to the North coast of Denmark including the Skagerrak as far as nine degrees East were flown, together with the Norwegian ports and fjords within range of the aircraft available. Crossover patrols to intercept enemy surface vessels were flown at two points off the Norwegian coast and in the Cape Wrath - Faeroe Islands channel.(2)

The routine anti-U-boat patrols, were flown and air escort was provided for H.M.S. Furious.

To finish the day's effort twelve Wellingtons of Nos. 9 and 115 squadrons attacked the two 'K' class cruisers lying

H/210 Sqn-

- (1) / Loaned to No. 18 Group by No. 15 Group
- (2) Details of the patrols flown on 9th April will be found under the heading "The search for the German naval units". (Section (X)).

No. 18 Group
April Narrative

Logs of these
vessels

in Bergen, dropping a total of 39 - 500 pound S.A.P. bombs. One hit was claimed but this bomb in fact did not fall near enough to cause any damage. Several bombs fell within sixty yards of the Konigsberg and the Koln suffered superficial damage to her funnel and upper structure from machine-gun fire, three of her personnel being killed and five wounded.

Seven combats were fought during the day by Coastal Command aircraft on these operations, the only decisive result being one Do 18 flying boat shot down by a Wellington of No.9 Squadron after an engagement lasting four minutes.

(x) The search for the German naval units. (7th April to 20th April)

A.M.D.O.N.C.
form 540 entry
(xi) on 7/4/45

Admty.
NID24/X10/45

On 4th April Bomber Command aircraft had reported two enemy capital ships of the Gneisenau class in the Wilhelmshaven roads. Two days later photographic reconnaissance confirmed the presence of the Scharnhorst and Gneisenau and also reported two pocket battleships, one in dry dock, and two 'K' class cruisers. The two battlecruisers were, in fact, waiting to sail that night with the Hipper (1) and fourteen destroyers to occupy Trondheim (Hipper and four destroyers) and Narvik (ten destroyers). One of the pocket battleships was also to have sailed with this group but was delayed by engine trouble and eventually accompanied the force which seized Oslo.

Bomber Command
Intelligence
Report No. 344

Coastal Command
Naval
Staff Log
7/4/40
NID24/X10/45

On the night of 6th April a Bomber Command aircraft flew over a warship in the Jade Roads at 200 feet. This was the Scharnhorst which, although preparing to move off, was not yet under way and thus excited no undue suspicions. However a second Bomber Command aircraft reported a large ship twenty miles North of Heligoland on a Northerly course. It was thought that this was possibly a battleship. In fact it was most probably the Hipper, which was the first of the three major units to sail.

Coastal Command
Naval Staff Log
7/4/40

Three Coastal Command Hudsons from Thornaby, searching for this "large vessel" between Horn Reefs and Lindesnes on the following morning, sighted one cruiser and six destroyers off the Danish coast(2) on a northerly course. The enemy fighter escort was effective in preventing our aircraft from shadowing the naval force. Subsequent interrogation of these crews persuaded them to identify the cruiser as "Nurnberg or Leipzig class", an error which, despite photographic reconnaissance which showed both cruisers of this class to be lying at Kiel at 1700 hours on 7th April, persisted during this period of search for the enemy naval force.

H.Q., C.C.,
Narrative
CC/N1/9/4

H.Q., B.C. O.R.B.
for 7/4/40. H.Q.,
C.C.N.L.O's log
entries on 7/4/40

In the meantime a force of Bomber Command Blenheims(3) had successfully located this target and at 1325 hours dropped 45 - 250 pound S.A.P. bombs with no hits scored. Their sighting

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- (1) Then lying at Cuxhaven, where she remained undiscovered by British reconnaissance. (Hipper's log).
 - (2) About 28 miles North-West of Horn Reefs. Sighted by K & M/220 Sqdn. at 0848 hours - Force RS.
 - (3) Twelve Blenheims of No. 107 squadron. A further six Blenheims of No. 21 squadron failed to locate the target.

Logs of these
vessels

reports estimated the enemy force as one battleship, one pocket battleship, two or three cruisers and a large destroyer escort. In point of fact it now comprised the two battle-cruisers, the Hipper and fourteen destroyers, but it was not until over four hours later that the Home Fleet was so informed.⁽¹⁾

No. 18 Group
Narrative
7/4/40

The two squadrons of Wellington bombers at this time under the operational control of Coastal Command, Nos. 9 and 115 squadrons, failed to find the enemy force and returned to base, having lost two of their number in an attack by Me. 110s on the rear flight of No. 115 squadron.

No. 16 Group
Narrative 7/4/40

The enemy's intentions were not as yet apparent and further Coastal Command reconnaissances were flown to cover all possible contingencies. A Blenheim from Bircham Newton examined an area from Horn Reefs to Heligoland Bight in case the force decided to double back. Two continuous crossover patrols were flown off the Norwegian coast⁽²⁾ and an area in the central North Sea⁽³⁾ was examined, all without success. A final attempt to relocate the force was made that night by three Hudsons fitted with A.S.V., which searched an area off the Norwegian coast from Bergen to the Naze. No sightings were made.

No. 18 Group
Narrative 7/4/40

7th April was of particular interest as the first successful photographs of Kiel were obtained on that date, after several unsuccessful attempts to fulfil this high priority requirement. Although the cover of 7th April showed two Leipzig class cruisers and one eight inch cruiser⁽⁴⁾ in the harbour, lack of previous cover for comparison meant that no indication was received that these vessels were in fact out of commission at that time. Ignorance of this fact among other factors led to errors in estimating the position and strength of the German naval forces at sea both by the Admiralty⁽⁵⁾ and Coastal Command⁽⁶⁾. Furthermore recognition errors by Coastal Command general reconnaissance aircraft could have been corrected at squadron level.

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- (1) A W/T report giving the composition, position, course, and speed of the enemy force was despatched soon after the attack during the Blenheims' homeward flight but there is no evidence at any headquarters that this signal was ever received in full. It was not till the crews were debriefed at 1700 hours after landing back that any authority was aware of the major additions to the enemy squadron and not till darkness had set in that the Commander-in-Chief Home Fleet was informed of the real size of the force endeavouring to slip past him.
 - (2) (a) Between 6145 N x 0200 E and 6210 N x 0445 E. Flown from 1120 until 1140 hours.
(b) L6 in area 5730 N x 0130 E - 5835 N x 0514 E - 5810 N x 0532 E - 5758 N x 0110 E. Flown from 1142 until 1908 hours.
 - (3) Two Hudsons from Thornaby flew the area covered by tracks RST and U at dusk.
 - (4) The Leipzig lying alongside in Kiel out of commission from February until November, 1940, the "Nurnberg" in dry dock in Kiel from December, 1939 until 30th April, 1940, and "Prinz Eugen" out of commission for major alterations to the main engines. (Logs of these vessels).
 - (5) Bomber Command signal A94/2005/10/4 ordered a bombing sortie following an Admiralty statement that the "Gneisenau" and "Nurnberg" were believed to be lying in Kristiansand (S). (CC. file S.7010/18/3. Encl. 6A).
 - (6) Estimate of German forces and movements by A.O.C.-in-C., Coastal Command on 8th April 1940 assesses the number of pocket battleships available to the enemy at two and the number of cruisers at eight. In fact one pocket battleship and six cruisers were available. (H.Q., C.C. Narrative CC/N2/9/4).

The failure to obtain complete photo reconnaissance of the German naval bases at this period(1) meant that the sighting reports by Coastal Command and other aircraft, as well as reports from other sources, could not be fully co-ordinated and correctly evaluated. No clear picture of enemy operations was obtained nor was a correct assessment of his intentions possible.

No. 18 Group
Narrative
8/4/40.

Coastal Command reconnaissance on 8 April was mainly designed to locate the enemy naval forces known to be in the North Sea. Special patrols covering a large part of the North Sea and the Norwegian coast from 60 degrees 45 minutes North to 65 degrees North (2) and a continuous crossover patrol off the South West Norwegian coast (16) were flown, without making any important sightings. An enemy force was, however, sighted once during the day at 1400 hours in position 6407 N. x 0625 E. and reported as steering west by one of the two Sunderlands escorting the Home Fleet at sea(3). This aircraft came upon the enemy suddenly in heavy rain, took immediate avoiding action but was hit by the accurate enemy fire and forced to set course for base. The enemy force was reported as one "Scharnhorst" class battlecruiser, two "Leipzig" class cruisers and two destroyers.

In point of fact this force consisted of the Hipper and four destroyers and was steering in a north-easterly direction after having sunk H.M.S. Glowworm. This error in recognition and course caused an erroneous appreciation of enemy movements and misled the C.-in-C., Home Fleet, who was endeavouring to intercept them(4). Map XXII shows the movements of enemy naval units between the 7 and 12 April.

On receipt of this sighting report another Sunderland (A/210), which had been requested to search for the enemy by

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- (1) Four unsuccessful attempts were made to photograph Wilhelmshaven and the Heligoland Bight.
 - (2) (a) Tracks E-K inclusive by 4 Hudsons and the area covered by tracks RST and U by 2 Hudsons.
 (b) Sunderland S/228 flew track B1, thence along the Norwegian coast to 65 degrees North, returning 20 miles further to seaward as far as track A1, thence returning on track A.1.
 (c) Sunderland D/204 flew track B, thence along the Norwegian coast to 60 degrees 45 minutes North, thence return to Shetlands but was lost on the return journey.
 (d) Three Hudsons detailed to search the Skagerrak as far as 10 degrees East, returned early having met bad weather.
 (e) A continuous crossover patrol ordered off the Norwegian coast about latitude 62 degrees North was not flown owing to shortage of Sunderland aircraft.
 - (3) Sunderland B/204 diverted by the C.-in-C., Home Fleet to search for and shadow the enemy force. Sighting report timed 1400 hours. Approximate course of enemy 270°.
 - (4) The complete German squadron after being sighted and attacked by Hlenheim bombers at 1325 hours on the 7 April, had continued on a northerly course out of the North Sea. The German records establish that, from 0500 hours on 8 April, the whole force were steering in a north easterly direction about 90 miles off the Norwegian coast abreast Trondheim. At 0818 hours the Hipper and 4 destroyers were ordered to drop back and engage a British destroyer which had been reported astern while the "Scharnhorst", "Gneisenau" and 10 destroyers continued towards the Vestfjord and Narvik. After dealing with the British destroyer, the "Hipper" and her four destroyers were to carry out the previous orders to proceed to Trondheim and land the troops they had on board. The British destroyer - "Glowworm" - was sunk at 0912 hours after she had rammed and slightly damaged the "Hipper". An hour was then spent in picking up about 60 survivors after which the "Hipper" and destroyers, being ahead of scheduled time, proceeded to the northeast towards the Halten bank at 15 knots. At 1350 hours, in very bad visibility, a Sunderland aircraft was sighted in position 6500 N. x 0810 E. Fire was opened by the Hipper and the aircraft disappeared in the low clouds. At 1445 hours course was altered to the southward to make direct for Fro Havet the northern entrance to Trondheim fjord. On arrival off Fro Havet at about 2000 hours the force hove to on various courses to waste time as they were still ahead of schedule, Trondheim fjord was not entered until early on the 9 April. Ref. The logs of the ship concerned. See also Map XXII.

SECRET

65

C.-in-C., Rosyth, thus making a total of four Sunderlands all searching approximately the same area⁽¹⁾, was recalled by A.O.C.-in-C., Coastal Command. This aircraft subsequently took off again after refuelling to search for and shadow the force already located during the afternoon. This search was abandoned at dark without the enemy force having been sighted.

As a result of the attention paid to the Trondheim-Narvik force, Coastal Command patrols on 8th April were too far to the North to intercept the movements of two further groups of enemy warships, which were able to reach their destinations unobserved. These were the two 'K' class cruisers and escort from Wilhelmshaven⁽²⁾ and the Karlsruhe and escort from the Weser estuary⁽³⁾, destined for Bergen and Kristiansand (S) respectively. Bomber Command aircraft reconnoitring Heligoland Bight in conditions of extremely bad visibility, had not seen anything unusual.

Other evidence was available pointing to the possibility of a German invasion of Norway. Information had been received from both our ministers in Oslo and in Stockholm that Germany was preparing to invade Norway. German reconnaissance aircraft made a survey of Oslo, Bergen, Hardanger fjord and Kristiansand on 30th March; Bomber Command nickel reconnaissances reported considerable night activity at Kiel and on the Hamburg - Lubeck roads on the night of 6/7th April; unusual German aircraft activity sweeping the northern part of the North Sea between the Shetlands and Norway was reported on 7th April; reports from Admiralty sources stated that two naval forces and a number of merchant vessels had passed through the Great Belt and the Sound; and finally it was officially recognised that the laying of mines in Norwegian territorial waters might provoke a German invasion of Norway to protect the iron ore supplies vital to her, a contingency our forces were prepared to meet by a counter-invasion of the main Norwegian West coast ports, in particular Narvik.

This last consideration, together with a report that the occupation of Narvik had been ordered by Hitler, undoubtedly influenced the opinion held at the Admiralty that the enemy force was possibly intended to seize Narvik. Beyond this no clear picture of the enemy's intentions was available as a basis on which the A.O.C.-in-C., Coastal Command could formulate a plan of action. In his summing up on 8th April, he therefore considered four possibilities. In the first place, having been sighted off Trondheim by Sunderland B/204, the enemy might fear interception by superior naval forces and turn for home, in which case the force could be off Lister by 0800 hours on 9th April. Alternatively the enemy, having originally left harbour in order to interfere with our minelaying expedition, might continue to Vestfjord, arriving by 0200 hours on 9th April. Two further possibilities were that the enemy intended to intercept our Northern Patrol or await reinforcements. In view of this reasoning tracks E to V were to be flown on the following day, two aircraft were to sweep from Lindesnes coastwise to 60 degrees North and the continuous crossover patrol off the southwest Norwegian coast was ordered. Available Sunderlands, estimated at a total of four aircraft at Invergordon and Shetlands, including two

Map XXII

F.O. 140 Dipp from
Stockholm 26.III.40
Tels. 155 & 161 Dipp
from Stockholm
Tel. 28 Saving from
Oslo 30/3/40

No.
3 Group
O.R.B.

W/T Intell.
Summary
No. 218

Scandinavian project
Plan R4.

C.C. file S7010/18/1
Encl. 1A, 2A & 5A

Admy. Tel. 1259/7

C.C. Narrative
CC/N2/9/4

No. 18 Group Narrative
8/4/40.

(1) S/228, A/210, B and D/204 Squadrons. See footnotes (2) and (3) on page 64.
(2) Sailed on the night of April 7/8th (NID24/X10/45).
(3) Sailed at 0500 hours German time on April 8th (NID24/X10/45).

Sunderlands from No. 15 Group which were to be available as early as possible on 9th April, were to be held ready for searches towards the northeast or northwest required.

A general account of Coastal Command's effort on 9th April, the day of the German invasion of Norway, has been given in a previous section. It remains to recount the endeavour to locate the German naval units engaged in the invasion of Norway. The news of the landings by German troops in Norway, received at Coastal Command H.Q. during the early hours of 9th April, partly answered the questions about the intentions of force RS and was followed by reconnaissance of the main Norwegian ports, whence reliable ground reports had already been received about the presence of German naval units. Single aircraft were ordered over Kristiansand (S), Stavanger, Bergen and Haugesund as often as possible. Four Wellingtons of No. 9 Squadron, two Blenheims belonging to the detachment of No. 254 Squadron stationed at Lossiemouth and one London of No. 240 Squadron carried out this task whilst a Sunderland of No. 204 Squadron carried out a reconnaissance of Trondheim Fjord. A further Sunderland of No. 210 Squadron (15 Group) was ordered to make a reconnaissance of Oslo and the surrounding fjords but failed to return. Naval observers from Hatston flew on the Wellingtons and Blenheim reconnaissance sorties to ensure accurate identification of naval units sighted.

No. 18 Group RB.
Narrative
9/4/40

Captured logs
of the German
naval units

In order to assess the accuracy of the sighting reports by Coastal Command aircraft and to estimate their value, it is first necessary to know what the situation was. Four of the major German naval units did not take part in the Norwegian operation - the Admiral Scheer (1), the Prinz Eugen (2) and the Leipzig and Nurnberg (3). The other pocket battleship Lutzow one 8 inch cruiser - Blucher - and a light cruiser Emden, led the landing at Oslo. After the attempt at a reconnaissance of Oslo on 9th April by the Sunderland which did not return, no further efforts were made in this direction.

Admty. NIE.
24/X10/45

Logs of these
vessels

Force RS, first sighted by Coastal Command on 7th April, comprised the two battlecruisers, Scharnhorst and Gneisenau, and one eight inch cruiser, Hipper, and was intended, as has been already stated, to occupy Trondheim and Narvik. Two six inch cruisers, Koln and Konigsberg sailed to Bergen and the other 'K' class cruiser, Karlsruhe, was to land troops at Kristiansand (S). All these units were ordered to land their forces and depart for base on the same day (4). Only one vessel was able to carry out the second part of this order, Koln, which left Bergen in the evening of 9th April and reached Wilhelmshaven on the morning of 12th April. The second cruiser at Bergen, Konigsberg, was damaged by three 8 inch shell hits from the Kvaroen shore battery and remained overnight in Bergen, where she was sunk on the following day by Fleet Air Arm aircraft. The Karlsruhe was sunk by H.M.S. Truant off Kristiansand (S) shortly after leaving harbour in the evening of 9th April to return to base. Hipper eventually left Trondheim in the late evening of 10th April, rejoined the two battlecruisers (who had had an engagement with H.M.S. Renown off the Lofoten Islands in the early morning of 9th April) off S.W. Norway where they were sighted by

- (1) A pocket battleship, in dry dock at Wilhelmshaven.
- (2) An 8" cruiser out of commission at Kiel for major alterations to her main engines. Seen on photo reconnaissance on 7th April.
- (3) Two 6" cruisers both undergoing repairs at Kiel. Seen on photo reconnaissance 7th April.
- (4) See Map XXII.

Coastal Command Hudsons and the three ships reached Wilhelmshaven Bay on the night of 12th April. (See Map XXII).

No. 18 Group O.R.B.
Narrative 9/4/40
and C.C. Narrative
9/4/40

No. 18 Group
Narrative 9/4/40

Blenheim N/254
Sqn. carried a
naval observer
(Lieut. Comdr.
G. Hare, R.N.).
On the return
flight the Home
Fleet was sighted
at 1320 hours and
full details of the
reconnaissance
were passed direct
to the C. in C. by
Aldis lamp.

To deal first with the reconnaissance of Bergen which received more attention from Coastal Command than any other target on that day the 9th April, general reconnaissance aircraft brought back sightings of naval units as detailed below(1); In addition the twelve Wellington bombers of Nos. 9 and 115 Squadrons sent out at 1545 hours to bomb the cruisers at Bergen, brought back confirmatory reports of two cruisers present(2). The attack by these Wellingtons took place at about 1830 hours. It was clear from these reports that almost certainly two cruisers were present in Bergen, although it is difficult to account for the persistence of the report of only one cruiser unless we assume that the second vessel was well hidden up Pudeffjord, where both ships were lying. [↑] The identity of the two cruisers reported by aircraft N/254 Squadron on a northerly course off Bergen is not clear. At the time, there was some doubt whether these vessels were enemy or British, but it seems more probable that a recognition mistake was made. It should be remarked that the two narratives for this day's operations as kept by Command H.Q. and by No. 18 Group H.Q. differ considerably in many points of detail, making it difficult to state definitely what report the aircrew actually made. A further point of interest is the reconnaissance of Bergen by a London aircraft of No. 204 Squadron. Tasks of this nature over enemy territory when undertaken by flying boats, were usually left to Sunderlands. In this case, however, the three Sunderlands available for operations were all occupied with other tasks(3).

Two Coastal Command aircraft made a reconnaissance of Kristiansund (S) during the afternoon. At 1501 hours aircraft H/9 Squadron reported an "Emden class cruiser", an error in identification, and at 1700 hours aircraft D/9 reported one 'K' class cruiser. The use of the word "class" in referring to the Emden leads one to suspect that its object was to indicate uncertainty on the part of the person making the report. However, the reports left no doubt that one light cruiser was in fact present. During the same afternoon a long range Blenheim from Bircham Newton tried to reach Kristiansund (S) but had to turn back when 30 miles short of the target owing to lack of fuel.

Trondheim was visited by a Sunderland of No. 204 squadron in the early afternoon of 9th April, one eight inch cruiser being reported. This was in fact the Hipper.

(1)	Time	Aircraft No.	Sighting
	0900	G/224	One 'K' class cruiser
	1043	J/240	One 'K' class cruiser
	1317	N/254	Two cruisers off Bergen in 6024 NX 0520E.
	1620	An A/C OF No. 9 or 115 Sqn.	Two 'K' class cruisers at anchor, one near town, the other about 3 miles S.W. of Bergen.
	1650	H/9	One 'K' class cruiser.

- (2) Aircraft R/115 claimed one hit on the stern of a cruiser. Reference to the logs of these two vessels makes it clear that no hits from bombs were suffered on 9th April, 1940. In addition, twelve Bomber Command Hampdens of No. 50 Squadron attacked these two cruisers at about 1900 hours on the same day. They also claimed one hit. Neither strike suffered any casualties.
- (3) S/228 continuous crossover patrol
H/210 Reconnaissance of Oslo
C/204 Reconnaissance of Trondheim fjord.

No aircraft with sufficient range to reach Narvik, the only other port of importance⁽¹⁾, were available until two long range Wellingtons Mark I were delivered to Wick to operate under Coastal Command on 10th April. Maintenance personnel were supplied by Bomber Command pending replacement by trained Coastal Command men.

In addition to these individual reconnaissances of Norwegian ports, extensive patrols covering a large part of the North Sea⁽²⁾ and the Norwegian coast⁽³⁾ were flown, as well as the routine continuous crossover patrol in the Cape Wrath-Faeroes channel and a special search of the Faeroe Islands.

Although at the end of the day it was clear what forces were present in the main Norwegian ports with the sole exception of Oslo⁽⁴⁾, the two battlecruisers still remained at large.

The work of Coastal Command on the two succeeding days, 10th and 11th April, followed the same direction as on 9th April. A dawn reconnaissance of Bergen, Stavanger and Haugesund was flown on 10th April and photographs were taken of the cruiser whose stern had been claimed hit by a Wellington of No. 9 squadron. To quote the pilot's report "certainly the after part, which has been reported as having been damaged, could not have been very bad as three of her after guns were firing at us". A further reconnaissance of Bergen during the same afternoon by a Hudson confirmed that the attack at 0930 hours by Fleet Air Arm Skuas had succeeded in sinking the cruiser which had remained in harbour.⁽⁵⁾

The aim of the patrols flown on 10th and 11th April remained to locate enemy naval vessels in Norwegian harbours and to intercept them if they attempted to return to base. As the Home Fleet had sailed North to attempt to engage the enemy it was important that air reconnaissance should immediately report whether the enemy had succeeded in avoiding our naval forces and was in fact to the southward of our ships.

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- (1) Other ports examined for enemy naval units on 9th April were Stavanger, Egersund and Haugesund as well as a number of fjords.
 - (2) Tracks B-U inclusive, tracks R, S and T being repeated at dusk.
 - (3) (a) Track B, flown from 0530 until 1630 hours, was extended to include a continuous crossover patrol between 6110 N. x 0234 E. and 6134 N. x 0430 E. for as long as possible.
 (b) A second continuous crossover patrol was flown from 1500 until 2100 hours between 6145 N. x 0200 E. and 6210 N. x 0445 E.
 (c) L6 off the South-West coast of Norway was flown from 0932 until 1918 hours.
 (d) Track C was extended to include a sweep along the Norwegian coast from 6115 N. to 60 degrees North. The coast from 60 degrees North to the Naze was covered by two Hudsons shortly before dawn.
 - (4) British naval units had reported the presence of enemy naval units in Narvik. Ground sources only were available for Oslo.
 - (5) Two squadrons (32 aircraft) of Skuas took off from Hatston at 0700/10th and sank the Konigsberg in Bergen harbour at 0930 hours with 500lb. bombs.

No. 18 Group
O.R.B.
Narrative
10/4/40

A modified form of the continuous crossover patrol off the South-West Norwegian coast was introduced for 10th April⁽¹⁾, followed by a new patrol⁽²⁾, both being designed for the interception of southbound enemy ships.

During these two days the main Norwegian ports and as many fjords as possible were searched. The number of routine patrols had to be limited in favour of these special reconnaissances but the usual anti-U-boat patrols and convoy escorts were flown.

Logs of these
vessels

Sunderland S/228 made the only sighting of an enemy major naval unit during these two days, when at 1645 hours on 10th April, in a blizzard of hail and sleet, she found lying off Trondheim town what was reported as one Blucher class cruiser and one "Nurnberg" class cruiser. The first identification was correct, the vessel being in fact the Hipper. The second vessel sighted was one of the two destroyers acting as escort to the cruiser. Further search of this area on the following day failed to relocate the warships⁽³⁾ and on 12th April extensive search of the fjords and inlets from Bjornsund Light in latitude 62 45 North down to Skudeness fjord in latitude 59 degrees North revealed only merchant vessels.

No. 18 Group
O.R.B.
Narrative
12/4/40.

The two battlecruisers and the Hipper were however sighted again by Coastal Command aircraft before they reached base on their return journey. Hudson F/224 Sqdn. took off early on 12th April to make a surprise bombing attack at dawn on Stavanger airfield in company with two Blenheims of No. 254 squadron. On the way to the target, flying through dense cloud and rain, trouble developed in the starboard engine and course was set for base. Less than half an hour later at 0545 hours two warships were sighted off Egersund⁽⁴⁾ and identified either as the two battlecruisers or as one battlecruiser and one cruiser, probably "Hipper" class. In fact, the vessels were the two battlecruisers on the last stage of their return journey. A further Hudson - J/233 Sqdn. - was ordered to take off at 0730 hours to shadow this force but nothing more was heard of this aircraft. In the meantime two of the three Hudsons, G and D/224 squadron patrolling tracks P, Q and R had found the enemy force at 0711 and 0722 hours respectively, which now consisted of the two battlecruisers and the Hipper. Aircraft D/224 correctly identified the vessels⁽⁵⁾ and shadowed them for two hours, losing contact when the warships turned into a bank of very low cloud at 0915 hours. The second Hudson G/224 made three attempts at recognition of the vessels and gave a position well to the north of the true position⁽⁶⁾. This aircraft also shadowed the force for two hours and eventually lost contact in cloud. A battle flight of three Hudsons sent to relocate this force failed to make contact.

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- (1) Modified L6 positions 57° 30' N. x 01° 30' E. - 58° 35' N. x 05° 14' E. - 59° 00' N. x 04° 56' E. - 57° 10' N. x 02° 00' E. in that order Form green CC/G8/9/4.
 - (2) L.9: Crossover patrol, first aircraft to leave base 3 hours after aircraft on tracks F to U, between 58 10 N. x 01 10 E. - 59 15 N. x 04 45 E. - 59 50 N. x 04 36 E. - 57 44 N. x 01 42 E. Form green CC/G9/10/4.
 - (3) Hipper had left Trondheim at 2130 hrs. on 10th April to return to base.
 - (4) Actual reported position 58°29' N.: 04°22' E. C° 110.
 - (5) Reported Position 5737 N. x 0432 E. C° 140° at 0722 hours.
 - (6) Reported position 58°50' N.: 03°52' E. at 0711 hours.

SECRET

70

B.C. form
540 & 16
& 18 Gp.
Narratives for
12.4.40.

Strike forces totalling 92 aircraft from Bomber and Coastal Commands - the largest force yet sent out against a naval target - all failed to find the objective owing to the bad weather, low cloud, snow, sleet and rain.⁽¹⁾ Hopes of laying mines during the night from the air in the path of the vessels were likewise frustrated by the failure to relocate the force and determine whether it would be passing through the Belts or to the Schillig Roads.

Admty. NID24/
X.10/45

Thus ended the search for the German major naval units which had opened the Norwegian campaign. Other sightings were made and further searches were carried out as a consequence but, according to captured records of the German navy, no German forces apart from destroyers and smaller naval units were at sea after 12th April until the two battlecruisers and the Hipper sailed from Kiel on 4th June.

Admty. NID24/
X.84/46

On 12th April in the early afternoon Sunderland Q/228 Sqdn. reported having seen, under very bad weather conditions, one pocket battleship, one cruiser and one destroyer at anchor in the neighbourhood of Bud.⁽²⁾ It is not yet clear what this force was. Subsequent reconnaissance by the Royal Navy and by Coastal Command aircraft showed no vessels present in this area and yet photographs taken by the Sunderland which made the original report showed a cruiser, probably "Hipper" class, near the reported position.

CC.file S.7010/
18/1 Encl.16B,
22A, 28A & 29B

No. 18 Gp.
O.R.B.
Narrative
13.4.40

On 13th April a Hudson from Thornaby flying track S to include a reconnaissance of Kristiansund(S), reported two cruisers in the bay.⁽³⁾ Hudson K/220 Sqdn. had on the 12th already reported the presence in that same port of a large naval unit, either a pocket battleship or a cruiser. Again it is not yet clear what these vessels were.

No. 18 Gp.
O.R.B. Narratives
18.4.40 CC.
Naval Staff log
18.4.40

Other patrols in this connection were flown by Coastal Command to investigate ground reports about the presence in harbour of damaged enemy major naval units. On 18th April a Sunderland flew a reconnaissance of Trondheim to investigate a report that the Scharnhorst was ashore off Trondheim with her stern under water. No warships were present in Trondheim at that time. On 20th April a reconnaissance of Frederikshavn in Denmark was flown by moonlight by a Hudson of No. 233 Squadron following a report from the French naval attache at Copenhagen that a damaged pocket battleship was lying in that Port. The warship was not in fact present.

H.Q.C.C.
Naval Staff log
entry at 2025
hrs. 15.4.40

To sum up the work of Coastal Command in locating the enemy naval units at sea at the opening of the Norwegian campaign, it must be said by far the greater part of the intelligence available about the movements of these vessels was derived from reconnaissance by aircraft of the Command. Sightings, although errors of identification of classes of

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- (1) Twelve Hampdens (seven of No. 44, and five of No. 50 Sqdns. B.C.) of this force, failing to find the major target, went to Kristiansand south where they unsuccessfully bombed two small enemy patrol vessels and lost six aircraft. (Two to A/A fire, three to Me.109.s and one ditched on the way home.) Ref. No. 5 Group O.R.B.
 - (2) Actual reported position of the pocket battleship 62 48' N x 06 58' E. at 1210 hrs; of the cruiser and destroyer 62° 30' N x 06° 29' E at 12.30 hrs.
 - (3) Actual reported position 58 08' N: 08 01' E at 0855 hours.

vessels were made, were generally sufficiently accurate with regard to type of vessel to enable a reasonably clear picture of what was happening to be drawn.

Logs of the
German units
concerned

Strike action taken on the results of this reconnaissance was disappointing. No strong air striking force trained to find and attack ships at sea had yet been built up and all three occasions on which aircraft of Coastal Command were sent off to attack enemy naval units⁽¹⁾ proved unsuccessful. Bomber Command aircraft had no greater success.⁽²⁾ Aircraft of the Fleet Air Arm were the most successful in the attack on the warship at Bergen on 10th April when they scored three hits on the Konigsberg, which sank in Bergen harbour. Ships of the Royal Navy were in action on one occasion only, when H.M.S. Renown had a short engagement on 9th April with the Scharnhorst and Gneisenau, off the Lofoten Isles inflicting some damage on the latter vessel.

(xi) General reconnaissance and attacks on enemy shipping

Apart from the relatively large effort expended in locating the enemy major naval units at sea at the opening of the Norwegian Campaign, the general reconnaissance undertaken on 9th April, 1940, already described, continued on a slightly lower scale. The day following the German occupation of Norway routine patrols were reduced in number, although anti-U-boat searches and convoy escorts went on as usual, to allow the extensive scheme of reconnaissance, mainly designed to intercept enemy southward bound warships returning to harbour and to locate enemy warships remaining in Norwegian waters, to continue. Further reports were made on the state of occupation of airfields and seaplane bases and on railways and troop movements. In preparation for the allied occupation, a London flying boat of No. 240 Squadron made a complete reconnaissance of the Faeroe Islands, taking ample photographs to ascertain possible sites for airfields and flying boat bases.

The duties of general reconnaissance frequently involved combats with enemy aircraft, a number of which, mainly flying boats, were encountered near or over Norwegian territory.⁽³⁾

A.M. signal
X76 April 10th
file S7010/
18/3 Enc.7a

On 10th April Air Ministry gave permission to our aircraft to attack without warning any ships, merchant or otherwise, in the Skagerrak and Bohus Bay area to the Eastward of the meridian of 8 degrees East.

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- (1) 7th April. Wellingtons of Nos. 9 and 115 Squadrons failed to locate Force RS.
9th April. Wellingtons of Nos. 9 and 115 Squadrons bombed the two cruisers in Bergen without scoring any hits.
12th April. Wellingtons and Hudsons sent off to attack Force RS returning to base failed to locate.
 - (2) 7th April. Blenheims of Bomber Command bombed force RS without scoring any hits.
9th April. Hampdens of Bomber Command bombed the two cruisers in Bergen. No hits.
 - (3) In March 1940, Coastal Command aircraft sighted 15 enemy aircraft and attacked six of these. In April these figures rose to 182 enemy aircraft sighted and 43 attacked.

The first attack on a merchant vessel in a Norwegian port by Coastal Command aircraft took place on 11th April when a Hudson of No. 224 Squadron attacked the S.S. Theseus in Bergen harbour with bombs, which all missed, and machine gun fire. That day was notable also for a dive-bombing attack by a Hudson on two enemy destroyers, which failed, and a low-level strafing attack with machine-gun fire by two Blenheims IVs on an enemy destroyer. The latter attack was made in snow and the destroyer stopped, although no further results were observed.

On 12th April one of the two long range Wellingtons, which had been received by Coastal Command only one day previously, made the first long range flight (lasting over fourteen hours) to Narvik, which had not been previously visited by Coastal Command general reconnaissance aircraft. This aircraft failed to reach Narvik owing to the heavy snow-storms and violent winds in the fjords. The following day, the second of these aircraft made a reconnaissance of Vaernes airfield at the request of the Admiralty, who had received a report that dive-bombing aircraft were assembling there for an attack on British naval forces. The result of the reconnaissance was sent back by W/T but the aircraft failed to return to base. On 22nd April, the remaining long-range Wellington carried out another reconnaissance of the Trondheim area following a report that the German Air Force was using the frozen Lake Jonsvatnet as an airfield. After a flight lasting over eight hours, the report was confirmed, twenty-two enemy aircraft being counted on the ice.

Patrols of the Norwegian ports and coastline soon became a routine carried out daily unless weather conditions hindered flying, and the pre-war system of North Sea Line patrols was extended to cover the ports and fjords. For instance track L would be flown by three aircraft which carried out a coastal search from Obrestad to the Naze before returning on tracks QR and S. Similarly tracks PQ and R would include a coastal sweep from Egersund to Lister Light and tracks STU a coastal sweep from Kristiansand (S) to Lillesand. Reconnaissance of the fjords between and including the Nord and Sogne fjords was a common task usually flown by Sunderland flying boats. Bad weather, particularly fog, considerably restricted operations towards the end of the month and the routine Norwegian patrols were considerably reduced after 24th April. Effort was now concentrated on the support of our ground forces at Aandelsnes and on the evacuation of Allied troops from central Norway at the end of April and at the beginning of May.

Attacks on enemy shipping by reconnaissance aircraft continued at intervals throughout the month without decisive results. A Hudson of No. 233 Squadron carried out a bombing and machine-gun attack on three enemy flak-ships on 13th April. Two days later two destroyers were bombed and machine-gunned by a Hudson of No. 233 Squadron, a near miss being claimed, and on the following day, 16th April, a bombing attack was made without success on two enemy vessels, probably flakships, by a Hudson of No. 220 Squadron. Three more attacks took place in the second half of the month, all on merchant vessels. On 17th April a supply ship was bombed in Larvik harbour, no hits being claimed; on 19th April a Hudson of No. 224 Squadron claimed to have bombed fourteen enemy vessels lying in a bay South of Haugesund, all the bombs falling on the shore; On 29th April one near miss was claimed on a merchant vessel of 3000 tons by a Hudson of No. 269 Squadron.

No. 18 Gp.
Narrative

SECRET

73

CC. Signal
A183/25/4
CC. file
S.7010/18/3
Encl.51A

The scope of the original Air Ministry signals authorising shipping attacks under certain conditions had been extended during the month and Coastal Command summarised the purport of the instructions in a signal to the groups concerned as follows:-

"Aircraft may attack without warning any ships, merchant or otherwise under way within ten miles of the Norwegian coast South of latitude 61 degrees North and anywhere East of longitude 6 degrees East as far South as latitude 54 degrees North. Ships at anchor may be attacked if definitely observed to be enemy except in the following areas:-

- (a) Kiel Bay
- (b) Trondheim Fjord
- (c) Any fjords running into Trondheim Fjord
- (d) Oslo fjord

where all ships including merchant ships may be attacked provided they are not alongside. Special care to be taken that Swedish territorial waters are not infringed. In the event of British submarines operating and proceeding on the surface in the areas mentioned above restrictions will be promulgated."

A.M. Signal
X849
3/5

After the German occupation of Norway and the withdrawal of allied troops from the Trondheim area, attacks on enemy shipping in Norwegian waters became a frequent occurrence. Air Ministry permission had been given to regard Stavanger as an enemy port and to attack ships in the fjords by aircraft on patrol in the area. Bergen was not yet however regarded as an enemy port and, although warships could be attacked there, merchant vessels were only to be attacked when definitely identified as German. The usual caution was made that reconnaissance aircraft were only to make an attack when good cloud cover existed.

It is interesting to note in this connection that, although attacks on shipping by aircraft on patrol in the Norwegian area were permitted, a decision at a V.C.A.S. conference on 17th May was taken to discourage the despatch of strike forces to attack shipping located by the weather or general reconnaissance flights. The D.C.A.S. stated "that he would speak to the A.O.C.-in-C., Coastal Command regarding recent bombing by Hudsons of shipping in Norwegian waters and to advise the discontinuance of such operations". To make his point quite clear, "D.C.A.S. would also suggest that in the present circumstances⁽¹⁾ the A.O.C.-in-C. might care to place any bombers which could be spared at the disposal of the A.O.C.-in-C., Bomber Command," an ironic note in view of the aircraft position in Coastal Command. It should be noted in this connection that the A.O.C.-in-C. Bomber Command, was not allowed to despatch aircraft to attack targets of this nature without permission from Air Ministry.

No. 18 Gp. ORB
Narrative
28.5.40
pp. 289/290

To quote examples of these attacks which eventually became an important part of the Coastal Command effort, on the night of 27th May three Hudsons of No. 224 Squadron were despatched to attack two large ships reported that morning by Blenheim aircraft flying the offensive reconnaissance over Norway.

(1) This refers to the need for bomber support against the German attack on France and the Low Countries.

SECRET

74

No. 18 Gp. ORB
Narrative
17.5.40
P. 186-188

The two vessels in question were not located, although two of the Hudsons attacked other vessels without success. On 17th May, three battle flights of Hudsons took off from Leuchars to attack an enemy convoy of two destroyers and seven merchant vessels sighted early that morning by a Hudson returning from a night raid on Stavanger airfield. Two flights attacked the convoy with incendiaries and 100 pound bombs but the only result was one of the merchant vessels claimed as probably damaged. No other hits were obtained.

No. 18 Gp. ORB
Narrative
29.5.40
P. 302

In addition to attacks of this nature by aircraft which had taken off solely for the purpose of locating and attacking ships already reported, other aircraft of Coastal Command flying the weather reconnaissance, the coastal patrol and the offensive reconnaissance patrols over Norway frequently attacked shipping both in harbour and at sea. On 29th May, for example, the Hudson flying the weather reconnaissance dropped a stick of 100 pound anti-submarine bombs across Bergen harbour, making its retreat immediately after the attack by "Flying from cloud to cloud," six enemy single-engined fighters having been sighted. The rear gunner reported one ship as probably hit and enveloped in thick black smoke.

(xii) Attacks on Land Targets in Norway

Airfields

No. 18 Group
ORB Narrative
9.4.40

No. 18 Group
O.R.B.
Narrative
10.4.40

In view of the efficient German exploitation of their air superiority and attacks on our land and sea forces, demands arose from the beginning of the campaign for the reduction of enemy air effort by attacking the airfields in Norway. The principal airfields at Stavanger, Trondheim and Oslo had fallen into German hands intact, an advantage of which the enemy quickly made good use. Reconnaissance of Stavanger airfield by a Hudson in the early morning of 9th April revealed only four single-engined biplanes and two twin-engined monoplanes, although a number of seaplanes were reported at the seaplane base. Early in the morning on the following day a Hudson of No. 224 Squadron reported an intense concentration of aircraft on the airfield and at the seaplane base and a further reconnaissance by a Hudson of No. 233 Squadron later the same morning counted 33 medium and seven large aircraft on the airfield.⁽¹⁾ The importance of the target was fully appreciated at H.Q.C.C. and a strike was immediately organised. To the intense disappointment of the A.O.C.-in-C. and Staff this was not approved by the Air Ministry who in turn were restrained by the rigid definitions agreed upon at Inter-Allied level as governing Franco-British Bombing Policy. Consequently the first attack on Stavanger airfield and seaplane base was confined to a strafing attack by one Blenheim of No. 254 Squadron in the afternoon of 10 April. Two Heinkel 111s were raked with machine-gun fire from 100 feet, one being destroyed by an explosion and the other damaged. A bowser pump refuelling a large bomber was set on fire. At the seaplane base three Bloehm and Voss seaplanes were machine-gunned but results were not observed. Heavy anti-aircraft and machine-gun fire was met in return.

H.Q., C.C.
O.R.B.
CC/N1/11/4

(1) From German records it is established that on this morning there were the following serviceable aircraft on Stavanger airfield:- 11 JU.87.s, 2 JU.88.s, 5 He.111.s, 7 Do.17.s and 9 He.115 seaplanes.

SECRET

75

H.Q., C.C.
O.R.B.
CC/NI/12/4

Following German bombing of Norwegian held airfields, a full attack by six Wellingtons of No. 115 Squadron was ordered for dusk on 11th April⁽¹⁾. The main objective was the runways and the petrol system adjoining the Club house and hangar, unless a large concentration of aircraft was seen. Two Blenheims were ordered to arrive at Stavanger to deal with any air opposition offered to the force of Wellingtons. Two aircraft of the first flight were attacked by Me110s when approaching the airfield, one of these was seen to crash in flames on a hillside and the second, having been hit by the attacking fighters and by anti-aircraft fire in the cabin, jettisoned the bombs and set course for base. The third aircraft of the first flight failed to find the target and returned to base. All three aircraft of the second flight each dropped two 500 lb. S.A.P. bombs - the first dropped by R.A.F. aircraft on mainland targets - but failed to hit the runway or the hangars. A large fire was reported blazing just West of the hangars. These aircraft went on to machine-gun aircraft and machine-gun positions on the airfield as well as the seaplanes in the harbour. The two escorting Blenheims also strafed the airfield and claimed damage to enemy aircraft and personnel injured.

A.M.
Signal
X/431 13/4

On 13th April the Air Ministry informed Bomber and Coastal Commands that the two Bomber Command squadrons Nos. 9 and 115, which had been loaned to Coastal Command to provide a striking force, were to move from Kinloss and Lossiemouth to their parent stations and to revert to Bomber Command. The move of No. 9 Squadron was to be delayed until 14th April to enable it to take part in an operation planned for 13/14th April. One Blenheim bomber squadron was to be stationed at Kinloss or Lossiemouth under Bomber Command control for "guerilla" operations against Stavanger airfield and seaplane base to destroy runways and aircraft and to cause maximum dislocation.

This order meant, in effect, that Coastal Command had no striking force proper at its disposal. Short notice attacks on enemy naval units at sea were to be undertaken from North Coates by No. 22 squadron.

Rosyth
form green
RO/G17/13/4

In order to maintain as great an effort as possible by Coastal Command against the Norwegian airfields, six Hudsons, manned with night flying crews and with the maximum load of 250 lb. G.P. bombs and incendiaries consistent with the amount of fuel required for any specified sortie, were detailed for enemy aerodrome harrying duties. The tasks were to be timed for dusk, night and dawn, the intention being to keep the enemy disturbed and to do as much damage as possible to his personnel and material resources.

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- (1) Following the bombing by the enemy of Norwegian held airfields on the 10th April, the War Cabinet modified the bombing policy hitherto in force regarding our air attack on land targets and informed the Air Ministry that limited operations could now be undertaken against enemy occupied airfields in Norway. Accordingly on the 11th April, the Air Ministry informed H.Q.C.C. that guerilla bombing operations against Stavanger aerodrome should start and be continued until further orders but that the effort should not exceed one squadron per day. Attacks carried out should be by small formations or single aircraft spaced out in time so as to avoid enemy fighter defence.
Ref. Air Ministry Signal X/130/11th April.

Enemy opposition to the raids on Stavanger airfield quickly increased and Me 110s were reported to be patrolling the area. Of four Hudsons of Nos. 224 and 233 Squadrons detailed to attack this target on 13th April, the last two failed to return.

In order to create something more than a fleeting impression on the German Air Forces based at Stavanger, the A.O.C. - in-C., Coastal Command had originally planned a full scale effort for 14th April, using all available aircraft. However, the Cabinet's modified bombing policy ordained that a maximum of six bomber aircraft was to be used and finally three Wellingtons of No. 115 Squadron took off and successfully bombed Stavanger airfield in the early morning of 14th April. This was the last operation under Coastal Command control carried out by Nos. 9 and 115 Squadrons.

Further bombing attacks by Coastal Command aircraft on the airfield at Stavanger were carried out on 14th and 17th April and on 1st May. The attack on 17th April was with an unspecified number of incendiary bombs dropped from a single Hudson acting as standby spotter for operation "Duck". On 1st May three Hudsons of No. 269 Squadron took off to bomb Stavanger airfield. The weather was fine and clear and two aircraft each dropped 3-250 lb. bombs on one end of one of the runways from 15,000 feet as no cloud cover was available. The third aircraft was not heard of again.

On 28th April Air Ministry had informed Coastal Command that No. 22 Squadron was to cease minelaying and to move as soon as possible to an aerodrome within bombing range of Stavanger, implementing the decision to use this squadron in support of Bomber Command's effort against enemy air bases at Stavanger, Fornebu, Aalborg and Rye, to reduce to a minimum air opposition during the allied withdrawal from Central Norway. The task was planned in close co-operation with Bomber Command. Instructions were issued to the squadron to move to Lossiemouth, whence ten aircraft were to attack Stavanger airfield between 2200 and 2300 hours on 30th April. and on subsequent nights as ordered.

The attack was cancelled for that night as the squadron was weather-bound at North Coates. On the following day twelve Beauforts took off in the morning for Lossiemouth. Later on the same day Coastal Command was instructed that No. 22 Squadron was to return to North Coates forthwith and the aircraft returned to base without making the planned attack.

In assessing the value of these attacks on Stavanger airfield, it must be borne in mind that the main responsibility for this task at the most critical period had fallen on Bomber Command. The urgency of the operation was apparent from the commencement of the Norwegian campaign and was continually stressed by the C.-in-C., Home Fleet and by the allied commanders in Norway. Bomber Command had been conserving their effort for the expected German attack in the West but permission was eventually given to attack the Norwegian airfields on the understanding that this task was to cease as soon as the invasion of France and the Low Countries began.

It was realised that Coastal Command, in view of the pressing requirements for reconnaissance, anti-U-boat patrols and convoy duties, could only make a very limited number of aircraft available for a task hitherto foreign to the functions the Command had been expected to perform but which became the forerunner of later bombing attacks on the so called "fringe"

C.C. O.R.B.
CC/N3/13/4 and
CC/N4/13/4

C.C. Naval
Staff log
CC. O.R.B.
CC/N3/14/4
B5

No. 18 Group
O.R.B.
Narrative
1.5.40 p.5

A.M.
Signal
X 208 28/4

Coastal Command
Operational
instruction
No. 15 C.C.
file
S.7010/18/3
Encl. 61A

A.M.
Signal
X 478 1/5

"A review of
the Campaign
in Norway"

targets. From the beginning of the campaign until the completion of the evacuation at Aandelsnes, Molde and Namsos, 23 aircraft of Coastal Command took off to bomb Stavanger airfield, of which number 13 dropped a total of 6-500 lb. S.A.P., 31-250 lb. G.P. and a number of 20 lb. incendiary bombs. Five aircraft were lost and others damaged.

After the effort against the Norwegian airfields during the withdrawal of Allied troops from central Norway, Bomber Command attacks were made on a small scale only and finally ceased with the German invasion of the Low Countries when all Bomber Command aircraft were required for operations in the West.

Coastal Command thus took the full weight of attacking land targets in Norway, partly in support of our forces still in the Narvik area, partly to reduce enemy air attacks on our East Coast shipping and partly to provide targets for the aircrews. The effort was, however, on such a small scale that it is unlikely to have affected enemy operations. Large concentrations of aircraft were reported by Coastal Command reconnaissance aircraft on both Stavanger and Trondheim/Vaernes airfields⁽¹⁾ and attacks were made on five occasions during May⁽²⁾.

Oil Targets

Attacks on oil targets in Norway were not part of the operational policy of Coastal Command. An attack on two large oil storage tanks near Bergen by three Hudsons of Coastal Command on 22nd April - no hits were scored - was followed by instructions from Air Ministry that attacks on oil tanks in Norway should not be made at present as the policy in regard to these targets was still under consideration and that, in any case, "it is not desired to risk valuable general reconnaissance aircraft on targets of this nature". Thus, although during May single aircraft of Coastal Command did in fact attack oil targets in Norway, it was in accordance with the policy of allowing captains of aircraft engaged on weather flights and general reconnaissance duties over Norway to select objectives for attack, provided cloud cover was available and the aircraft was not unduly risked. On 13th May for example a single Hudson of 233 Squadron sent off to locate enemy M.T.B.s observed a large vessel fuelling from one of a group of oil tanks. The captain decided that this was a better target than the M.T.B.s, which he had so far failed to locate and made two bombing runs, ^{but missed with} dropping his seven 100 lb. A.S. bombs and three incendiaries into the sea ~~nearby~~ nearby.⁽³⁾

No. 18 Grp.
May Narrative

A.M.
Signal
X159 27/4

No. 18 Gp.
O.R.B.
Narrative
13.5.40
p.146

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- (1) 12th May sixty aircraft reported on Stavanger airfield,
19th May two hundred aircraft reported on Trondheim/Vaernes airfield.
 - (2) Night of 16/17th May three of the six Hudsons which took off, claimed to have bombed Stavanger airfield.
19th May nine Hudsons and one Blenheim night raid on Trondheim/Vaernes aerodrome.
20th May two Blenheims dropped incendiaries on Stavanger airfield.
21st May two Hudsons bombed Stavanger airfield at random through cloud.
27th May Machine-gun attack on Stavanger airfield by one Blenheim.
 - (3) A further attack by a Hudson on oil tanks near Bergen took place on 17th May. Similar attacks by Blenheims took place on 27th May and 31st May. Reference 18 Gp. O.R.B. Narrative for those dates, pages 185, 283 and 323 respectively.

No. 18 Gp.
O.R.B.
Narrative
pages 88,
117 & 179

Despite the discouragement of attacks on oil targets by the Air Ministry, there does not seem to be any doubt that the Admiralty held the view that every drop of oil fuel had to be carried to Norway by sea and that it was most desirable to destroy both existing stocks and tankage. On 9th, 11th and 16th May Fleet Air Arm Skuas, for which Coastal Command Blenheims provided high level fighter escort over the target and on the return journey⁽¹⁾, attacked oil tanks near Bergen with some success. An interesting note on these attacks is contained in a summary of the conclusions reached at a V.C.A.S. Conference on 17th May, when "the D.C.A.S. agreed to speak to Admiral Royle with a view to discouraging further attacks on land objectives in South Norway by the Fleet Air Arm". The reasons for this decision are not given, although, whether as a result of this or not, no further attacks of this nature were carried out by Fleet Air Arm Skuas after 16th May.

(xiii) Operation "Duck"

This was the first of two small naval operations in the Norwegian area for which Coastal Command aircraft provided long range fighter aircraft. The second was operation "Rake". They are both of interest as illustrating the difficulties met in carrying out this type of duty.

Operation "Duck" was the bombardment of Stavanger airfield by H.M.S. Suffolk during the early morning of 17th April in support of our policy of damaging the airfields available to the enemy as much as possible in order to reduce his air effort.

CC. file
S. 7010/18/2

Admty.
Battle Summary
No.17 Section 28

The Suffolk was to fly off both her Walrus aircraft to act as spotters for the bombardment. One Coastal Command Hudson with a naval officer observer and a naval telegraphist was to standby as third spotter if needed and a further Hudson was sent as escort. Beyond dropping a flare over the centre of the airfield and being fired upon by the anti-aircraft guns of the Suffolk, these two Hudsons served no useful purpose neither were the Walrus aircraft able to fulfil the cruiser's needs for spotting.

Form green
CC/G6/16/4

Admty. CB
3081 (10)
para.63

No. 18 Gp.
O.R.B.
Narrative
17.4.40
p.206/7

Arrangements for long range fighter escort from first daylight for the return of H.M.S. Suffolk had been cancelled at the last minute as the Admiralty had ordered the Suffolk to steam North after completion of the bombardment to search for a force of enemy destroyers which was suspected of carrying troops for a landing near Aandalsnes. Fresh orders were given but the take-off of the first flight of Blenheims before dawn on 17th April was delayed by bad weather at base. Meanwhile Suffolk, after being attacked by German aircraft as she steamed up the coast, had steamed west before turning north again. No signals giving her course, position or speed were received by Coastal Command until 0940 hours, although a signal giving her intentions had been despatched by the cruiser at 0720 hours. The first flight of Blenheims returned to base after searching fruitlessly for the naval force in conditions of very bad visibility and hampered by ignorance of her exact position.

(1) On 12th May Coastal Command Blenheims escorted Fleet Air Arm Skuas attacking shipping in Bergen harbour. A total of fifteen sorties was flown during these four days on this duty: one Blenheim was shot down by A.A. fire over Bergen.

SECRET

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Contact was eventually made by two Hudsons at 1315 hours. Weather and visibility had improved considerably and, after being fired upon by the Suffolk - a pardonable mistake as a number of enemy aircraft were in the vicinity - the Hudsons drove off two Do.215.

CC.NL0s Log
17.4.40

CB3081(10)
Para.63

A little over an hour after the Hudsons had located the force, three Fleet Air Arm Skuas arrived, having been despatched by the C-in-C., Home Fleet in response to the Suffolk's signal that she was without air escort and being attacked by enemy aircraft. By this time, she had been badly damaged by a direct hit from a heavy bomb.

A further three Hudsons arrived to relieve the first two and escorted the force until 2030 hours by which time it was four miles north of Fair Isle, between the Orkneys and Shetlands.

CC.NL0's Log
17.4.40

It is interesting to note that at 1119 hours the C-in-C. Home Fleet ordered all available Skuas to the Assistance of the Suffolk, leaving his own force without air protection. Shortly afterwards an enemy shadowing aircraft arrived and at 1130 a request for fighter protection was made to Coastal Command. As no fighter aircraft were available a Sunderland was sent as escort.

The difficulty experienced by the fighter escort in locating naval forces - and to a lesser extent, merchant convoys - is not an isolated example but recurs constantly during this stage of the war. The frequency with which friendly aircraft were fired upon by our own sea forces presented another problem. The onus of identifying itself as friendly remained with the aircraft but the difficulty presented to sea forces of recognising aircraft at a distance as friendly or enemy and the necessity for engaging it before it approached closely enough for visual identification, frequently led to offensive action being taken before recognition signals established the identity of an approaching aircraft.

(xiv) Operation "Rake"

No. 18 Gp.
O.R.B. Narrative
23.4.40
pp 279/280

"Rake" was an offensive patrol by three French destroyers into the Skagerrak during the night of 23/24 April. On 23rd April one Hudson of No. 224 Squadron was detailed to carry out a reconnaissance of Kristiansand(S) to ensure that no enemy warships were present. When about 10 miles from Kristiansand this aircraft was intercepted by three Me 110's which were seen approaching very rapidly. As thorough an examination as possible was made of the harbour through binoculars and the crew was quite certain that no warships were present. At this point four Me 109's were seen approaching from the direction of Kristiansand. Visibility was very good, there was no cloud cover at all and the Hudson turned for home followed by the seven enemy aircraft, which eventually broke off the chase.

No. 18 Gp.
O.R.B. Narrative
23.4.40
pp. 281/2

Escort was provided for the destroyers on their outward journey until 1800 hours by three Hudsons of No. 220 Squadron. A second Hudson flight intended to provide escort until 2000 hours failed to locate the force in spite of a search over a wide area.

SECRET

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A.M. D.O.N.C.
form 540
24.4.40

The three French destroyers carried out their sweep under cover of darkness, damaging one enemy armed trawler.⁽¹⁾ The first escort of three Hudson aircraft detailed to accompany the destroyers on their return journey from 0500 until 1100 hours on 24th April was cancelled as two of the three aircraft were unserviceable. The second escort of three Hudsons contacted three destroyers at 0645 hours and escorted them for one hour when they were attacked by Me 109's. Two Hudsons were lost. A third escort of three Hudsons was intercepted at 0900 hours by two Me.109s which made twelve attacks lasting twenty-three minutes. Two Hudsons were hit and two members of the crew wounded. All three aircraft returned safely.

C.C. Naval
Staff log
24.4.40

In the meantime the leader of the French force, L'Indomptable, had requested air assistance.

Confusion now arose in the control room at Coastal Command when it was assumed that the three destroyers which the second escort had located were in fact three enemy destroyers, possibly the same three reported by Bomber Command aircraft in the Heligoland Bight, at 0100 hours that morning. Furthermore the position of the French destroyers did not coincide with the position of the three destroyers reported by the surviving aircraft of the second escort. The Admiralty therefore instructed the French force to alter course and search for the enemy. This situation was not cleared up until 50 minutes later when further signals from Rake disclosed the fact that they had seen two aircraft of the second escort shot down at 0800 hours in a position differing from that given by the aircraft by 150 miles. In other words the enemy destroyer force did not exist and Rake was ordered to return to Rosyth.

The destroyers were bombed twice during the afternoon but reached base without damage.

(xv) The "demonstration" flights over Aandalsnes

Combined Area
H.Q. Rosyth
form green
RO/G19/22/4
No. 18 Gp.
O.R.B. Narrative
23/4/40

On 23rd April the first of two "demonstration" flights by a Hudson Battle flight over Aandalsnes was carried out to give moral support to our ground forces in that area, who had suffered intense and accurate bombing from enemy aircraft. These flights had been requested by the C-in-C., Home Fleet and instructions were to fly direct to the objective and give as "lengthy and effective demonstration as petrol endurance permitted". It was not the intention to engage in prolonged or intensive fighting.

No. 18 Gp.
O.R.B. Narrative
23/4/40
p.279

The first Hudson Battle flight took off early on 23rd April but returned early having failed to reach their objective owing to cloud on the hills and down to the ground in the valleys. On the afternoon of the same day a Battle Flight of three Hudsons of No. 224 Squadron reached Romsdals fjord and made their way up the fjord in line astern at 1,000 ft. On turning a corner in the fjord, the A.A. cruiser Curacao was sighted and immediately opened fire with two rounds ahead of the leading aircraft. Recognition signals were made and the cruiser ceased fire. But the damage was done. An over-enthusiastic party of Marines which had been established ashore with a pom-pom gun opened fire.

(1) This was VF702 (ex.Memel) - 444 tons.
Ref. German records - PG/82476.

SECRET

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The two rear aircraft broke away to the right and left. The leading aircraft was hit in the starboard engine, tail wheel and starboard wheel, and the petrol tanks were punctured. This aircraft at once climbed out of the fjord and set course for home, meeting the second aircraft which was undamaged and making a good landing in spite of the damage received. The third aircraft crashed in the fjord and one member of the crew was killed, the remainder being picked up by H.M.S. Curacoa.

No. 18 Gp.

O.R.B. Narrative
24/4/40
P.288

No blame was officially attached to any of the parties concerned in this incident and a further and more successful demonstration flight was carried out on the following day.

(xvi) The Blenheim fighter patrols over Aandalsnes

A.M. D.O.N.C.
Branch Folder
N.42 (IIC/36/
42)

On 19th April, H.Q. Coastal Command was instructed by Air Ministry to Move No. 254 Squadron from Birchem Newton to Hatston, a Royal Naval Air Station in the Orkneys.⁽¹⁾ A small detachment of the squadron which had been operating from Lossiemouth since 16th April was withdrawn and by 23rd April the first four aircraft had arrived at Hatston, the remaining aircraft, which had been delayed as self sealing petrol tanks were being fitted, being ordered to follow by 27th April when a total of nineteen aircraft and sixteen crews was to be available.

CC form
green
CC/G4/25/4

On 25 April the first offensive patrols, as distinct from the "demonstration" patrols by Hudson aircraft on the two previous days, were flown over Aandalsnes by two sections of Blenheim fighters from Hatston. The object was to engage enemy bombers attacking our ground forces. One He. III was shot down into the sea.

Pressing requests for air support by home based aircraft were continually made as no air cover beyond that provided by carrier based aircraft over the bases, was available for our ground forces. On 28 April, C-in-C. Home Fleet approved Admiral Wells' proposal to withdraw his carrier force from operations for three days and air support by long range Blenheims became more urgent than ever for 29 and 30 April and 1 May.

Further operations of this type were accordingly made on these three days, five enemy aircraft being attacked without decisive results.

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- (1) This was in accordance with an agreement reached on 1 April between the Admiralty and Air Ministry, under which this squadron was to move to Hatston to aid in the defence of Scapa Flow when the two F.A.A. squadrons there were embarked. In view of the Coastal Command commitments over Norway, not taken into account when the agreement was made, the A.O.C.-in-C. objected to the move, chiefly on the grounds that a valuable squadron would be taken up for local defence and convoy escort. He did however wish to move the squadron to Sumburgh in the Shetlands for operations over Norway as soon as it was fully trained and operational. In fact, the squadron eventually moved to Sumburgh on 15 May, after a stay of roughly three weeks at Hatston.
(D.O.N.C. Branch folder N42).

The possibility that Setnesmoen airfield near Aandalsnes could be used for refuelling these long nose Blenheims patrolling the area was seriously considered, when it was decided that no further fighter squadrons were to be sent to Central Norway. The R.A.F. party in central Norway were given instructions on 29 April to prepare to refuel at least one flight of Blenheim IVs and arrangements were made by Coastal Command to fly a refuelling trough to Aandalsnes. However, Setnesmoen was bombed on 29 April and the first Blenheim patrol over Aandalsnes on 30 April reported the airfield as unsuitable for Blenheim aircraft. Delivery of the refuelling trough ~~through~~ was cancelled and the R.A.F. party in Central Norway was ordered to return forthwith to U.K.

These patrols had some importance in view of the scale of enemy air attack on our bases in Norway, in reducing the intensity and accuracy of enemy bombing, and supplemented the attacks by Bomber and Coastal Commands on the airfields in Norway and Denmark from which the enemy aircraft were operating. Apart from other damage and casualties inflicted by the enemy bombing effort, it was feared that unopposed bombing might result in damage to the quay at Aandalsnes and the failure of the plan for withdrawal. Actually the quay remained intact for the evacuation, a fact which vitally assisted the success with which the embarkation of troops was carried out.

(xvii) The Withdrawal from Central Norway (30 April until 3 May).

At a V.C.A.S. Conference on 28th April, it was decided that the planned evacuation of allied forces from Central Norway should be covered by Blenheim fighters and that the effort of Coastal Command was to be conserved in preparation for the impending operations.

On 29th April, the part to be played by Coastal Command in the evacuation was discussed at an Air Ministry conference of the Commanders-in-Chief when it was decided that this Command was to undertake provision of fighter support for the transports and over the evacuation area; to provide, in conjunction with Fighter Command, any further action necessary for the protection of convoys in the vicinity of the Shetlands and Orkneys by Gladiators at Sumburgh and Hurricanes at Wick; and to co-ordinate the Beaufort effort with Bomber Command.

The only evacuation area within range of home-based fighter aircraft was Aandalsnes; carrier-based fighters of the Fleet Air Arm were to provide protection over Namsos, although the task of escorting the transports after they had left the Norwegian coast remained with Coastal Command. As escort for the convoy from Namsos could not be provided in the initial stages by Hudsons, it was proposed that a Sunderland flying boat should escort this convoy until it came within range of the turretted Hudsons.

Details of the aircraft available for the task of fighter escort showed that the A.O.C.-in-C., Coastal Command, had at his disposal four sections of long range Blenheims (twelve aircraft), four Battle Flights of turretted Hudsons (twelve aircraft), and the Gladiator fighter flight at Sumburgh, which was only available for short range work. Under any circumstances, these forces were inadequate for the call likely to be made upon them. It would only be possible to provide fighter escort over and in the vicinity of Aandalsnes for four hours, as the endurance of the Blenheims only permitted one

A.M. Signal
X279 29/4
and X280
29/4

No. 18 Gp.
ORB Narrative
30/4/40

Signal
2359/29/4
from Brig.
Hogg at
Aandalsnes
Admty.
CB.3081(10)
Battle Summary
number 17

A.M. Signal
X296 29/4

C.C. file
S7010/18/5
Encl. 7A

C.C. file
S7010/18/5
Encl. 3A,
B and C

SECRET

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hour over the target. It was thus a question of choosing the most profitable four hours. To judge from experience, unless any enemy reconnaissance aircraft sighted our preparations on the evening before the first day of the withdrawal, German bombers were not to be expected before 0800 hours and our Blenheim patrols were arranged accordingly. Fighter patrols would have to commence at dawn on the second day.

C.C. file
S.7010/18/5
Encl.10A
C.C. signal
AP/129
30/4

Three patrols each of three Blenheims were ordered from 0600 to 0900 hours on 1st May, each patrol remaining one hour over the target. As soon as the transports were clear of the coast, the fighter escort was to continue astern of the convoy. Three Hudson Battle flights, each of three aircraft, were to continue the task from 0900 to 1300 hours and subsequent reliefs were to be detailed later. Anti-U boat patrols were also to be detailed later.

Admty.
CB.3081(10)
Battle Summary,
No. 17

Two flights of Blenheims totalling five aircraft patrolled the Aandalsnes area and three Battle Flights of Hudsons were held at readiness at Wick. Only one of these took off in the late afternoon and despite a wide search failed to locate the convoy which did not, in fact, exist as such. Four cruisers⁽¹⁾ and their destroyer escort had embarked all the troops to be taken off that night and sailed independently as embarkation was completed, no opposition being experienced beyond a few bombs as they were leaving the fjord.

Anti-U boat escort was supplied during the afternoon and evening by one Sunderland.

C.C. signal
A.P.132
1/5 amended
by A.P.133
1/5

Coastal Command support for the second day of the withdrawal from Aandalsnes, 2nd May, was detailed in the following manner. Two flights of Hudsons were to patrol the Aandalsnes and Molde area from 0400 until 0650 hours, three Blenheim flights were to relieve the Hudsons from 0700 until 1120 hours and further escorts were to be ordered by No. 18 Group. The object of the patrols was laid down as the protection of the naval force from air attack and fighter escorts were warned that they were not in any circumstances to allow themselves to be diverted from that role.

No. 18 Group
O.R.B.
Narrative
2.5.40

No. 18 Group
O.R.B.
Narrative
2.5.40

As on the previous day, the convoy⁽²⁾ was well scattered, the vessels having sailed as embarkation was completed, with the result that the first two Hudson flights failed to locate the convoy. Of the three Blenheim flights which relieved the Hudsons, the first located and escorted three cruisers and three destroyers, the second failed to find any trace of the convoy at all and the third found only isolated naval vessels proceeding independently. The Blenheims were relieved by three flights, each of three Hudsons. The first two escorted the main force from 1149 until 1730 hours, the third, the eighth escort of the day for this force, failed to locate the convoy. Of the two Sunderlands detailed to provide anti-U boat escort, the first located the main body of the convoy and then having been sent to look for H.M.S. Arethusa reported some distance to the rear and failed to find her, also failed to re-establish contact with the two Southampton class cruisers. The second Sunderland returned to base having failed to locate the force.

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- (1) H.M. Ships Galatea, Arethusa, Sheffield and Southampton.
(2) Two cruisers, Birmingham and Manchester, two A.A. ships, Calcutta and Auckland and destroyers.

SECRET

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This second convoy finally reached base without incident, completing the evacuation of allied troops from the Aandalsnes area.

No Command Operational Instruction was issued for the withdrawal from Namsos as that area was out of effective range of the long range fighter aircraft available. This force consisted of H.M. ships Devonshire, York and Carlisle, the French cruiser Montcalm and three French transports, El d' Jezair, El Kantara and El Mansour. As at Aandalsnes, the vessels sailed as they were loaded. H.M.S. York and El Mansour were ahead and crossed the North Sea independently. A Sunderland of No. 204 squadron sent out on 3rd May to provide escort to the total force sighted the York at 1554 hours and then proceeded to escort the Devonshire and the second party until 1814 hours. Number 254 squadron and the Hudson squadrons at Leuchars and Wick were released on 3rd May after their efforts during the last few days, one section of Blenheim and one Hudson Battle flight at Wick standing by at short notice.

No. 18 Group
O.R.B.
Narrative
3.5.40

H.M.S. York and her portion of the convoy were given fighter escort on 4th May by a flight of three Hudsons from 1050 until 1430 hours, and by a Hudson acting as navigating aircraft to three Hurricanes of 13 Group from 1653 until 1804 hours. Anti-U boat escort was provided by two London aircraft, the first of which failed to find the force.

No. 18 Group
O.R.B.
Narrative
4/5/40

The second part of the Namsos convoy consisting of H.M. ships, Devonshire and Carlisle - the latter an A.A. ship - the French cruiser Montcalm, the two transports, El Kantara and El d' Jezair and the destroyer escort, was sighted on 3rd May by an enemy reconnaissance aircraft and bombed five times between 0845 and 1530 hours. Two destroyers were sunk, the Bison and the Afridi.

Admty.
CB.3081(10)
Battle Summary
No. 17

C.-in-C., Home Fleet, requested maximum air protection for the following day, expecting further bombing attacks. Altogether, eighteen Hudson and Blenheim aircraft took off on this task, thirteen of which located and escorted the force from early morning until that evening. When within fighter range of Wick, three Hurricanes escorted by a navigating Hudson of No. 233 squadron were despatched to provide additional escort but the convoy was not located. Two Sunderlands provided anti-U boat escort from early morning until dusk. No further attacks took place and the vessels eventually reached base on 5th May.

C.C. file
S.7010/18/5
Last encl.
18 Group
signal
A.913 5/5

No. 18 Group
O.R.B.
Narrative
4/5/40

(xviii) The Sunderland taxi service

The urgency of the operations in Norway and the haste with which the expedition had been despatched brought as a consequence frequent requests to Coastal Command for air transport to Norway. Although these requests were of a high priority and unavoidable, it was unfortunate that the Sunderland flying boat, already fully occupied with general reconnaissance duties and anti-U boat patrols, should have been the most suitable available aircraft for this task on account of its range and capacity and in view of the lack of landing facilities, other than for seaplanes and flying boats, in those parts of Norway held by Allied forces. Apart from aircraft loaned by No. 15 Group, only one Sunderland Squadron, one of whose aircraft was lost on operations before the opening of the campaign on 8th April, was available to No. 18 Group until the last week in April, when No. 201 Squadron completed re-arming and moved to Invergordon. Two further

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SECRET

SECRET

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squadrons, numbers 210 and 228, which completed the total of four Sunderland squadrons in Coastal Command⁽¹⁾, were attempting to fulfil all the convoy duties required in the Western Approaches with a maximum operational serviceability of three aircraft each.

No. 18 Group
O.R.B. Narrative
for April

During the Norwegian campaign a total of thirteen transport flights were made carrying personnel and equipment. Invergordon was used as the main base for this task although a certain number of flights were made from Sullom Voe in the Shetlands. Two parties of naval personnel and four R.A.F. airfield reconnaissance parties were carried, the remaining flights being devoted to Army officers and other ranks. The majority of the trips were made during April, the first flight being on 14th April to convey an Army staff officer to rendezvous with H.M.S. Glasgow lying off Namsos.

C.C. Naval
Staff log
21.4.40
entry at
23.30 hrs.

On 21st April the C.-in-C., Coastal Command, offered the Admiralty the loan of all available Sunderlands to carry stores and ammunition to Namsos, where supplies of all nature were in great demand owing to the hurried departure of the expedition and the success of the German bombing of Namsos. A total of thirteen aircraft (three in No. 18 Group and ten in No. 15 Group) was available but nothing further happened in this matter.

No. 18 Group
Narrative
15.4.40
p.182
No. 18 Group
Narrative
27.4.40
p. 315 and
C.C. file
S7010/18/1
Encl. 20A

The Sunderlands were attacked on three occasions. On 15 April, General Carton de Wiart was flown to rendezvous with a destroyer off Namsen fjord. The destroyer was bombed and the aircraft was attacked by machine-gun fire but no serious damage was received. On 27 April the Sunderland flying S/Ldr. Cross, O.C. of 46 Fighter Squadron, to Aandalsnes to inspect the airfield at Setnesmoens, was bombed after landing beside a destroyer lying off Molde. The aircraft took avoiding action by taxiing on the water but as the engines began to overheat, the pilot was forced to take off. Enemy aircraft immediately attacked, their fire was returned by the Sunderland and one He. 111 was shot down.

CC File
S.7010/18/6

On 4 and 5 May, the Cabot and Caribou, the two flying boats chartered from Imperial Airways, carried R.A.F. airfield reconnaissance parties to Bodo. The Cabot arrived first, followed shortly afterwards by the Caribou who was shadowed into the area by an enemy aircraft. At midday on 5th April, half an hour after the Caribou had landed, one He. 111 began the attack. Both aircraft were moored in Bodo harbour. When the attack commenced Cabot was taxied out of the harbour to allow more space for manoeuvring and suffered about ten attacks by machine-gun fire, returning the enemy's fire as well as possible. She was hit several times and after the attack ceased, taxied back to the harbour and beached as the pilot feared that the bilges would be making water.

The He. 111 then attacked the Caribou in Bodo harbour and on the second attack inflicted four casualties and severely damaged the aircraft. The Caribou was eventually set on fire and destroyed whilst at her moorings by a near miss from a bomb dropped the same evening.

The Cabot was towed to an inconspicuous anchorage during the night but was found and destroyed by bombs and machine-gun fire on the following day, 6 May.

(1) These four squadrons had a total initial establishment of sixteen aircraft with an initial reserve of eight aircraft.

(xix) Narvik

Aircraft of Coastal Command played a very small part in the Narvik area. Routine anti-submarine patrols, limited both by the number and the range of available aircraft, were flown as a second priority commitment for the vessels carrying troops and supplies to and from the port. General Auchinleck's report stating the minimum requirements in men and materials needed for holding Narvik as a base, did not include any aircraft from Coastal Command.

"A review
of the Campaign
in Norway"
p.84

C.C. file
S7010/18/1
Encl. 12

In an appreciation of the situation by the C.-in-C. of Coastal Command on 15 April, given at a time when it appeared that our original plan for capturing and holding Narvik as a permanent base would be in fact realised, it was stated that the problem of anti-U-Boat reconnaissance for convoys to Narvik would best be met by aircraft based in Norway but that the only solution possible at the time was to use the "Manela" as a floating base for a Sunderland squadron at Narvik. This squadron, together with the squadron already based in the Shetlands would be able to provide adequate air cover for our convoys. It was also hoped that Blenheim IVs would be based in Norway to provide long range fighter escort to convoys and to carry out general reconnaissance duties inland and down the coast. None of the proposals in this summary were put into practice.

(xx) The effects of the German occupation of Norway on Coastal Command

Although Germany had occupied Norway primarily to safeguard the supply of Swedish ore through Narvik and to forestall allied attempts to stop this trade completely, other advantages which accrued to her directly affected Coastal Command's operational policy. The matter came under review at the beginning of May when it was agreed that the present circumstances entailed a change in the operational role of the Command from that laid down at the outbreak of war up to and including the inception of scheme 'M'.⁽¹⁾

C.C. file
S.15087
Encl. 30A
& 31A

It was realised that all enemy vessels could now leave German or Danish ports and reach the protection of the Norwegian Fjords under cover of darkness. Here they could be safely hidden and evade detection by such aircraft as could break through the defences under cloud cover. The natural difficulties in the way of effective reconnaissance of the Norwegian coast, already described elsewhere in this chapter,⁽²⁾ were increased by the opposition from enemy fighters based at Stavanger and Trondheim, which our comparatively slow reconnaissance aircraft could now expect to meet

(1) This provided for the following duties:-

- (a) Assistance to the Home Fleet in the interception of enemy vessels escaping from the North Sea into the Atlantic.
- (b) Co-operation with A/U vessels escorting organised convoys.
- (c) Air searches over Home Waters, when required.
- (d) Provision of an air striking force mainly for duty on the East Coast. (viti)

(2) See in particular ~~the~~ section ~~headed~~ "Operational difficulties encountered by aircrews".

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all along the Norwegian coast and deep out into the North Sea.⁽¹⁾ In addition all German shipping, including the largest naval units, could now use the Indreled,⁽²⁾ the covered channel up the Norwegian coast protected from the seaward side by the numerous islands. Air reconnaissance of this coastal traffic was almost impossible without flying very close to the coast, a dangerous task for the aircraft available in view of the fighter opposition.

A further factor in this connection was that the enemy could be expected to set up a chain of R.D.F. stations on the Norwegian and Danish coasts, facilitating interception of our aircraft by fighters.

Immediate advantages were reaped by the U-boat service, which now had considerably easier access to the Atlantic and to our East coast shipping routes. Coastal Command's system of anti-U-boat patrols had to be revised, a subject dealt with elsewhere in this volume.

The changed situation brought with it a renewed appreciation of the need for full flying facilities for the Command in Iceland.⁽³⁾ In view of the danger to reconnaissance forces operating over the North Sea between Scotland and Norway, the tendency was to transfer attention to the other exit through which enemy raiders had to pass before reaching the Atlantic - the three channels between Scotland and Greenland. It was the view of the A.O.C.-in-C., Coastal Command that most of the difficulties arising from the German occupation of Norway could be overcome by the establishment of three continuous patrols in these channels.⁽⁴⁾ The developments in accordance with this suggestion will be described in a later chapter.

C.C. file
S.15087
encl.31A

The need for a new type of reconnaissance aircraft in Coastal Command became more pressing with the establishment of the German Air Force on aerodromes as far North as Trondheim. A faster and better armed aircraft than the Hudson was required and the success of the Blenheim IVs of No. 254 Squadron during the Norwegian Campaign demonstrated the value of such an aircraft both for long range reconnaissance over areas in which heavy enemy opposition was to be expected and for long range fighter escort to our surface vessels. It could not be claimed that the Blenheim IV was an ideal aircraft for this purpose. It was still dependent on cloud cover for security over enemy territory, and the requirement put forward by the A.O.C.-in-C., Coastal Command for an aircraft capable of carrying out a reconnaissance

Logs of
these
vessels

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- (1) The radius of action of the twin-engined German fighter at this period, the Me.110, based in Norway, covered the Shetlands, Scotland and a large part of Northern England.
 - (2) In practice German merchant shipping had used Norwegian territorial waters from the beginning of the war. Major naval units had, however, sailed up the North Sea at a convenient distance from the Norwegian coast, not using territorial waters. They continued this practice after the occupation of Norway.
 - (3) Previous attempts had been made without success to find a suitable site for an aerodrome or seaplane base in the Faeroes.
 - (4)
 - (a) Wick to Faeroes - one land plane squadron required
 - (b) Faeroes to Iceland - two seaplane squadrons required
 - (c) Iceland to Greenland - one land plane Squadron required.

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successfully in the face of enemy opposition and without having to rely on suitable weather conditions, was still far from being met.

(xxi) The revised scheme of North Sea reconnaissance

The changes in the general strategic situation which resulted at this period from the German success in Norway and on the Western Front, naturally led to alterations in the Coastal Command plan of operations. The first step was the institution of a revised scheme of North Sea reconnaissance. Although this followed directly as an effect of events in Norway on Coastal Command (dealt with in the previous section), it is treated as a separate heading for convenience.

Up to May 1940 selections from the twenty-two parallel lettered tracks had been flown daily as a top priority task. This system, which had been thought out before the war and was designed to give coverage of a large part of the North Sea, had not proved as successful in intercepting enemy units as had been hoped.⁽¹⁾ Doubts had been expressed by the A.O.C.-in-C., Coastal Command on the possibility of air interception of enemy surface vessels proceeding up the Norwegian Coast, in view of the enemy's use of the cover afforded by bad weather or poor visibility. The difficulty of locating naval units in the North Sea under unfavourable weather conditions is amply illustrated alone from events in the Norwegian campaign.

The Norwegian campaign had shown, moreover, to what extent additional calls beyond routine duties would be made upon the Command in the forthcoming campaign in the West, the opening of which was expected at any time. The opinion was put forward that the forces required to maintain the present system of North Sea reconnaissance could be used with advantage in other directions.

This question came under review at the beginning of May 1940. The extreme view was taken that, arising from the establishment of the German Air Force on Norwegian and Danish airfields, operations of our reconnaissance aircraft over the North Sea could only be intermittent at best. However the A.O.C.-in-C. refused to accept this view and maintained that reconnaissance had previously been carried out in the North Sea by Hudsons as far as Sylt, "the home of the German fighter", and that there was no reason why this should not continue provided every advantage was taken of favourable weather conditions. "I maintain however, that, given suitable weather (clouds etc), we should be able to examine the Norwegian coast carefully, and all the fjords, as our Hudson aircraft are good cloud flying aircraft and should be quite immune from attack under these conditions". "What I have in mind is that we must keep under observation the Norwegian fjords when weather permits; also the west coast of Denmark

(1) On three occasions in November 1939, enemy major units had successfully passed through the North Sea, without using Norwegian Territorial waters without detection by allied forces (return of the Deutschland from her cruise, the break out and return of the Scharnhorst and Gneisenau). The Norwegian campaign provides further examples of this ability on the part of the enemy to traverse the North Sea without interference.

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and the west and northern coasts of Germany. I think by so doing we can get a very good idea of what is actually happening there".

Thus the routine flying of the lettered tracks was discontinued as a daily task, flights of this nature only being made for special tasks and to locate enemy shipping of importance which had already been reported by other sources. To conserve the available aircraft resources and to ensure that full advantage was taken of suitable weather conditions, a daily weather flight by single aircraft was ordered in three areas off the Norwegian and Dutch Coasts and in the southern half of the North Sea, (1) the exact position of the flight being varied from day to day. These sorties were to be made as early in the day as possible, consistent with the best time for making weather observations. If sufficient cloud cover was available, reconnaissance aircraft were then sent out over the Norwegian coast, the Heligoland Bight and off the east coast of Denmark to report enemy shipping movements. (2)

Forms
Green
CC/G1/8/5
RO/G18/9/5

In addition to enemy warships all enemy merchant vessels were to be reported immediately, a departure from the previous practice of reporting merchant shipping on the return journey. Two Battle Flights were to be held in readiness at Leuchars and Thornaby to attack any reported targets. ^{Torpede} Aircraft from Nos. 22 and 815 squadrons formed the main striking force.

In response to an Admiralty request for air support against enemy small surface craft attacking our submarines in the Skagerrak area, one section of Blenheims was to sweep into the Skagerrak "whenever it would appear to be of real advantage to our naval forces".

To cover the possibility that protracted spells of clear weather would prevent reconnaissance, a section of Blenheims was to be used in areas where reconnaissance by single aircraft had been impracticable for some time.

It is clear that, under this new system of reconnaissance with its reliance on favourable weather conditions, regular coverage of the North Sea was not attained. The following section dealing with the breakout of the two enemy

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- (1) The three areas for the weather flights were as follows:-
- (a) From 61 degrees North to 59 degrees North off the Norwegian Coast. Flown by aircraft from Leuchars.
 - (b) From 58 degrees North to 56 degrees North at approximately 06 degrees East. Flown by aircraft from Thornaby.
 - (c) From 55 degrees North to 53 degrees 30 minutes North at approximately 05 degrees East. Flown by aircraft from Bircham Newton. See Map V.
- (2) Area A, the Norwegian Coast and inlets from Lister to 62 degrees North, was flown by three aircraft from Leuchars, each of which was allotted a separate section of the coast. If weather conditions prevented reconnaissance of the inlets, two aircraft only were to sweep along the coast.
- Area B, from 57 degrees North to Horns Reef at the approximate meridian of 07 degrees 30 minutes East was flown by a single aircraft from Thornaby.
- Area C, the Heligoland Bight including the estuaries of the Ems, Jade and Elbe was flown by a single aircraft from Bircham Newton. See Map V.

battlecruisers will effectively demonstrate the ineffectiveness of the system to intercept enemy naval forces. It is very much a matter of doubt, however, whether this task could have been performed more efficiently with the quantity and types of aircraft available to Coastal Command at this period.

Form Green
RO/G12/12/5

It frequently happened that aircraft on the early weather flights found suitable targets for attack. It was officially emphasised that the primary object of these flights was to obtain meteorological information, but permission to attack was given if cloud conditions provided adequate cover and the aircraft was not placed in any danger. Offensive patrols by a section of Blenheims from Sumburgh over the Norwegian Coastal areas from latitude 62 degrees North as far south as endurance permitted, attacked whatever targets were found - oil tanks, airfields, shipping and even a W/T station⁽¹⁾ - as well as carrying out special reconnaissance over the more dangerous areas, particularly the airfields.⁽²⁾

It is of interest to note that No. 16 Group combined the weather reporting and reconnaissance functions of their patrol in the Heligoland Bight (Area C) and converted the flight into a routine patrol.⁽³⁾

(xxii) The Gneisenau - Scharnhorst episode 4 June - 27 July⁽⁴⁾

NID24/X12/45

At 0800 hours German summer time on 4 June, the two German battle cruisers, the Hipper and an escort of four destroyers left Kiel with orders to make a surprise penetration of the And and Vaags fjords and destroy enemy warships and concentrations found there. As it was not realised at this time that the allies were planning to evacuate Norway completely, this German force was not intended to interfere with ~~the~~ convoys to and from Narvik. An additional task was the protection of German army shipping routes from Trondheim to Northern Norway against attack by allied surface vessels.

NID24/X12/45

The outward journey was made without incident,⁽⁵⁾ the only period during which interception by British reconnaissance aircraft was to be feared being on 5 June. No Coastal

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- (1) On 3rd June (18 Group June Narrative P.29)
 - (2) For example, on 19th May a section of Blenheims flew a reconnaissance of the Trondheim area to report activity on Vaernes airfield and to locate intermediate landing grounds between Trondheim and 62 degrees North. On 27th May two sections of Blenheims flew sorties over Stavanger airfield and over the Voss area to locate new airfields reported under construction.
 - (3) Code name TWINKLE, changed to Emms on 14th May. Base to 5440N x 0500E - 5350N x 0800E along the German and Dutch islands to 5300N x 0400E and thence to base. (Forms green CH/G8/9/5 and CH/G17/14/5).
 - (4) Although this section continues well beyond the finish of the Norwegian campaign, it is dealt with in this chapter for convenience.
 - (5) The enemy's route was as follows, all times being German summer time:-
 - 4th June 2000 hours Kattegat
 - 5th June 1100 hours off Hanstholm
 - 1600 hours 42 miles off Lindesnes. Clear sky and sun throughout the day with some cloud by the evening. Fog lasting one hour late in the evening.
 - 2025 hours 29 miles off Utsire
 - 2330 hours approx. 80 miles off Bergen
 - 6th June 0400 hours approx. 60 miles off Stadlandet
 - 1630 hours approx. 350 miles off Bodo
 - 2000 hours refuelling from Dithmarschen began in approximate position 6740N x 0310E.

Hipper's log

NID24/X12/45

H.Q., C.C.
Naval Staff log

18 Gp. June
Narrative P.87

See also
A.O.C.-in-C.'s
memo no. 7A C.C.
file S.15087
Encl. 32A

16 Gp. June
Narrative pp.18
and 19

18 Gp. June
Narrative pp.84
and 86.

18 Gp.
June
Narrative

Command sorties were flown in areas likely to yield sightings of the enemy force. (1) The absence of our reconnaissance was duly noted by the enemy and the cause assumed to be the fog which was moving from West to East.

After refuelling from the tanker Dithmarschen, a conference was held by Admiral Marschall in the Gneisenau on 7 June. Early that morning his reconnaissance floatplane had reported two escorted ships some 120 miles to the south. It was decided to snap up these easy victims before proceeding for the Vaags fjord area. These ships were sighted on the morning of 8 June and the liner Oreana, tanker Oil Pioneer and the A/S trawler Juniper were sunk. The Hipper and the four escorting destroyers were then detached to Trondheim. Turning north for Vaags fjord the two heavy ships then sighted, engaged and sank H.M.S. Glorious and her attendant destroyers Ardent and Acasta in position 6850N x 0415E at about 1730 hours. During the action the Scharnhorst was hit by one of the destroyers' torpedoes and both battle-cruisers then set course for Trondheim, their nearest port (2) where they arrived in the afternoon of 9 June. See Appendix XX for a full account of the whole episode.

The first news of the presence of enemy capital ships in the North Sea, as far as H.Q., Coastal Command was concerned, was in the form of a report received during the morning of 9th June, that a troopship had been attacked. The news of the probable loss of the Glorious was received a little later, confirmation of all reports being provided by a German communique broadcast that afternoon. See also Appendix XX.

As Coastal Command has not been officially informed that Narvik was being evacuated, no air escort had been provided for the returning convoys. (3) It was with some urgency therefore that, on receipt of the news of the reported attack on the troopship, two Sunderlands were ordered to take off as soon as the fog lifted, to search the area around the three most southerly convoys, which totalled fifteen merchant ships escorted by destroyers and trawlers. It was indeed fortunate that the German naval force was unaware of the presence of these relatively defenceless vessels in time to follow up the successes of 8th June. Further Coastal Command aircraft took off later that afternoon, to intercept any attempt by the enemy to return to base (4). No sightings were made - indeed the enemy ships had arrived in Trondheim before our aircraft took off. Arrangements were made for a striking force composed of Beauforts, Swordfish and Albacores from Nos. 42, 812 and 826 squadrons to stand by at Bircham Newton.

- (1) Hudson B/220 flew the met. recce. in area B from 0210 until 0600 hours. Hudson K/269 flew a reconnaissance of the Norwegian Coast from 60 degrees 45 seconds N to 59 degrees 20 seconds N, reporting sufficient haze to conceal shipping. Three Blenheims of number 254 squadron returned early from a reconnaissance of the Norwegian coast from Stadtlandet southwards owing to bad weather.
- (2) They were unaware that the allies had in fact evacuated Narvik until after their arrival in Trondheim
- (3) From the time when it was first suggested that Narvik might be evacuated until the completion and arrival of the forces in the United Kingdom, the whole matter was dealt with in an atmosphere of the utmost secrecy. The A.O.C. in C. Coastal Command, personally had been informed unofficially by telephone of the decision by the Supreme War Council to evacuate Narvik but no request for air co-operation was made from any sources neither was the Coastal Command Staff aware of the operation. Regarding air co-operation required by Naval forces in Home waters, it had been laid down before the war, in C.I.D. 1425 B, that all such requests were to be made by the Admiralty or Naval C. in C. concerned direct to the A.O.C. in C. Coastal Command. Reference Parliamentary Questions, P.Q.550 and 561/40.
- (4) (a) Tracks J to X flown by six Hudsons from Thornaby and Leuchars, the first aircraft taking off at 1700 hours.
(b) Area search in the Heligoland Bight (5340N x 0605E - 5403N x 0815E - 5535N x 0748E - 5530N x 0700E - 5400N x 0720E) by five Hudsons from Bircham Newton taking off at 1645.
(c) Area search off Horn's Reef (5325N x 0100E - 5340N x 0520E - 5400N x 0720E - 5535N x 0655E - 5515N x 0520E) by one Hudson taking off from Bircham Newton at 2030 hours.

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Narrative

Extensive reconnaissance of the Norwegian ports and anchorages was carried out on 10th June by aircraft of No.254 squadron, which visited Trondheim, where the enemy force was sighted⁽¹⁾, Kristiansund (N), Moldefjord and Aalsund, Bergen, Stavanger and Haugesund.

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Narrative

Shortly after being sighted in Trondheim, the Gneisenau, Hipper and the four destroyers left again to raid the allied convoys from Narvik. That same afternoon they were sighted in position 6435N x 0945E at 1400 hours by H.M.S/M. Clyde who reported them as one pocket battleship and one Hipper class cruiser. A Sunderland of No.204 squadron took off at 1600 hours and searched an area fifteen miles each side of the enemy's reported track and between the estimated positions at 1800 and 2400 hours. No sightings were made ⁽²⁾.

Further reconnaissance of Trondheim was made by No.254 squadron on 11th, 12th, 14th and 15th June, the aircraft on 13th June being forced to return by engine trouble. On the first two occasions the presence of the Scharnhorst and two cruisers was reported. By 14th June, the six-inch cruiser Nurnberg had arrived off Trondheim⁽³⁾ and it is to be noted that the sighting report for that date⁽⁴⁾ was not sufficiently accurate to indicate the arrival of a further major naval unit. Late that same evening the Nurnberg again left the

18 Gp. June
Narrative and logs
of the German ships
concerned

Logs of Gneisenau
and Hipper

Nurnberg's log

18 Gp. June
Narrative

Nurnberg's log

- (1) One Nurnberg class cruiser was reported in Skjorn fjord at 0650 hours. This was presumably one of the escorting destroyers as both the Nurnberg and Leipzig were in Kiel at this time.

The Scharnhorst and either two Hipper class cruisers or one Hipper class cruiser and one pocket battleship were reported lying off Trondheim town at 0730 hours.

The enemy force actually comprised the two battle cruisers and the cruiser Hipper with attendant vessels.

- (2) The Hipper had sighted the Clyde on the surface and, as it was appreciated that the movements of the German force would be made known to the strong British naval forces reported by German aerial reconnaissance on the route being used by the evacuation forces, it was decided to return to Trondheim. Shortly after being sighted the German force altered course South for two hours, resumed the original North Westerly course for one hour and then turned East, sighting the Norwegian coast that same night. The following morning, 11th June the ships arrived back in Trondheim.

From this brief description of the enemy force it will be understood how liable to serious error was the method of search employed by the Sunderland. It was, however, the method generally advocated at that time in opposition to the alternative of proceeding direct to the position of the original sighting and carrying out area search from there. The latter method was eventually adopted, after some opposition, for hunting U-boats.

- (3) Nurnberg left Kiel at 2000 hours German summer time on 10th June and completed the journey along the Norwegian coast on 12th June without being sighted. Her presence in the North Seas was not known to British forces and no Coastal Command aircraft were flying patrols to intercept enemy naval units moving up from German ports.

She was however sighted by chance and correctly reported as a cruiser during the last stage of her journey to Trondheim by four Beauforts of number 42 squadron on their way to bomb Vaernes airfield. This was at 0118 hours on 13th June in reported position 6315N x 0722E course 125 degrees. The assumption was made that she was sailing to Kristiansund (N) and two attempts were made without success by aircraft of No.254 squadron to find this cruiser between Kristiansund (N) and Stadtlandet. It would appear from this that she was thought to be one of the two reported cruisers from Trondheim.

After refuelling in Trondheim leads, the Nurnberg finally anchored in Trondheim roads late on 13th June.

- (4) The Scharnhorst and three destroyers lying off Trondheim town and one vessel two miles outside the harbour thought to be an A.A. cruiser.

harbour⁽¹⁾ and was thus not present when a Blenheim of No.254 squadron reported the Scharnhorst and one cruiser in Trondheim on 15th June.

No.18 Gp. June
Narrative Logs
of these
vessels

H.Q., C.C.
N.L.O.'s log
June 11th
entries at 1940
and 2100 hrs.

The first attack on this force was made on 11th June by twelve aircraft of No.269 squadron dropping 36 - 250 lb. S.A.P. bombs in formation. Despite claims of hits on both cruisers⁽²⁾, no damage was in fact inflicted, although one stick fell close between the Hipper and the Gneisenau. Four further attacks⁽³⁾ were cancelled or returned without reaching the objective owing to bad weather. Some discussion was raised at this point over the question of bombing priorities for Norwegian targets. It was a question of deciding between the relative claims of the naval force at Trondheim, a concentration of merchant vessels at Bergen⁽⁴⁾ and Stavanger aerodrome. Eventually two attempts were made to attack Bergen on 12th June, the day following the unsuccessful attack on Trondheim.

Scharnhorst log

Although daily reconnaissance of Trondheim remained a top priority task, weather conditions prevented any success in this direction until 23rd June, by which date the Scharnhorst had returned to Kiel.

No.18 Gp. June
Narrative

The first news that the enemy naval units had left Trondheim was contained in a sighting report at 2235 hours on 20th June by H.M.S/M Clyde of one battlecruiser and one pocket battleship⁽⁵⁾ in position 6443N x 0953E. The Clyde had obtained one torpedo hit on the battlecruiser. One Coastal Command Sunderland took off at 0515 hours on 21st June to search without success for this force. At 1105 the most northerly of three Hudsons searching the Norwegian coast from 62 degrees North to Lister sighted the Scharnhorst and her escort in position 6100N x 0414E and shadowed the force for an hour after reporting its presence. A Sunderland of No.204 squadron resighted the vessels at 1445 and shadowed very successfully for two hours, remaining just out of range of the enemy's guns. The captain of the Scharnhorst was worried by this continuous shadowing, requested additional air escort and tried without success to direct the escorting fighters to the Sunderland by firing heavy A.A. guns in the required direction. Eventually the Scharnhorst's own aircraft was flown off with orders to put an end to the shadowing. This it accomplished by firing smoke candles to indicate the position of the Sunderland to the escorting fighters. Four Me.109s attacked, one was shot down and a second damaged but the

Log of the
Scharnhorst

No.18 Gp. June
Narrative

18 Gp. June
Narrative p.157
Nurnberg's log

18 Gp. June
Narrative H.Q. C.C.
N.L.O.'s log

- (1) Nurnberg sailed up the Norwegian coast as far as Narvik, where she was sighted and correctly identified by a Sunderland of No.204 Squadron, carrying out the routine reconnaissance of that harbour on 17th June.

It is of interest to note that the W/T activity connected with her departure led to the assumption on our side that one of the units based at Trondheim would try to break South. A reconnaissance of the Norwegian coast from 62 degrees North to Lister was therefore flown by three Hudsons, one of which failed to return. No sightings were made.

On her return journey, the Nurnberg records in her log that a British flying boat was sighted in the afternoon of 18th June. The aircraft did not appear to see the cruiser and the log notes with satisfaction the apparent effectiveness of the vessel's camouflage. In fact no British flying-boat was in this area at the time.

- (2) According to the sighting report. In fact these vessels were one battlecruiser and one cruiser.
(3) Planned for dawn 15th June and for the nights of 15/16th, 16/17th and 17/18th June.
(4) Reported by aircraft N/254 on 10th June. Thought to be connected with German preparations for the expected invasion of this country.
(5) This force comprised the Gneisenau and Hipper escorted by one destroyer. They left Trondheim during the afternoon of 20th June to attack the Northern patrol and act as a distraction for the return of the damaged Scharnhorst to Kiel. When the Gneisenau was hit later that same night, the force immediately altered course for Trondheim, where it arrived the following morning.

Logs of these
vessels

Sunderland was forced to set course for base at 1643 hours when the engagement finished, as the fuel tanks had been holed. A second Sunderland sent to continue the shadowing was recalled to base when it was learnt that the Scharnhorst's fighter escort had been increased.

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June Narrative
and log of the
Scharnhorst

In the meantime a series of gallant but unsuccessful attacks had been delivered. Following a torpedo attack by Fleet Air Arm aircraft from Hatston, four Hudsons of Nos. 224 and 233 squadrons made a high level attack at 1600 hours, the Scharnhorst avoiding the falling bombs by altering course. This was followed at 1625 hours by a determined attack by nine Beauforts of No. 42 squadron, in flights of three aircraft, at heights varying from 2000 to 6000 feet, in the face of intense anti-aircraft and fighter opposition. Despite the claims made by the six aircraft which returned, no hits were registered. One stick dropped by the second flight straddled the warship, all the bombs falling in the sea, whilst violent evasive action turned possible hits from other bombs into near misses. At 1650 hours six aircraft of No. 269 squadron made a high level attack in formation, the accuracy of the attack being affected by heavy and accurate anti-aircraft fire and fighter opposition.

Scharnhorst's
log

No. 18 Gp. June
Narrative

Early that evening the Scharnhorst entered Stavanger, where she remained over night. She departed the following morning, finally arriving at Kiel without further interception at 2100 hours German summer time on 22nd June. A reconnaissance of the Stavanger-Haugesund area which might have relocated this force, turned back after meeting bad weather.

Reconnaissance of Trondheim after the departure of the Scharnhorst until the departure of the remaining force on 25th July was successful on five occasions only.⁽¹⁾ The accuracy of the sighting reports varied considerably, a point dealt with in more detail later in this section.

Gneisenau's log

On 20th July, having completed temporary repairs, the Gneisenau left her anchorage of Trondheim to undergo trials in the fjord, returning on the following day to anchor at the east end of the bay. An agent's report that she had departed either for trials or to return to Germany was received by the Admiralty and on 21st July a Sunderland of No. 204 squadron was ordered to make a reconnaissance of Trondheim. In view of the opposition met by the Blenheim aircraft of No. 254 squadron and the losses they had sustained in this task⁽²⁾, it was felt at the time that the Sunderland was not the most suitable aircraft for this task, nor did it return.

No. 18 Gp. July
Narrative

Further precautions were taken following this agent's report to intercept an attempt by the battlecruiser to break out of the North Sea by a crossover patrol to the North East of the Faeroe Islands.⁽³⁾ Further, the Sunderland carrying out the reconnaissance of Trondheim was to have searched an

(1) 23rd and 29th June; 8th, 22nd and 24th July.

(2) 3 Blenheims of No. 254 squadron had been lost on reconnaissance of Trondheim during this period. During June 1940 a further three Hudsons and three Beauforts were lost on strikes against the enemy naval force, two Hudsons on the Coastal reconnaissance of Norway and three Blenheims and three Hudsons over Stavanger - a total of 17 aircraft in this area for the month.

(3) One Sunderland of No. 204 Squadron maintained a crossover patrol from 0900 until 1500 hours, on 21st July in the area 62°0 N x 07°00 W - 65°00 N x 02°00 E - 65°00 N x 08°00 W - 62°00 N x 08°00 W (18 Gp. July Narrative).

area North of the Shetland Islands⁽¹⁾ before returning to base if the battlecruiser was not in Trondheim.

Logs of these ships

The damaged Gneisenau finally left Trondheim to return to Kiel during the afternoon of 25th July, escorted by the cruiser Nurnberg and four destroyers. The cruiser Hipper left at the same time, parting company from the main force at midnight, on a raiding expedition against ore-carrying traffic reported between Petsamo and Great Britain⁽²⁾. The Gneisenau and her escort finally reached Kiel on 27th July. Her log recorded that, apart from some cloud, visibility was good during the journey.

No. 18 Gp.
July Narrative

Her unhindered return was ensured by the British ignorance of her final departure. Reconnaissance of Trondheim on 22nd and 24th July, by No. 248 squadron⁽³⁾ had yielded no indication of the impending move nor had the Gneisenau's change of berth, following her trials in the fjord, been observed. No reconnaissance of Trondheim was flown on 25th July, and apart from two unsuccessful sorties over Bergen and Trondheim, both of which turned back before reaching the target, no Coastal Command aircraft were over the Norwegian coast on 26th July. On the following day a Blenheim of No. 248 squadron carried out a reconnaissance of Trondheim harbour and took oblique photographs from a distance of seven miles. The presence of one battlecruiser and three small cruisers or destroyers was reported - all in fact were merchant vessels.

H.Q., C.C.
Naval Staff log

The photographs were a failure. In the meantime German W/T references to "Operation Hipper" had led the Admiralty to suspect that the enemy had taken, or was intending to take some action at Trondheim. The Home Fleet was brought to short notice and further reconnaissance was requested for that same day, 27th July. An attempt that night by an aircraft of No. 248 squadron failed through bad weather. On 28th July, over two days after the actual departure of the German force, a successful reconnaissance of Trondheim reported no warships present. This was confirmed by a further sortie on the following day and on 1st August photographs of Kiel taken by P.R. aircraft showed both battlecruisers present in that port.

It remains to assess the effectiveness of Coastal Command reconnaissance of the German force during this operation.

Hipper's Log

No. 248 Sqdn. Form 540

- (1) 6620 N x 0220 W - 6500 N x 0304 W - 6600 N x 0030 W - 6500 N x 0100 W. (Rosyth form green RG/G14/20/7).
- (2) This expedition was a failure in as far as the reported traffic was not encountered. Both the outward and the return journeys were without event. On her return the Hipper completed the stretch from the latitude of Trondheim to the Heligoland bight on 10th August 1940, following the Norwegian coast at a distance of roughly sixty miles. According to her log bad weather and low visibility favoured her undetected return. Coastal Command aircraft flew no reconnaissance over Norway on 10th August.
- (3) These were the first operational flights by this squadron for Coastal Command purposes. The squadron had had a varied history up to this date. On 26.2.40 it was transferred to Coastal Command from Fighter Command as one of the intended four trade protection squadrons and stationed at North Coates. During April, 1940, it moved successively from North Coates to Thorney Island and then to Gosport and acquired eighteen Blenheim IVs out of its establishment of sixteen plus an initial reserve of three. On the invasion of the Low Countries in May 1940 some crews were loaned for operations to No. 235 squadron in No. 16 Group. On 22nd May 1940, the squadron was returned to Fighter Command, returning to Coastal Command roughly one month later, on 20th June 1940. On 14th July the squadron was ordered to relieve No. 254 squadron, which moved to Dyce and recommenced operations after a period of rest on 23rd August. The first aircraft of No. 248 squadron did not arrive at Sumburgh until 20th July, the ground parties sailing on 30th and 31st July.

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Reference to the table in the footnote⁽¹⁾, which summarises all the sightings obtained by Coastal Command during this period, will show two main faults in identification. In the

- (1) In the following table details of the positions of the major naval units actually present in Trondheim are taken from the logs of the vessels concerned. Details of the sighting reports are taken from the 18 Op. Narrative.

<u>DATE</u>	<u>MAJOR NAVAL UNITS PRESENT</u>	<u>SIGHTING REPORT</u>	<u>REMARKS</u>
10.6.40	<u>Scharnhorst</u> ~ Trondheim roads <u>Gneisenau</u> ~ Trondheim <u>Hipper</u> ~ Off Trondheim	<u>Scharnhorst</u> and 2 Hipper class cruisers or 1 Hipper class cruiser and one pocket battle- ship. Nurnberg class cruiser in Skjorn fjord.	Second battlecruiser misidentified as a pocket battleship or Hipper class cruiser. A destroyer mis- identified as a Nurnberg class cruiser
11.6.40	<u>Scharnhorst</u>) <u>Gneisenau</u>) Trondheim roads <u>Hipper</u>)	<u>Scharnhorst</u> and 2 cruisers and 4 destroyers	Second battlecruiser misidentified as a cruiser.
12.6.40	~ do ~	~ do ~	~ do ~
16.6.40	<u>Scharnhorst</u>) <u>Gneisenau</u>) Trondheim roads <u>Hipper</u>) <u>Nurnberg</u> off Trondheim	<u>Scharnhorst</u> and 3 destroyers off Trondheim Vessel 2 miles outside harbour thought to be an A.A. cruiser	<u>Gneisenau</u> , <u>Hipper</u> and <u>Nurnberg</u> mis- identified as destroyers. Not known what vessel was mistaken for an A.A. cruiser.
15.6.40	<u>Scharnhorst</u>) <u>Gneisenau</u>) Trondheim roads <u>Hipper</u>)	<u>Scharnhorst</u> , 1 cruiser and 2 destroyers.	<u>Gneisenau</u> identified either as a cruiser (in which case <u>Hipper</u> was identified as a destroyer) or as a destroyer.
23.6.40	<u>Gneisenau</u> in the roads <u>Hipper</u> in harbour <u>Nurnberg</u> W. side of the roads	1 battlecruiser 1 cruiser 2 destroyers	Misidentification of one cruiser as a destroyer.
29.6.40	<u>Gneisenau</u> in the roads <u>Hipper</u> in the harbour	One warship camouflaged brown and white with a 3,000 ton M/V alongside, identi- fied as a battle- cruiser. Second warship of the same class anchored off the town mole.	<u>Hipper</u> misidentified as a battlecruiser. The <u>Nurnberg</u> was in Trondheim Fjord returning from Stenkjoer.
8.7.40	<u>Gneisenau</u> in the roads <u>Hipper</u> in harbour <u>Nurnberg</u> W. side of the roads	1 cruiser thought to be Hipper class and 2 destroyers.	At least two major naval units mis- identified as destroyers.
22.7.40	<u>Gneisenau</u> E. side of the roads <u>Hipper</u> in harbour <u>Nurnberg</u> W. side of the roads	2 cruisers in the same positions as on 23.6.40 and one destroyer or small cruiser at the Easternmost end of Trondheim Bay.	<u>Gneisenau</u> mis- identified as a destroyer or small cruiser.
24.7.40	All positions as for 27.7.40	1 cruiser at the easternmost end of the harbour and destroyers at anchor	<u>Gneisenau</u> now identified as a cruiser and the other two cruisers either not reported or misidentified as destroyers.

first place, at no time⁽¹⁾ was the presence of two battlecruisers reported, the second battlecruiser being identified as a pocket battleship⁽²⁾, as a cruiser or even as a destroyer⁽³⁾. This mistake is all the more peculiar as one battlecruiser was normally correctly identified⁽⁴⁾ and the visible differences between the two ships of this class were only slight.

In the second place the two cruisers were normally misidentified as destroyers, although on 29th June the Hipper was mistaken for a battlecruiser.

To judge from the state of the situation board at H.Q., Coastal Command, the inaccuracy of these sightings was not remedied by intelligence from other sources. It is not known whether a more complete picture of the position was available to the Admiralty, but certainly Coastal Command at no time had a correct grasp of the enemy forces present in Trondheim⁽⁵⁾.

Furthermore it was not apparent from the sightings that a further cruiser, the Nurnberg, arrived in the harbour a few days after the other vessels. The outward and homeward journeys of all the various forces were made without interference, with the single exception of the Scharnhorst's return to Kiel. Finally it was not known that the enemy force had left Trondheim until after it had safely returned to Kiel.

Summary. All these facts vividly illustrate the difficulty with which Coastal Command was confronted in its task of keeping a watch on the Norwegian Coast. This was the first sortie by enemy naval units since the regular reconnaissance flights along the lettered tracks had been suspended and, although the former system had not yielded satisfactory results, it had not been replaced by any more effective system. The plan for regular reconnaissance of the Norwegian coast by weather flights followed by a coastal reconnaissance⁽⁶⁾ was a partial failure in that weather conditions were often unsuitable - heavy cloud and low visibility mean that effective reconnaissance was impossible, whilst a clear sky with visibility up to fifty or sixty miles, not an infrequent occurrence over Norway, brought the attendant danger of the enemy fighters based at Trondheim/Vaernes airfield. Nor was the proviso in the scheme as set out in the Coastal Command form green (CC/G1/8/5), that a section of Blenheims was to be used in areas where reconnaissance by single aircraft had been impracticable for some time, effective in detecting the movement of enemy naval units along the Norwegian coast. Time for sighting and attacking enemy forces after they had left the Skagerrak was limited to twenty four hours at most, in some

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- (1) Except on 29.6.40 (after the departure of the Scharnhorst), when the Hipper was misidentified as a battlecruiser.
 - (2) On one occasion only, 10th June, when the alternative identification as a Hipper class cruiser was proffered.

H.Q. C.C. Naval Staff's log entries at 1215 hours June 9th and 1510 hours June 10th

In this connection it is of interest to note that both battlecruisers were misidentified by the Glorious before she was sunk as pocket battleships and the H.M.S. Clyde mistook the Gneisenau for a pocket battleship in her sighting of 10th June.

- (3) The main occasion was on 14th June, although on 22nd July the Gneisenau was identified either as a small cruiser or destroyer.
- (4) Except on 22nd and 24th July.
- (5) From 10th June until 8th July one battlecruiser and two cruisers, from 8th July until 28th July one cruiser and two destroyers were recorded on the situation board as present in Trondheim.
- (6) For details see Section (xxi)

H.Q. C.C. June and July Narratives

cases less, and it is patent that success could only be achieved in this task by regular daily reconnaissance of the whole coast from 62 degrees North, an ideal impossible of attainment for three main reasons - shortage and inadequacy of aircraft in Coastal Command, weather and enemy fighter opposition.

Apart from reconnaissance, the difficulty of carrying out a successful attack on an enemy unit moving along the Norwegian coast with air support from both single and twin engined fighters based on Norwegian airfields, is plain from the events of 21st June. Apart from the allied submarines, aircraft provided the only means of attacking these ships, the rapidity with which events took place excluding any hope that our naval forces could reach the area in time to engage the enemy. The only striking force available at this period, the Beauforts of Nos. 22 and 42 squadrons and the Hudson squadrons, was inadequate for this dangerous task. Again in view of the aircraft shortage and, particularly at this period, the multifarious obligations of the Command, it was impossible to keep an adequate striking force standing by in the right place armed with the right weapons.

A.O.C.-in-C's
memo No. 8
paras. 1-3 C.C.
file S.15087
enc. 34A

A note of warning about the effectiveness of the reconnaissance being carried out by Coastal Command in Norway from Trondheim to Kristiansand (S), was given in a memorandum by the Air Officer Commanding-in-Chief to the effect that "a 100% report is not possible". The area of sea to be covered amounted to some 2,500 miles between these two places, without taking into account the outward and return journeys. A further difficulty was that many of the fjords were surrounded by high hills and had to be examined individually. Attention was also drawn to the need for periodical reconnaissance of Oslo and Narvik. The only aircraft in Coastal Command with sufficient range was the Sunderland and "though it may be possible to do the Narvik area with these flying boats at times, it is certainly not practicable, unless ideal weather conditions prevail all the way, to do the Oslo search. The grave shortage of Sunderland flying boats must also be remembered."

CHAPTER IV

COASTAL COMMAND IN THE FRENCH CAMPAIGN

(MAY AND JUNE 1940)

(i) Introduction(a) General

The not very considerable resources of Coastal Command were fully extended to meet commitments during May and June 1940. These two months saw the German conquest of Norway⁽¹⁾, Denmark, Holland, Belgium and France and the withdrawal of allied forces from these countries. Direct invasion of this country, always a possibility since the beginning of the war, now became an imminent probability. Events in France brought a large increase in reconnaissance duties to meet the evacuation emergency, while the invasion threat led to the development of a new system of routine patrols to give early warning of the approach of hostile forces against our shores. A minor but nevertheless considerable source of anxiety was the presence of German naval forces in Trondheim⁽²⁾. Convoy escort was a particularly heavy commitment, three hundred and forty lettered merchant convoys and three hundred and sixty four special convoys being given protection during these two months.

Although the success of German arms in this period had a considerable effect on the work of the Command as a whole, the onus of support in the French campaign fell upon No. 16 Group. In addition to the routine patrols searching for enemy naval and merchant shipping, strikes against sea targets, the continuance of the aerial mining campaign, and the considerable task of convoy escort and anti U-boat patrols generally, special tasks now included attacks against land targets and direct support for our land forces in North France by bombing gun positions and concentrations of armour and infantry. Patrols to locate and attack E-boats took on considerable importance when the enemy occupied the Dutch and Belgium ports. In particular support during the evacuation period assumed large proportions when every available aircraft was required for air cover over the shipping routes and, in conjunction with Fighter Command, over the beaches and ports. Requests for air cover for ships of the Royal Navy now operating within easy range of enemy bombing forces based on the captured aerodromes also increased.

It is of interest to note that support for the Royal Navy and the evacuation largely took the form of long range fighter protection against enemy bombers, a task for which Coastal Command aircraft, with the possible exception of the two long-nosed Blenheim squadrons, were not particularly well suited. No other course was however open, except to make the best use of what aircraft were available and Ansons, Beauforts, Hudsons as well as Fleet Air Arm Skuas, Rocs and Swordfish were used to intimidate the enemy bombers and reassure our returning troops. Apart from the question of the suitability of the aircraft types employed, the numbers available by no means corresponded

(1) See Chapter III for an account of Coastal Command's effort in the Norwegian campaign.

(2) One of the two precious squadrons of long range Blenheim fighters, No. 254 squadron, was fully occupied in maintaining a watch on this naval force at Trondheim, leaving only No. 235 Squadron available for the French campaign.

to the numbers required for the tasks involved⁽¹⁾. Losses were not unduly heavy considering that our aircraft normally flew in relatively weak formations of three aircraft and not only usually encountered superior numbers but also met and engaged single-engined fighters⁽²⁾. A particularly heavy day for losses was 29th May, when two Ansons and three Blenheims patrolling as cover to the evacuation were lost to Me.109s, and five of the ten Swordfish of No. 825 Squadron failed to return from a sortie to bomb a gun battery outside Dunkirk which was shelling embarkation points.

Two further items of general interest may be included here. On a number of occasions No. 16 Group aircraft were unable to fly routine and special tasks or were recalled early from sorties owing to fog at base. In fact poor flying conditions curtailed operations on roughly half the days in June.

On the night of 5th/6th June three Coastal Command airfields, Thornaby, Bircham Newton and North Coates, were attacked by enemy aircraft. Little damage was recorded at the latter two stations, but at Thornaby two Hudsons were destroyed and one airman killed. Operations on the following day were not affected appreciably.

(b) Squadrons available to No. 16 Group

The limited aircraft resources available to No. 16 Group at that time were composed of one Hudson Squadron⁽³⁾, one Blenheim squadron⁽⁴⁾, two Anson squadrons⁽⁵⁾ and one Beaufort squadron⁽⁶⁾. In addition the Group had operational control of various shore based Fleet Air Arm squadrons⁽⁷⁾, an important

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- (1) On 2nd June for instance three Hudsons of No. 220 Squadron sighted a formation of about 40 enemy aircraft off Dunkirk. Our aircraft made separate attacks and claimed two Ju.88s and one Ju.87 shot down, two Ju.87s probably shot down and two Ju.87s badly damaged (H.Q., C.C. Narrative CC/N1/2/6 para. B 2).
 - (2) On 1st June, for instance, three Ansons of No. 500 Squadron flying patrol Thistle were chased by nine Me.109s for five minutes. Return fire was claimed to have accounted for one Me.109 shot down and two seriously damaged. Our aircraft were damaged but landed safely (H.Q., C.C. Narrative CC/N3/1/6 para. B 11).
 - (3) No. 206 Squadron at Bircham Newton. Originally equipped with Ansons, the first operational sorties in Hudsons were made in April, 1940. During May only two flights of Hudsons were available; the third flight, which had ceased operating in Ansons from 12 May, did not become operational in Hudsons until the beginning of June (No. 206 Squadron Form 540).
 - (4) No. 235 Squadron at Bircham Newton. This was the second of the four trade protection squadrons to become operational. Operations were commenced on 2 May 1940, by which date three aircraft and crews were available. The other two Blenheim squadrons, Nos. 236 and 248, were returned to Fighter Command on 20 May and finally re-transferred to Coastal Command after the French campaign on 4 July and 19 June respectively.
 - (5) No. 48 Squadron at Thorney Island and No. 500 Squadron at Detling.
 - (6) No. 22 Squadron at North Coates. No. 42 Squadron took only a very small part in this campaign, operations being confined to occasional anti-invasion patrols in the English Channel whilst the squadron was training at Thorney Island. It ceased operations from Bircham Newton with Wildebeest aircraft on 9 April and moved to Thorney Island to convert to Beauforts. On 11 June a detachment arrived at Sumburgh for operations in No. 18 Group area, whence four aircraft of the squadron carried out their first operation in Beauforts with a raid on Trondheim Vaernes aerodrome. The remainder of the squadron moved to Wick on 19 June.
 - (7) No. 815 Squadron was under the operational control of No. 16 Group from 8 April until 16 May, 17 May until 23 May and 26 May until 4 June. No. 812 Squadron was placed under operational control of Coastal Command on 10 May. Nos. 819, 825 and 826 Squadrons were put under the operational control of the Group from 17 May. Nos. 819 and 825 Squadrons being returned to F.A.A. control on 23 and 31 May respectively.

Nos. 801, 816 and 818 Squadrons were put under the operational control of the Group on 27 May, Nos. 801 and 806 Squadrons being returned to F.A.A. control on 22 and 4 June respectively.

A.M. D.O.N.C.
Form 540
5.6.40
para. (xvii)

No. 16 Group
Form 540
entries on
31 May and
30 June.

contribution to the aircraft strength. Hudsons and Blenheims were detached from No. 18 Group for operations under No. 16 Group, particularly at the opening of the campaign and during the evacuation period⁽¹⁾. The average daily total of aircraft and crews available to No. 16 Group thus amounted to 73 aircraft and 71 crews for May rising to 90 aircraft and 82 crews for June.

The main aerodromes from which the Group operated were Bircham Newton, Detling, Thorney Island and North Coates. Other aerodromes such as Manston were occasionally used as forward bases to extend the endurance of patrols. Detachments of squadrons and even complete squadrons were moved from their war bases to airfields more conveniently situated for a given phase of the operations. For instance, No. 235 Squadron which was particularly in demand for long range fighter escort work moved to Detling for the period of the Dunkirk evacuations and to Thorney Island for the Cherbourg and St. Malo evacuation.

One further type of Coastal Command unit should be mentioned here - Nos. 1, 2 and 3 G.R. units, equipped with D.W.1⁽²⁾ Wellingtons, fitted for aerial sweeping of magnetic mines. These were all based at Manston, a Fighter Command aerodrome.

Admty. DSNE
No. 248
A.M. Signal
X635 10/5
Naval Staff
Log H.Q.

Following a German announcement that Dutch and Belgian ports had been mined "to safeguard German troops against enemy operations", a request was made on 10 May by the Admiralty for mine-sweeping Wellingtons to sweep between the Hook of Holland and the Maas light vessel, but in view of the strong enemy fighter patrols in this vicinity, the Wellingtons were ordered by an Air Ministry Signal, to sweep the IJmuiden channel. Despite the danger from enemy fighters, the task was carried out without loss, an escort of three long range Blenheims being provided.

A.M. Signal
X228 15/5

A.M. Signal
X15 and X926
20/5

On 15 May all aircraft (eight) of Nos. 1 and 2 G.R. units were ordered to the Middle East for operations in the Alexandria channel and the Suez Canal. As minesweeping trawlers arrived in Alexandria in the meantime, only five aircraft were despatched and on 20 May Air Ministry authorised the retention in the U.K. of the three aircraft which had not yet departed. These aircraft were to be refitted and transferred to No. 3 G.R. unit at Manston. This unit moved to Thorney Island on 24 May and was finally ordered to disband on 25 July.⁽³⁾

- (1) Flights of Nos. 254 and 248 Squadrons operated with No. 235 Squadron at the beginning of the campaign.
On 28 May all available Hudsons were detached from Thornaby to No. 16 Group to provide additional air cover for the evacuation from Dunkirk. Blenheims of No. 254 Squadron were also detached to No. 16 Group at this period.
- (2) Directional Wireless Installation. A meaningless term designed to avoid disclosing the true function of the apparatus.
- (3) These three aircraft were employed in sweeping Portsmouth harbour and its approaches.

(ii) Events preceding the German invasion of the Low Countries(a) General Reconnaissance and attacks on shipping

During April 1940, No. 16 Group had instituted the first two routine patrols covering the Belgian and Dutch coast-lines⁽¹⁾. A third patrol commenced during this month to locate enemy surface craft in the southern half of the North Sea⁽²⁾.

H.Q., C.C.,
Naval Staff
log.

On 1 May a warning was received at H.Q., Coastal Command that indications pointed to an imminent invasion of Holland and the importance of the dawn patrols along the Dutch coast was emphasised by the Admiralty⁽³⁾. New routine patrols were introduced to extend the shipping reconnaissance coverage as far East as the Elbe estuary, in particular, patrol "Emmie"⁽⁴⁾ was to search for enemy shipping inside the Dutch and German islands and in the estuaries of the Elbe, Jade and Ems rivers. Variations of this patrol⁽⁵⁾ were flown until it was replaced by the introduction of the new system of North Sea reconnaissance with the routine "met. and follow up recce." flight in area 'C'⁽⁶⁾.

A further patrol off the islands from the Texel to Borkum (T6)⁽⁷⁾ was flown on 2 May and was combined with patrol "Sweep" on 3 May, resulting in patrol "Broom"⁽⁸⁾, flown by one Hudson at dusk to cover the exits from the Heligoland Bight and the islands from Borkum to Texel. From 6 May a variation of patrol, "Broom" was established, extending the second part of the patrol from Norderney to Texel⁽⁹⁾.

To sum up, the general scheme of shipping reconnaissance in the Southern part of the North sea covered at dawn the Eastern approaches to the Dover Straits, the Belgian and Dutch coasts, the Dutch and German islands and the river estuaries in the Heligoland Bight⁽¹⁰⁾. At dusk this coverage was repeated with

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- (1) (a) The "Dutch" patrol commenced on 1 April and was originally flown by a single Anson from Detling daily at dusk to locate enemy minelaying craft in the East approaches to the Dover Straits and along the Belgian and Dutch coasts as far as the Texel (form green CH/G3/1/4).
 - (b) T-5 commenced on 16 April and was flown at last light by a single Hudson from Bircham Newton to search for enemy surface vessels and maintain a watch for anti-submarine nets, patrol craft and minefields especially close to the Dutch coast. The route was from Texel along the Dutch islands as far as 06 degrees East, returning 30 miles further out to sea (form green CH/G6/16/4).
 - (2) "Sweep" patrol commenced 4 April and was flown at first light by two Blenheims from Bircham Newton to search for enemy surface craft and attack enemy aircraft encountered. Route from Bircham Newton to the Texel, thence to 5500 N. x 0500 E. and return to base (form green CH/G6/10/4).
 - (3) The "Dutch" patrol was flown twice daily from this date, at dawn and dusk. Variations labelled "Double Dutch" and "Dutch 3" were flown on 2 and 3 May.
 - (4) "Emmie": one Hudson at dawn from Bircham Newton to 5300 N. x 0440 E. along the Dutch and German islands to 5350 N. x 0800 E. returning through 5401 N. x 0813 E. and 5400 N. x 0600 E. to 5357 N. x 0431 E.
 - (5) "Emmie" 2 and "Tom" flown on 2, 3 May over the same route. "Winkle" commenced on 5 May. Route Bircham Newton - 5400 N. x 0500 E. - 5350 N. x 0800 E. along the German and Dutch islands to 5300 N. x 0440 E. - base. (form green CH/G12/4/5).
 - (6) Labelled "Twinkle" and then "Emms". For details see Chapter III under section headed "The revised scheme of North Sea Reconnaissance".
 - (7) T-5 flown by two Blenheims from Bircham Newton on 2 May only. Route base - 5300 N. x 0420 E. coastwise to Borkum - 5335 N. x 0532 E. base (form green CH/G12/2/5).
 - (8) "Broom". Route Bircham Newton - 5440 N. x 0500 E. - 5340 N. x 0630 E. Coastwise to Texel - Bircham Newton (CH/G5/4/5).
 - (9) "Brush". Route Bircham Newton - 5440 N. x 0500 E. - Norderney coastwise to Texel - base (form green CH/G9/6/5).
 - (10) Patrols Dutch, T-5 and Emmie (Tom, Winkle and Twinkle).

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the exception of the river estuaries and the islands East of Nordeney. Instead the exits from the minefield in the Heligoland Bight were searched⁽¹⁾. Other patrols for special purposes or patrols quickly rendered obsolete by new and more extensive patrols were flown on single occasions only and scarcely affected the general scheme.

H.Q., C.C.
Narrative
C./N3/2/5
para. B3

As in the Norwegian area, these reconnaissance patrols attacked shipping targets whenever found. On 2 May, for instance, Hudson F/206 Sqdn. made two attacks on a large merchant vessel off Borkum. No results were observed. Our aircraft were attacked by a flight of Me.109s on two occasions but returned safely to base in both cases.⁽²⁾

H.Q., C.C.
NLO's

Twice during this period suspected enemy transport vessels were reported by our reconnaissance aircraft. On 1 May a Hudson of No. 206 Squadron sighted a naval force off Borkum and four transports on an easterly course. It was eventually appreciated that this force was probably sailing North and not to Holland, but further reconnaissance failed to relocate it. On 5 May four transports and one cruiser were reported at Nordeney. Further sorties failed to relocate the transports, although one cruiser was again reported anchored off Nordeney on 6 May. An attack planned for 7 May was a failure⁽³⁾. It is interesting to note that the Beauforts carried 2,000 lb. bombs for this operation.

(iii) The opening of the Campaign until the Evacuation period (10 - 26 May)

(a) General reconnaissance and attacks on shipping

The general scheme of reconnaissance in force at the opening of the campaign in the West continued until 27 May when air cover for the evacuation of Allied forces from Dunkirk took priority over all other tasks. The routine patrols⁽⁴⁾ gave coverage of the continental coastline from Dover Straits to the Heligoland Bight and were flown as necessary⁽⁵⁾ both in the morning and evening when weather conditions permitted⁽⁶⁾. Increasing enemy opposition to this reconnaissance made necessary the despatch of two or more aircraft on sorties previously flown by single aircraft⁽⁷⁾.

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- (1) Patrols Dutch and Broom.
 - (2) (a) 3 May Hudson C/206 attacked by 3 Me.109s whilst manoeuvring into position to bomb a large merchant vessel off Borkum. Rear gunner killed. Pilot and navigator wounded. (H.Q., C.C. Narrative CC/N2/3/5 para. B5 and CC/N3/3/5 para. B1).
(b) 5 May Blenheims K and M/235 attacked by 3 Me.109s of Nordeney (H.Q., C.C. Narrative CC/N4/5/5 para. B3).
 - (3) Twenty-four aircraft of Nos. 22, 815 and 235 Squadrons detailed to take off. Owing to poor weather and other difficulties only four aircraft of No. 22 Squadron reached the target area. One Beaufort bombed and missed what he took to be the target. From other reports it appears that the cruiser was no longer present at the time of the attack. (16 Group Narrative for 7 May 1940 para. 5. H.Q., C.C. Narrative CC/N2/7/5 para. B3 and CC/N3/7/5 paras. B3 and B5).
 - (4) Patrols Dutch, Emms and T.5. For details see the previous section "Events preceding the German invasion of the Low Countries."
 - (5) (a) Additional sorties were flown on the Emms patrol at the discretion of the A.O.C. No. 16 Group (form green CC/G4/16/5).
(b) T.5 patrol was ordered at latest light daily (form green CH/G12/11/5) but was also flown in the morning as required.
 - (6) Aircraft captains, particularly on the Emms patrol into the Heligoland Bight, had instructions not to continue with the patrol unless adequate cloud cover was available.
 - (7) (a) Dutch patrol flown by two Ansons in company from 10 May until 15 May and from that date by three Ansons in company.
(b) Emms (Twinkle) patrol, previously flown by a single Hudson, was lost on 12 May and 22 May. On 24 May it was flown by a single Hudson with a Blenheim escort, one of which was shot down by Me.109s. Thereafter this patrol was flown by two of three Blenheims in company.
(c) Patrol T.5 was also flown on 25 May by one Hudson with a Blenheim escort.

One further patrol(1) was introduced on 19 May to give warning of enemy surface vessels approaching our coast. This was flown between the Norfolk coast and Holland by three Ansons from Bircham Newton nightly during the moon period and was eventually replaced by a regular "anti-invasion" patrol. A variation of this patrol(2) was flown in addition over a similar area by a single Hudson fitted with A.S.V. from 2 June.

Sightings of enemy vessels during this period were not as frequent as they had been formerly. Only one medium sized merchant vessel was sighted and attacked by the Emms patrol(3).

A.M. Signal
X888 4/5

On 4 May an Air Ministry signal gave authority to bomb all vessels with Danish markings, all friendly vessels of this nationality having been instructed to carry Faeroes markings. Fishing vessels with Danish markings were frequently met on the routine weather flight from Thornaby in area B(4) and attacks on these were made on five separate occasions during the period under review, commencing on 19 May(5). Suspicions that the enemy was using these ships were strengthened by reports from our returning aircraft. On 20 May for instance, the swastika flag was hoisted as our aircraft began its approach. Similarly on 19 May the two vessels attacked were accompanied by a Do.18 flying boat. Only one of these vessels is recorded as having been left in a sinking condition(6), although near misses and the machine gun attacks undoubtedly inflicted damage on others.

No. 18 Group
Narrative for
these dates.

Two further attacks were made on minesweeping forces off Horn Reefs during this period by aircraft from No. 18 Group. On 13 May the weather flight from Thornaby made a series of attacks on seven minesweepers and four flakships, our aircraft finally being forced to seek cloud cover by the approach of six Me.110s. On 22 May a strike force of three Hudsons was despatched to attack eight minesweepers each towing a fishing smack. In neither case were hits with bombs obtained.

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- (1) Patrol Coast. Three aircraft from Bircham Newton to leave datum positions 5245 N x 0140 E. 5300 N. x 0140 E. and 5215 N. x 0140 E. at 22.30 hours on track 090 degrees as far as the Dutch coast. Return from positions 5315 N. x 0435 E. 5330 N. x 0500 E. and 5230 N. x 0420 E. on track 270 degrees (form green CH/G9/19/5).
 - (2) Patrol Coast 2. One A.S.V. Hudson from Bircham Newton on route 5205 N. x 0200 E. - 5205 N. x 0400 E. - 5150 N. x 0340 E. - English coast (form green CH/G18/1/6).
 - (3) In the Emms river estuary on 24 May. Four bombs dropped within ten yards of the vessel, the stern was lifted out of the water and she rolled heavily. (16 Group Narrative 24 May, 1940, para. 9).
 - (4) Between 58 and 56 degrees North at approximately 06 degrees East. The fishing vessels were normally sighted well out in the North Sea off the Danish coast.
 - (5) 19 May (two attacks), 20, 24 and 26 May. (18 Group Narrative for these dates).
 - (6) On 20 May. The bows were seen to have been stove in by a near miss and the crew abandoned ship. (18 Group Narrative 20 May).

It is worthy of note that the replacement of Hudsons by Blenheim IVs on the more dangerous patrols, particularly the Emms patrol in the Heligoland Bight, meant that in these cases the opportunist bombing attacks virtually ceased, as the Blenheims could only carry four 20 lb. bombs.

No. 16 Group
Narrative
10 May, 1940,
para. 10

No. 16 Group
Narrative
10 May, 1940,
para. 22

The routine morning patrol on 10 May was strengthened by a further reconnaissance by three Blenheims from Bircham Newton along the Dutch coast from the Texel to the Emms estuary⁽¹⁾. No unusual shipping activity either by naval or merchant vessels was seen and it was now clear from the results of the three reconnaissances⁽²⁾ flown that morning by Coastal Command that the enemy was not attempting to capture the Dutch or Belgian ports from the seaward side. A further patrol over this area⁽³⁾ was flown that evening from Bircham Newton by a single Blenheim, which returned without having sighted any abnormal activity.

No. 16 Group
Narrative
11 May, 1940,
para. 4

In addition to the routine shipping reconnaissance patrols and the anti-U-boat patrols and escorts in the Channel and along the East coast shipping routes, special patrols were flown for a variety of purposes. For example a Blenheim from Bircham Newton made a reconnaissance over the Hague on 11 May to verify that the enemy was still dropping paratroops or landing troops by transport aircraft. Our aircraft returned with a report of large numbers of abandoned parachutes lying on the ground and enemy transport aircraft preparing to land. Similar reports were made by the Coastal Command aircraft operating over this area during the first few days of the campaign. A further example of these special flights was a weather and general reconnaissance sortie to a position off Esbjerg, thence South at visibility distance from the coast as far as the Elbe river estuary, thence along the German and Dutch islands to Terschelling and to base, a dangerous task. The Hudson which attempted to carry out this requirement on 19 May, failed to return.

Form green
CH/G2/19/5

No. 16 Group
Narrative
19 May, 1940,
para. 16.

No. 16 Group
Narrative
25 May, 1940,
para. 24.

Following reports that parties of British troops were making their way South after the capture of Boulogne by German troops⁽⁴⁾, a special reconnaissance was flown on 25 May by one Anson along the beaches between Calais and a point South of Boulogne. Patrols of this type became more frequent during the period of the main evacuations.

A feature of all patrols at this time was the sighting of ships boats, motor boats and other small craft carrying refugees from Holland and in particular during the evacuation period, parties of allied soldiers either making their way from the continent in these vessels or survivors from sunken ships. Other vessels, particularly destroyers and escort vessels were guided to these boats and picked up the occupants.

(b) Measures against sea-borne attacks on
Great Britain

About this time the first precautionary measures were introduced against an enemy sea-borne raid on the

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- (1) Patrol Surf flown on 10 May only (form green CH/G1/10/5).
 - (2) Patrols Dutch, Twinkle and Surf.
 - (3) Patrol Taxi flown on 10 May only. Base - IJmuiden - coastwise to 5320 N. x 0500 E. - base (form green CH/G14/10/5)
 - (4) Nine destroyers evacuated all British troops, except 200, from Boulogne on the evening of 23 May (DSNE No. 262).

Shetland islands⁽¹⁾ and against a sea-borne invasion of the East coast⁽²⁾. These are dealt with in detail in the following chapter.

(c) Measures against E-boats.

The danger of attacks by enemy light surface craft on our shipping received increasing notice during this period, particularly as the German armies so rapidly occupied the Dutch, Belgian and North French ports. On 13 May the Admiralty expressed concern about the possibility of E-boats sailing along the Frisian islands from German North Sea ports to attack our ships at dusk. Coastal Command pilots on the routine patrols were therefore warned to keep a special lookout for these boats.

H.Q., C.C.
NLO's log
13 May entry
at 1350 hours.

The next step was a joint Admiralty-Air Ministry decision which placed on Coastal Command the responsibility for air support for Home Defence against enemy motor torpedo boats. Two routine patrols were instituted on 14 and 16 May to cover the East coast shipping route against attacks by E-boats as far North as the Firth of Forth⁽³⁾.

H.Q., C.C.
Narrative
CC/N4/15/5
para. E

The first sighting of an E-boat was made on 20 May when three Ansons of No. 48 Squadron on the Dutch patrol attacked eight or nine E-boats off the Texel⁽⁴⁾. On the following morning a further search for these vessels was made by two Blenheims which sighted a total of seven E-boats. A strike force of three Hudsons escorted by three Blenheims to attack the enemy was forced to return without locating the objective owing to lack of cloud cover.

H.Q., C.C.
Narrative
CC/N1/21/5
para. B1

No. 16 Grp.
Narrative
21 May,
paras. 1 and 8

On 23 May a new night patrol⁽⁵⁾ commenced along the coast between Calais and the Hook of Holland. The purpose of the

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- (1) A security patrol flown at last light in the area bounded by latitudes 59 and 61 degrees North and by longitudes 01 degrees West and 03 degrees East (forms green ROG5/14/5 and CC/G6/16/5).
 - (2) (a) Patrol Enemy flown on 17 and 18 May and routine patrol Coast commencing 19 May from Bircham Newton to the Dutch coast.
(b) Tracks Q-V inclusive flown from Leuchars and Thornaby to a depth of 240 miles from our coast. Commenced 24 May.
 - (3) (a) Daily cover at dusk of the area between parallels 5340 N and 5500 N and from the meridian of Greenwich to 05 degrees East. (Forms green CC/G1/14/5 and CC/G2/16/5).
(b) Patrol Scot shared by Nos. 16 and 18 groups. Two aircraft patrolled between Leuchars and Bircham Newton daily at dusk up to 60 miles off the coast (Form Green CC/G1/16/5). This patrol was cancelled on 23 May.
 - (4) Dive bombing attack dropping 100 lb. bombs and using front and rear machine-guns. No hits with bombs. Other damage to enemy unknown. One Anson lost, presumably shot down by the return A.A. fire.
 - (5) Patrol Hook between Calais and the Hook at hourly intervals each night during the moon period. Flown by four or five aircraft from Detling (Forms green CC/G1/23/5 and CH/G7/23/5).

No. 16 Grp.
Narrative for
these dates

patrol was to intercept E-boats attacking our shipping sailing between England and the continent. Sightings were made on 23, 24 and 25 May and attacks carried out on all three occasions. The routine Dutch patrol also made sightings on 25 and 26 May, but no attack was made on the second occasion as the cloud base was too low for bombing.

Attempts at bombing these small and very manoeuvrable vessels met with little success, with a possible exception on 25 May, when Anson N/500 Sqdn. claimed a direct hit with one 100 lb. bomb. However it is likely that near misses and machine-gun attacks inflicted damage on the boats and had their effect on the crews.

(d) Air Support for our Sea Forces

A large part of the total Coastal Command effort during this period, particularly immediately after the opening of the German offensive, was devoted to providing support for our sea forces. Long range fighter cover, primarily as a protection against the frequent attacks by enemy air forces based on forward airfields, was given to our destroyers operating off the Dutch coast⁽¹⁾, to damaged destroyers returning to base⁽²⁾ and to both minelaying and minesweeping vessels⁽³⁾. Fighter cover by long range Blenheims was provided as required over Dutch and Belgian ports⁽⁴⁾ and to merchant vessels on passage between the continent and Great Britain. Three further naval operations which received air cover must be mentioned. On 19 and 20 May continuous fighter cover was maintained over three small naval forces cutting the underwater cables from the East coast to Borkum and Nordeney. On 24 May operation D.E., the blocking of Zeebrugge harbour, was given air cover. On 26 May Swordfish aircraft, at that time under the operational control of Coastal Command, acted as spotters for a naval bombardment by H.M.S. Galatea and Arethusa of enemy shore batteries at Calais. Blenheim fighter escort was also provided for the second pair of Swordfish after enemy fighters had attacked the first two.

(e) Bombing attacks on land targets

The operational role of Coastal Command had always included co-operation with Bomber Command in bombing attacks during an emergency, although the priority to be given to this

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- May/
- (1) 11 May Blenheims patrolled between Walcheren Island and Voorne as air cover to destroyers.
13 May Blenheims gave air cover to H.M.S. Valorous and Dutch warships bombarding enemy land forces crossing the Zuider Zee dyke.
15 May and 16 May Hudsons gave air escort to returning destroyers.
 - (2) H.M.S. Kelly, torpedoed on the night of 9 May by an E-boat, eventually reached the Tyne on the afternoon of 13 May, having survived a number of bombing attacks. Blenheim and Hudson fighter cover as well as anti-U-boat patrols by Sunderlands were provided.
14 May Hudson escort given to the damaged destroyer Versatile.
 - (3) 11 May H.M.S. Princess Victoria laying a minefield off IJmuiden (Op. CBX) escorted.
15 May Ansons and Blenheims gave anti-U-boat and fighter escort to eight minesweepers.
16 May Blenheims patrolled between Vandelaar light vessel and Flushing as cover to a minesweeping force.
18 May Blenheims escorted the minesweeping trawler Arctic Hunter from Zeebrugge. Two Me.110s claimed shot down.
 - (4) 12, 13 and 14 May air cover over the Hook of Holland protecting a landing party of 200 Royal Marines and their subsequent withdrawal.
12 May air cover over Flushing where an ammunition ship was unloading.
16 May patrols over shipping between Walcheren Island and Ostende and over Ostende covering vessels embarking refugees.

function in relation to other commitments had varied considerably. With the opening of the French campaign in May, 1940, Coastal Command aircraft were again called upon to attack land targets, although the effort was on a comparatively small scale only as the number of aircraft available for a given task was limited(1).

Five squadrons of Hudsons and one squadron of Beauforts(2), together with the Fleet Air Arm squadrons under the operational control of Coastal Command(3) represented the maximum strike force at the disposal of the A.O.C.-in-C. In the face of other commitments such as routine escort work, general reconnaissance and mining operations, this strength could clearly not be used. Four of the Hudson squadrons belonged to No. 18 Group and were fully occupied in the Norwegian area of operations. The maximum bombing effort put out during this period by Coastal Command was a force of 28 aircraft to attack oil plants at Hamburg. Of this number, twenty were detached from No. 18 Group to No. 16 Group solely for this operation. Subsequent bombing attacks by Coastal Command aircraft were on a considerably smaller scale. Attacks were made in direct support of our ground troops on enemy troop and mechanised concentrations and on oil installations at Hamburg, Rotterdam and Ghent as part of the Bomber Command policy directed against the enemy's fuel supplies.

The first of these attacks was made on 12 May, when aircraft of the Command made an attack on Waalhaven aerodrome and on a car park in Rotterdam where the enemy was reported to be landing troops by air. This was after the Dutch failure on 11 May to dislodge German troops from the aerodrome which they had seized at the outset of the campaign(4).

The attacks on oil targets commenced with a relatively large scale and unsuccessful night raid on Hamburg. It was intended that attacks by Bomber Command should be followed by attacks by single aircraft from Coastal Command at intervals during the next night in order to complete the destruction and to maintain interference with salvage and repair operations. On 18 May twenty four Hudsons from No. 18 Group moved to Bircham Newton and North Coates to operate under No. 16 Group for this operation. A total of twenty eight aircraft(5) took off on the night of 18/19 May. The majority failed to locate the target owing to drizzle and searchlight dazzle. Only one aircraft returned a report claiming hits on the target; the remainder either dropped their bombs on the estimated position of the target or brought them back.

Attacks on the Rotterdam oil plants were made on the nights of 20/21 May and 25/26 May by Hudsons and Beauforts(6)

C.C. operational instruction No. 17

No. 16 Group
Narrative
19.5.40
para. 8

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- (1) Cf. the attacks on land targets in Norway.
 - (2) Nos. 206, 220, 224, 233 and 22 Squadrons. For details see section (1) (b) of this chapter.
 - (3) These could not be used for attacking overland targets without prior Admiralty consent (Admiralty signal 2009/17).
 - (4) Five Beauforts of No. 22 Squadron and eight Swordfish of No. 815 Squadron took part. Results were impossible to observe owing to the darkness and smoke from fires on the ground. One Swordfish was lost.
 - (5) Twenty from Nos. 220, 224 and 223 Squadrons, two from No. 206 Squadron (both lost) and six from No. 22 Squadron.
 - (6) 20/21 May five Beauforts of No. 22 Squadron.
24/25 May eight Hudsons of Nos. 206 and 220 Squadrons
25/26 May five Hudsons of No. 206 Squadron.
Attacks planned for 22/23 and 23/24 May were cancelled owing to bad conditions at base.

H.Q., C.C.
NLO's log
entries on
19 May at 1050
and 1400 hours.

To judge from the pilots' reports these attacks were slightly more successful than the attack on Hamburg. It is of interest to note that permission to use Fleet Air Arm aircraft against the oil installations at Rotterdam was refused by Admiralty.

H.Q., C.C.
NLO's log
24 May entry
at 1310 hours.

On 24 and 25 May three daylight attacks in support of our ground forces were made by Swordfish aircraft of Nos. 812 and 825 Squadrons, escorted by eight gun fighters from Fighter Command. The first of these attacks followed a report from H.M.S. Wessex on 24 May that an enemy concealed battery was commanding the entrance to Calais harbour. Air assistance was requested. Six Swordfish were despatched but failed to locate the battery and bombed the St. Inglevert-Calais road and machine-gunned a convoy as alternative targets.

H.Q., C.C.
NLO's log on
24 May at
1845 hours.

The other two attacks were in response to a report that enemy mechanised forces were concentrated at Gravelines where our troops were being hard pressed as they fell back on Dunkirk. On the evening of 24 May ten Swordfish bombed the Calais-Gravelines road and obtained hits on enemy tanks. On the afternoon of 25 May a further eleven Swordfish took off again to attack a concentration of enemy tanks and motorised infantry in the Gravelines area. The target ordered was not located but the Swordfish dropped sixty-six 250 lb. G.P. bombs on opportunity targets.

C.C. Narrative
CC/N1/25/5
para. B3.

In each case permission to use Fleet Air Arm aircraft against land targets was obtained from the Fifth Sea Lord by the Director of Home Operations.

No. 16 Group
Narrative
25 May para. 20.

A.M. D.O.N.C.
form 540 24 May
para. (vii) and
(viii)

(iv) The evacuation period (27 May to 30 June)

(a) Air Support for the evacuations

Dunkirk

By 21 May the collapse of the French Ninth Army and the enemy break-through between Dinant and Sedan had led to the complete isolation of the Northern armies. On that date German forces reached the Channel coast at the mouth of the river Somme. The allied forces in the North, comprising the British Expeditionary Force, the French First Army and the Belgian forces were constrained to execute a gradual retirement, sharply bending their right flank to protect themselves from the Northern edge of the German penetration.

In spite of instructions from the War Cabinet that the gap between the two groups of allied forces must be closed, orders which were clearly seen to be impossible of execution by our commanders in the field, preparations for the emergency evacuation of very large forces from the French channel ports had begun on 19 May under Vice-Admiral, Dover (Vice Admiral Ramsay). On 23/24 May Boulogne was successfully evacuated under this organisation. By 26 May the authorities at home had realised that a concerted offensive by the two group of armies to close the gap was out of the question and Lord Gort was authorised "to operate towards the coast forthwith in conjunction with the French and Belgian armies", in other words to prepare for evacuation from Dunkirk and the adjacent beaches. At 1857 hours on that same day the order was given to put operation Dynamo⁽¹⁾ into full effect.

(1) The code name for the evacuation from the Dunkirk area.

The details of the evacuation from Dunkirk do not directly concern this narrative⁽¹⁾. The evacuation began on the night of 26/27 May and despite enemy pressure which enforced a continuous contraction of the perimeter defence line around the area, this held until the B.E.F. and considerable numbers of troops from the French First Army had been successfully evacuated.

Ships attempting to approach the evacuation area along the direct route between Dover and Dunkirk on 27 May came under fire from enemy batteries established on the coast near Gravelines and a route involving over double the distance⁽²⁾ had to be used whilst a new middle route was being swept.

On 27 May King Leopold of the Belgians requested an armistice as from midnight on that date. The Belgian collapse was not unexpected and dispositions of our troops to allow for this had already been planned.

The responsibility for providing fighter protection against the frequent German bombing attacks on Dunkirk harbour and the evacuation beaches was undertaken by Fighter Command. Coastal Command's part during the first stage of the evacuation, when operations continued throughout the day, was the provision of patrols to intercept enemy surface craft approaching to attack our shipping, to watch for U-boats and to afford continuous air cover during daylight over the route used.

On 28 May all tasks for Nos. 220 and 224 squadrons in No. 18 Group were cancelled with the sole exception of patrols Crossover and T.5 off the Dutch coast, which were being flown by aircraft from Thornaby as well as Bircham Newton. All available Hudsons from No. 220 Squadron were detached to Bircham Newton to operate under No. 16 Group in support of the evacuation. Four aircraft of No. 224 Squadron were detached from Leuchars to Thornaby to assist with essential commitments from the latter station.

Altogether five new patrols were instituted by No. 16 Group on that day, all concerned directly or indirectly with the evacuation plan. Patrols Surfboat and Crossover guarded against the approach of enemy surface vessels from the East⁽³⁾. Patrol Shamrock⁽⁴⁾ was intended to give early warning of the approach of E-boats and U-boats on our shipping routes. Finally, patrols Goodwin and Sands, with which we are immediately concerned in this section, provided continuous air cover during daylight over the evacuation route from the North Goodwins light vessel to Gravelines and thence to Ostende⁽⁵⁾. Patrol Goodwin was flown from Detling by sections

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- (1) For a full account see "The Campaign in France and the Low Countries September, 1939 - June 1940" prepared by A.H.B.1.
 - (2) Leave Dunkirk by the Zuydecote Pass, thence Nieuport bank buoy, thence Kwinte bank buoy, then T buoy, S buoy and North Goodwin light vessel.
 - (3) Described in section (iv) (c) of this Chapter.
 - (4) Described in section (iv) (b) of this Chapter.
 - (5) Co-ordinates were as follows:- 5103 N x 0202 E - 5120 N x 0315 E - 5125 N x 0250 E - 5114 N x 0245 E (form green CH/G5/28/5). Amended on 31 May as follows:- 5120 N x 0135 E 5107 N x 0225 E - 5103 N x 0215 E - 5120 N x 0135 E (form green CH/G7/31/5).

of three Blenheims or Skuas of Nos. 235, 254 and 806 Squadrons⁽¹⁾; patrol Sands was flown from Bircham Newton by battle flights of three Hudsons of Nos. 206 and 220 Squadrons. Contact with enemy aircraft was made on a number of occasions and, although the superior speed of enemy bombers enabled them to avoid combat, our aircraft claimed one He.111, two Ju.87s and one probable Ju.87 shot down for the loss of five Blenheims⁽²⁾ and three Skuas⁽³⁾. Although the part played by Coastal Command aircraft in providing fighter cover is small compared with the effort of Fighter Command at this time and although the relatively low performance of these aircraft as fighters meant that results in the form of actual victories were small, it is clear from pilots' reports that the presence of our aircraft certainly acted as a deterrent to effective bombing by the enemy. On 28 May for example, a flight of three Skuas drove off five Ju.88s. Similar results were obtained on the following days as enemy bombers preferred to take advantage of their superior speed and cloud cover to make their escape.

A new type of patrol was introduced on the night of 31 May/1 June. Intended to locate and attack E-boats approaching the evacuation route at night, it was flown by one aircraft towing reconnaissance flares along a track parallel to the convoy channel, accompanied by a second aircraft armed with 250 lb. bombs for use against enemy light surface craft.⁽⁴⁾

By 1 June German attacks on the Dunkirk perimeter had enabled them to establish gun positions commanding the newly swept middle route between Dover and Dunkirk. It was thus impossible for our shipping to approach the evacuation harbour or beaches by day without coming under fire from enemy shore batteries. This fact, together with the intensity of the bombing achieved by the enemy during 1 June, led to the decision that evacuation would be possible hence forth only by night. The concentration of evacuation between the hours of roughly nine o'clock in the evening and three o'clock on the following morning had the added advantage that the total number of aircraft available for fighter cover could now be more effectively concentrated during the times of approach and departure of the shipping.

Periods were accordingly allotted to the two Commands concerned during which maximum air effort was required against enemy aircraft attacking our shipping. On 2 June Coastal Command were made responsible for air cover between 0830 and 1130 hours⁽⁵⁾, during which time no Fighter Command aircraft would be in the area. Six Blenheims from Detling and six Hudsons from Bircham Newton were to provide upper air protection whilst all available aircraft of Nos. 801 and 806 (F.A.A.) Squadrons were allotted for lower air protection.

Form green
CH/G3/2/6

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- (1) Nos. 235 and 806 Squadrons moved to Detling for this operation (H.Q. C.C. Narrative CC/N2/28/5 para. E). A detachment of No. 254 Squadron from Sumburgh also flew down to Detling.
 - (2) Three of these were shot down by Me.109s on 29 May (16 Group Narrative 29.5.40. para. 18).
 - (3) Attacked on 28 May by French fighters. One Skua was shot down and the other two damaged and crashed on landing. (16 Group Narrative 28.5.40. para. 17).
 - (4) Further details in section (iv) (b) of this chapter.
 - (5) It was estimated that the last ship would leave the Belgian coast at 0700 hours.

Reinforcements consisting of all the remaining available Blenheims and six Hudsons were to stand by at Detling. A total of twenty seven aircraft was actually engaged in the operation on 2 June but little enemy air activity was encountered(1).

No. 16 Group
Narrative
3.6.40
para. 7

These patrols, collectively labelled patrol Protection were repeated on 3 June(2) and were even more eventful than on the previous day. Lack of incident was doubtless due to the poor visibility. The patrol for 5 June(3) was cancelled as fog over the Straits and South East England made flying impossible, although at the same time it provided excellent cover for our shipping.

No. 16 Group
Narrative
3.6.40
para. 17

One further patrol on 3 June is of interest, patrol Straggler, designed to afford air cover in the evening until dark to straggling ships between Dunkirk and Dover. This was flown by six Blenheims and three Hudsons without incident.

Evacuation of the B.E.F. had been completed by 2 June, although efforts had been maintained on the following nights to withdraw as many French troops as possible. A halt was finally called on 4 June, by which date the ammunition for the French troops still remaining in the area, some 30,000 in all, was quite expended and the Germans were in a position to reach the sea along the whole front. After completion of the early morning embarkation Admiral Abrial accordingly acknowledged that further resistance was useless and during the afternoon "Operation Dynamo" was officially terminated.

It now remained to make arrangements to evacuate B.E.F. stragglers who reached the beaches after the main evacuation was completed. On 4 June and the three following days a section of four Blenheims from Detling flew patrol Craft within the area North Foreland - La Panne - Calais - Dover to locate small craft endeavouring to return to Great Britain with allied troops on board. A number of small craft under this category were in fact sighted and reported by these patrols(4) as well as by other Coastal Command patrols engaged on other duties over the evacuation area.

C.C.O.1
No. 29,
5.6.40

Final arrangements to evacuate B.E.F. stragglers from the coast between Gravelines and the mouth of the Somme were made for the night of 5/6 June, to continue nightly until cancelled. Air reconnaissance was to be available if requested by the naval forces engaged, to report any smallcraft which had not been located by the destroyers before dawn(5). This patrol was flown early on 6 June only, a small boat containing six or seven men being sighted and a destroyer directed to the position.

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- (1) Two Ju.88s were attacked without observed results. Other enemy aircraft were driven off (16 Group Narrative 2.6.40 para. 9).
 - (2) From 0745 until 0930 hours (form green CH/G1/3/6).
 - (3) Timed for 0600-0800 hours (Form green CH/G20/3/6).
 - (4) On 5 June, for example, a large transport was reported aground on its side with about 50 French soldiers. Confirmation was obtained by a special reconnaissance by two Blenheims and second Craft patrol the same afternoon. (16 Group Narrative 5.6.40. paras. 4, 11 and 13).
 - (5) Patrol Plage. A single aircraft from Thorney Island to search area Dungeness - 5038 N x 0135 E. x 5020 N x 0133E - 5020 N x 0100 E. (form green CH/G23/5/6).

Le Havre

H.Q., C.C.,
NLO's log
10 June entry
at 1700 hours

Large scale enemy attacks recommenced on 5 June and drove the French and remaining British forces(1) rapidly back in a general southerly direction. By 10 June however, the 51st Division, which before the opening of the last part of the campaign had been holding the most northerly part of the allied line along the Somme from Erondelle to the sea, had been cut off whilst attempting to reach Le Havre and trapped between Dieppe and St. Valery-en-Caux. In anticipation of an attempt to evacuate these forces from the beaches between Dieppe and Pecamp, a patrol of five Coastal Command Blenheims of No. 235 Squadron(2) took off as air cover over the area(3) on the evening of 10 June. On the following morning three more Blenheims from Thorney Island repeated the patrol(4).

An attempt to evacuate the 51st Division on the night of 11/12 June failed as fog descended and prevented the ships lying off from approaching the coast. On the following morning, 12 June, the commanding general ordered his troops to cease fire. News of this surrender was not received in London until that afternoon(5) and Coastal Command aircraft included St. Valery-en-Caux in the continuous patrol flown throughout daylight on 12 June by formations of aircraft over the route to be taken by the evacuation forces(6). This patrol also gave cover for the evacuation to Cherbourg of the advance force of the 51st Division which had been sent on to reinforce the French garrison at Le Havre. The withdrawal of this force, which commenced on the night of 11/12 June, was concluded successfully by the morning of 13 June. Coastal Command aircraft maintained the continuous patrol over the shipping route between Cherbourg and Le Havre on 13 June, a total of 86 sorties being flown on this patrol during two days(7).

St. Malo and Cherbourg

With the surrender at St. Valery-en-Caux on 12 June and the completion of the evacuation of Le Havre by the morning of 13 June, all remaining British forces in France were south of the Seine. By that time, however, the military situation appeared hopeless and it was clear that little could now be done beyond effecting the safe withdrawal of our remaining forces. Plans were accordingly made for evacuation from St. Malo, Cherbourg, Brest, St. Nazaire and Nantes. Details

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- (1) Beauman Division and the Armoured Division. For details see Part IV of "The Campaign in France and the Low Countries September 1939 - June 1940", prepared by A.H.B.1.
 - (2) This squadron moved to Thorney Island on 10.6.40 for the duration of the evacuations.
 - (3) Patrol Troop (form green CH/G22/10/6).
 - (4) Patrol Jampot (form green CH/G1/11/6).
 - (5) H.M.S. Harvester entered St. Valery-en-Caux harbour and found no trace of the 51st Division.
 - (6) Patrol Luck. A continuous patrol throughout the day by formations of six aircraft between St. Valery-en-Caux and Cherbourg. (form green CH/G22/11/6).
 - (7) The difficulties experienced in maintaining this patrol may be judged from the fact that all available aircraft, including types unsuitable for long range fighter protection, were used - Blenheims, Beauforts, Ansons and Swordfish. On 13 June No. 236 Squadron of Fighter Command was loaned to Coastal Command to assist in this task.

H.Q., C.C.
Naval Staff
log entry at
1515 hours on
16 June,

of events at the last three places do not concern this narrative beyond remarking that the Admiralty in despair asked Coastal Command if they could provide fighter cover to protect the transports in the Loire which were being attacked by enemy bombers⁽¹⁾. The only available Blenheim squadron was, of course, fully occupied with providing cover for the evacuations from the two Channel ports.

The final evacuation from St. Malo and Cherbourg commenced on 15 June. Fighter cover over the ports was undertaken by two of the five A.A.S.F. fighter squadrons, Nos. 17 and 501 and to a lesser extent by home-based aircraft of Fighter Command. Coastal Command was, as on similar previous occasions, allotted the role of air cover over the four shipping routes used⁽²⁾. Patrol Aerial⁽³⁾, as this operation was labelled, commenced on the evening of 15 June when four Ansons from Thorney Island patrolled the evacuation routes. Six Blenheims of No. 235 Squadron stood by at Thorney Island as fighter cover if the vessels were attacked by enemy bombers.

On the three succeeding days until the completion of the evacuation on 18 June, Coastal Command Ansons and Beauforts together with Fleet Air Arm Swordfish⁽⁴⁾ operating from Thorney Island flew a total of 87 sorties over these shipping routes. In addition long range Blenheims⁽⁵⁾ also temporarily based at Thorney Island gave fighter cover on 16 June against enemy bombers attacking our shipping at Cherbourg⁽⁶⁾. All these patrols were carried out with relatively little incident, no enemy air activity being encountered. Some opposition was however met from French fighter aircraft and A.A. fire on 16 June, fortunately without any serious effects.

The last patrol of this series was flown on 19 June by a single aircraft from Thorney Island. A reconnaissance of Cherbourg and St. Malo was made to report any stragglers attempting to reach England. No sightings were made.

No. 16 Group
Narrative
19.6.40
para. 6

The Channel Islands

Long range fighter cover and escort for the ships during the evacuation of the Channel Islands was provided by Coastal Command aircraft. On the evening of 19 June five Blenheims of No. 235 Squadron⁽⁷⁾ patrolled the area to cover the evacuation of troops and civilian refugees. This effort was repeated on the following day by a total of fifteen Blenheims, whilst two Ansons were detailed to provide anti-U-boat escort for three

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- (1) The three fighter squadrons Nos. 1, 73 and 242 based at Nantes to cover the evacuation from that area, were grounded by fog when the first attack on the transports took place at 1000 hours on 16 June. It was this attack which caused the Naval Liaison Officer at H.Q., Lines of Communication to signal to the Admiralty for fighter support.
 - (2) A Cherbourg to Southampton.
B Cherbourg to Poole.
C Granville and St. Malo to Weymouth.
D St. Malo to Southampton
 - (3) Patrol Aerial Form green CH/G11/15/6.
 - (4) Nos. 48, 500, 42 and 825 Squadrons.
 - (5) No. 235 Squadron.
 - (6) Patrol Burg. Form Green CH/G3/16/6.
 - (7) This Squadron had a detachment at Thorney Island until 24 June.

cross Channel steamers taking part in the evacuation⁽¹⁾. On 21 June a continuous anti-U-boat patrol was maintained by ten Ansons from Thorney Island⁽²⁾ over the ships taking part in the evacuation. All these patrols were without incident.

German aircraft bombed the Channel Islands for the first time some days later, when St. Peter's Port was attacked in the evening of 28 June causing both casualties and damage. An appeal for fighter cover until dusk to prevent a repetition of this unopposed bombing⁽³⁾ met with no response from Fighter Command. The captain of the S.S. Isle of Sark, which was due to take on 2,000 refugees at 2200 hours that evening expressed a fear that, as the town was in flames, the ship would be rushed. Two other vessels, the S.S. Ringwood and the S.S. Sheringham were also in the port. Three Ansons of No. 48 Squadron from Thorney Island were therefore ordered by A.O.C.-in-C., Coastal Command to patrol the port area and escort the three ships if possible until they were clear of the islands. This task was carried out without incident. The final patrol in this episode was made by Blenheims of No. 235 Squadron⁽⁴⁾ on 30 June to provide escort to a high speed seaplane tender engaged in evacuating certain civilians from both islands⁽⁵⁾. On the same day reports were received that the enemy had commenced the occupation of the islands with the dropping of airborne troops and on 1 July wireless intercepts from enemy aircraft clearly indicated that a sea-borne invasion with air cover was in progress. As the islands had been declared a demilitarised area, the enemy attack was completely unopposed.

(b) Measures against E-boats

Apart from attacks by enemy bombers, the main threat to our evacuation forces came from light surface craft and U-boats. Attacks by U-boats did not materialise to any great extent and the question is dealt with elsewhere. Attacks by E-boats were however made in accordance with our expectations and a number of special patrols and strikes were flown by Coastal Command aircraft in this connection.

On 27 May, the first day of the evacuation from Dunkirk, two patrols were flown specifically as counter-measures against E-boats. Nine Ansons flew a parallel track search in the southern part of the North Sea, followed by a continuous patrol of the coast between Nieuport and Zeebrugge by two Blenheims. An attempt by two Blenheims, at a reconnaissance of a suspected E-boat base, den Helder, failed through lack of cloud cover.

The importance of stringent precautions against these vessels was clearly shown when the troopship Aboukir (Br)-694 tons sunk following an E-boat attack on the night of 27/28 May ~~to the north~~ of Dunkirk.

On 28 May when Coastal Command began its full scale air support for the evacuation, patrol Shamrock was introduced. This was a continuous patrol by three Ansons from Detling off

H.Q., C.C.,
NLO's log
entry at
2020 and
2035 hours on
26 June

Form green
CC/G6/28/6

A.M. D.O.N.C.
form 540 entry
(XV) on
30 June

H.Q., C.C.
Naval Staff
log entry at
1200 hours on
1 July

H.Q., C.C.
Naval Staff
log entries at
1955 and
2211 hours on
27 May.

- (1) These aircraft failed to locate these particular vessels but reported other vessels leaving Jersey and Guernsey.
- (2) Patrol Civil. Form green CH/G5/21/6.
- (3) The Channel Islands had been demilitarised.
- (4) Based at Thorney Island for this operation only.
- (5) Nine aircraft were used, four of which failed to locate the tender. The remainder completed the task.

Form green
CH/G13/28/5

the coast between Nieuport and Zeebrugge to give early warning of E-boats and U-boats(1). It was replaced on 30 May by a similar patrol, Thistle(2).

C.C. Op.
Instruction
No. 23 dated
30.5.40

Night patrols were intensified to locate and attack these vessels. Patrol Hook(3) was replaced by 31 May by a continuous patrol with reconnaissance flares to the North East of the evacuation convoy channel(4). Towed target aircraft of the Fleet Air Arm and Ansons were used for towing the flares and were accompanied by a second aircraft with 250 lb. A/S bombs. E-boats were sighted on the first night of the operation and following an attack one direct hit was estimated. On 3 June the aircraft towing the flares was attacked by an enemy aircraft.

Patrols at night were strengthened on 2 and 3 June. Patrol Coast(5) and a variation of this were flown as well as a third night patrol in the English Channel(6).

Attacks on E-boats at sea continued with relatively little success. Some of these are mentioned under the section dealing with general reconnaissance and attacks on shipping. Others were carried out by aircraft either searching for E-boats or despatched to attack vessels previously reported(7). Other attacks were made on the harbours used as bases by these craft(8). The lack of success of aircraft attacks on these small ships at sea is easily understandable and new methods of attack and new weapons were being studied. A number of suggestions were put forward and tried, including steel arrows dropped in large numbers, depth charges and various types of

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- (1) Additional aircraft from No. 48 Squadron at Thorney Island were flown to Detling for this patrol.
 - (2) Thistle. A continuous line patrol during daylight between 5117 N x 0252 E. and 5130 N x 0238 E. by three Ansons in company. (Form green CH/G2/30/5).
 - (3) See section (iii) (c) of this chapter.
 - (4) Convoy Channel between the following bearings:-
Dover 100 degrees to French coast
North Goodwin light vessel 115 degrees to French coast
Flare patrol along parallel 5130 N between meridians 0200 E and 0320 E.
 - (5) See section (iii) (a) of this chapter.
 - (6) Patrol Embee. See Chapter V.
 - (7) On 28 May F.A.A. Swordfish were despatched to attack two forces of E-boats reported. On 29 May two Blenheims were despatched to attack reported E-boats with machine-gun fire but failed to locate their target.
On 6 June 6 Blenheims were despatched to attack 21 E-boats reported. The aircraft failed to locate the target.
On 10 June two aircraft were despatched to attack E-boats attacking one of our convoys. Bombs were dropped but no hits were made.
On 17 June three Blenheims again failed to relocate E-boats reported.
 - (8) On 29 May IJmuiden was bombed by six Beauforts of No. 22 Squadron. No E-boats were seen in the harbour.
On 12 June Boulogne was bombed by six Hudsons and eleven F.A.A. aircraft. Hits were claimed on E-boats in the harbour. This attack followed an intelligence report that E-boats were sailing to Boulogne on the night of 11/12 June and was preceded by a night reconnaissance.

bombs. It was not until late in the war however that general purpose bombs fitted with rods to explode just above the surface of the water were introduced and used successfully against this type of target.

(c) General Reconnaissance and attacks on Shipping

The changes in the situation on the West front brought considerable alterations in the Coastal Command system of anti-shipping patrols. Routine reconnaissance of the German North Sea coastline and the Heligoland Bight was neglected in favour of more extensive reconnaissance off the Dutch coast. Patrol Emms was only flown on three occasions during the period⁽¹⁾ and patrol Dutch was replaced. This concentration of attention on areas nearer our own shores was presumably due in the first place to the immediate importance of the Dutch and Belgian ports, from which E-boat attacks on our shipping and any attempt at an invasion of this country would be made. The acute shortage of aircraft in relation to the heavy requests made upon Coastal Command at this time and the increased danger of interception by enemy fighters provided further reasons of weight.

On 28 May two new patrols, Surfboat⁽²⁾ and Crossover⁽³⁾ began off the Dutch coast to locate enemy surface vessels, especially E-boats. Patrol T.5 was retained⁽⁴⁾.

The introduction of a strengthened system of patrols off the Dutch coast served two closely allied purposes. The most obvious aim was the interception of attacks by enemy surface craft on the large masses of shipping engaged on the Dunkirk evacuations. In addition to the threat from light surface craft, for which special patrols were flown⁽⁵⁾, the Admiralty expressed a fear on 28 May that the enemy might make a surprise attack against our evacuation route with major naval units. As an extra precaution patrol T.5 was flown four times during that day⁽⁶⁾. In addition Nos. 812⁽⁷⁾, 22 and 825 squadrons stood by as a strike force. However, no major units of the German navy made an appearance in this area, although it will be remembered that the Scharnhorst, Gneisenau and the Hipper, doubtless regarding the moment as propitious in view of the intensity of allied pre-occupation with the disasters in the West, set sail on 4 June to make a surprise attack on our forces in the Narvik area⁽⁸⁾.

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- (1) 11, 15 and 16 June.
 - (2) Patrol Surfboat at dawn and dusk by three Ansons from Detling. First part of patrol in close formation from position 5108 N x 0210 E on tracks 056 degrees for 47 miles, 045 degrees for 35 miles and 032 degrees for 39 miles. Second part of patrol a parallel track search from positions 5233 N x 0416 E, 5237 N x 0404 E and 5240 N x 0352 E on tracks 214 degrees for 40 miles, 225 degrees for 34 miles and 236 degrees for 49 miles (form green CH/G4/28/5).
 - (3) Patrol Crossover. The exact co-ordinates varied, a necessary precaution as the patrol was continuous from dawn until dusk. By 1 June three variations were being flown as follows:-
 5255 N x 0430 E - 5310 N x 0435 E - 5300 N x 0315 E - 5315 N x 0315 E
 5310 N x 0435 E - 5325 N x 0455 E - 5315 N x 0530 E - 5330 N x 0325 E
 5235 N x 0423 E - 5250 N x 0430 E - 5245 N x 0310 E - 5300 N x 0510 E
 Each patrol lasted approximately four hours and aircraft took off on one of the three variations every two hours. Thus at any given time during the day, two of the areas were being flown. Nine sorties were made each day (forms green CC/G4/27/5; CH/G11/28/5; CH/G1/30/5; CH/G18/30/5; CH/G1/31/5; CH/G7/30/5).
 - (4) From 30 May patrol T.5 was flown twice daily at dawn and dusk by the first and last aircraft on patrol Crossover.
 - (5) Dealt with in detail in sections (iii) (c) and (iv) (b) of this chapter.
 - (6) Twice by Hudsons from Thornaby and twice from Birchem Newton (H.Q., C&C. Narrative CC/N4/28/5 para. A12).
 - (7) No. 812 Squadron, loaded with torpedoes, moved from North Coates to Birchem Newton for this purpose.
 - (8) For details see Chapter III section (xxi).

The system of shipping reconnaissance patrols was again altered with the introduction of the "anti-invasion" patrols on 6 June, when all existing patrols, with the exception of the three weather and follow-up reconnaissance flights in areas A, B and C⁽¹⁾ and patrol T.5,⁽²⁾ were absorbed into the revised scheme⁽³⁾. The new series, labelled SA patrols⁽⁴⁾, took over the duties of general reconnaissance in addition to the main task of watching for the first indications of an attempted enemy invasion of this country. Patrols were extended to cover enemy occupied ports and attacks were made on ports and shipping targets generally.

Sightings during this period by aircraft flying these routine patrols were mainly of minor naval units, particularly E-boats. Attacks were carried out whenever conditions permitted⁽⁵⁾ using single or sticks of 100 lb. or 250 lb. bombs with no success, apart from one hit claimed on a destroyer off Nordeney. This attack was on 18 June and was followed by the despatch of two further forces. The first force of three Hudsons relocated the target but failed to score any hits. The second force of six Hudsons was instructed to make a reconnaissance of the mouth of the Elbe river for a battleship reported by Bomber Command aircraft. The destroyers off Nordeney formed the secondary objective. Neither target was located and our aircraft carried out a high level dive bombing attack in formation on Nordeney aerodrome. No results were observed. A further attack was made on enemy destroyers near Terschelling by the aircraft on patrol T.5. Our aircraft was driven to cloud cover by four Me.109s. No Coastal Command aircraft were available to follow up this sighting and attack.

In addition to these routine patrols, special shipping reconnaissance patrols were flown when required. On 5 June, for instance, five Ansons flew a parallel track search for fifty vessels reported on a Southerly course off the Dutch coast. No enemy surface vessels were sighted. Three Swordfish of No. 826 Squadron searched for a Danish ship reported to be sailing from the Hook of Holland to Borkum on the night of 19/20 June. The vessel was not located but the Swordfish bombed the docks at IJmuiden as an alternative target.

With the German occupation of the Dutch, Belgian and Channel ports and the imminent threat of an invasion of this

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- (1) Met. flights in areas A and B by aircraft from Leuchars and Thornaby were discontinued from 19 June. A daily weather report was made by the aircraft flying the dawn patrol SA 2 (forms green RO/G8/18/6 and RO/G12/18/6).
 - (2) Patrol T.5 was discontinued after 28 June and was replaced by a new patrol SA 8 (form green CC/G1/29/6).
 - (3) For details see Chapter V.
 - (4) Abbreviation of "Spanish Armada". The reference is obvious.
 - (5) 27 May the evening Dutch patrol attacked 4 E-boats.
 31 May Crossover patrol attacked 3 E-boats.
 2 June Crossover patrol attacked 1 E-boat.
 Surfboat patrol attacked 4 E-boats
 3 June Crossover patrol attacked 1 destroyer in IJmuiden harbour.
 Surfboat patrol attacked 6 E-boats.
 7 June SA 6 patrol attacked 6 E-boats.
 18 June T.5 patrol attacked 6 destroyers off Nordeney.
 T.5 patrol attacked 1 E-boat entering Haarlingen Harbour

No. 16 Group
Narrative 18.6.40
para. 15

No. 16 Group
Narrative 20.6.40
para. 14.

No. 16 Group
form 540 for 20.6.40

No. 15 Group
Narrative 5.6.40
para. 8

No. 16 Group
Narrative 20.6.40
para. 5

Form green
CC/G1/15/6

country, regular photographic reconnaissance of those ports was commenced. On 12 and 13 June Fleet Air Arm aircraft under Coastal Command operational control made a reconnaissance from Boulogne to Dunkirk and on 15 June daily reconnaissance of Boulogne, Calais, Dunkirk and Ostende was ordered for reporting shipping movements. On that day three aircraft of No. 801 Fleet Air Arm squadron⁽¹⁾ made a photographic reconnaissance of Boulogne, Calais and Dunkirk from a height of 200 feet. This became a daily routine sortie, labelled Boulos⁽²⁾.

Other special photographic reconnaissance flights were made on 16 and 17 June of the harbours and inlets between the Texel and Ostende and on 18 June of Dutch ports from IJmuiden to Flushing. These photographic reconnaissance flights subsequently became of considerable importance as a source of intelligence about enemy preparations for invasion and were carried out largely by the photographic reconnaissance unit at Heston⁽³⁾.

(d) Attacks on land targets

The Fleet Air Arm squadrons under Coastal Command control at this time continued bombing operations in direct support of our land forces. On 27 May two enemy land batteries near Calais were bombed and machine-gunned to reduce their fire whilst Lysanders dropped supplies to the besieged garrison at Calais⁽⁴⁾. Hits were claimed on one position. During the same evening Swordfish also attacked guns near Dunkirk shelling our shipping. Again hits were claimed. Less success was met on 29 May when of ten Swordfish which took off to attack a gun battery near Dunkirk, only four returned. These had attacked opportunity targets, having failed to locate their main objective. On 31 May enemy troops and a bridge at Nieuport were bombed.

On 31 May Coastal Command aircraft recommenced the bombing of oil targets in Holland with an attack by six Hudsons on oil storage at Rotterdam. On the following night nine Beauforts attacked Ghent and the attacks were repeated on 3, 5 and 9 June in accordance with the policy which laid down enemy oil supplies and communications as primary targets for our bombing forces.

(v) The mining campaign

Although bad weather and conditions of poor visibility⁽⁵⁾ restricted the effort, mining by Coastal Command continued.

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- (1) One Skua escorted by two Rocs.
 - (2) Patrol Boulos. Daily photographic reconnaissance of Boulogne, Calais, Dunkirk and Ostende for enemy shipping movements (form green CH/G8/15/6).
 - (3) Transferred to direct control of H.Q., Coastal Command on 18 June, 1940.
 - (4) The garrison had in fact been compelled to surrender on the previous evening.
 - (5) For obvious reasons, mines could only be laid when the aircraft's position was known accurately. If the dropping area could not be accurately located owing to bad weather conditions and other causes, the aircraft returned without dropping the mines.

Before the opening of the French campaign attention was concentrated, as in April, on two main areas, the Ems and Jade-Weser river estuaries. Following the German occupation of the Dutch harbours and coastline, part of the effort was diverted to laying mines in Dutch waters, the main areas concerned being the Maas river, the Outer West Scheldt, Flushing, IJmuiden, the Texel and the navigable gaps between the Dutch islands, Terschelling Gat and Huibert Gat. Minelaying in the estuaries of the Elbe and Ems rivers continued as before. The squadrons engaged on this task were chiefly Nos. 815 and 812⁽¹⁾ Fleet Air Arm squadrons and to a lesser extent No. 22 Squadron⁽²⁾.

A temporary compromise solution to the problem of the employment of No. 22 Squadron, which was required both as a strike force and for the mining campaign, was reached on 4 May. The main difficulty was the question of changing the load from mines to torpedoes at short notice. Four Beauforts loaded with torpedoes were therefore detailed on that date to act as a standby strike force at Bircham Newton, whilst the remaining aircraft of the squadron were to continue laying mines. This arrangement only lasted one week, for on 11 May, when all aircraft of the squadron were urgently needed both for bombing attacks on German oil supplies in support of our ground troops and for the mining campaign, the detachment at Bircham Newton was withdrawn. No emergency strike force, to attempt an attack on enemy major naval units which might break out of base, was thus available. It was not until 11 June that the first operational flight of four aircraft of No. 42 Squadron was sent to their war base at Sumburgh.

(vi) The effects on Coastal Command of the German occupation of France and the Low Countries.

A little more than two months after the opening of the European campaign with her attack on Denmark and Norway on 9 April, Germany was in possession of the continental coast from the North Cape to Bordeaux. Never before in her history had Great Britain found herself faced by enemy forces on all sides except the West, a loophole which the German navy attempted to close and thus isolate this country from the rest of the world. The possibilities of the situation were fully appreciated by the U-boat staff, who expected to be able to starve Great Britain out and bring her to her knees, provided their demands for concentration on the building of a large U-boat fleet were met.

By July 1940 the French Atlantic ports were in use as U-boat bases, at first, it is true, only to rest the crews whilst their vessels were being refuelled and re-armed. Work was soon taken in hand to adapt these ports as fully equipped, permanent bases and after the failure of the German Air Force to obtain mastery of the air over south England, the Battle of the Atlantic may be said to have commenced in earnest.

The possession of airfields in West France, from which long range bomber and reconnaissance aircraft could operate against our shipping routes West of Ireland brought an added threat to the trade on which we depended so completely to be able to prosecute the war. It was during the few months

(1) Both equipped with Swordfish aircraft.

(2) Also engaged on bombing land targets. See Chapter IX.

following the collapse of France that the German Air Force laid the foundations of its successful system of co-operation with the U-boat forces, which by March of the next year succeeded in sinking the largest tonnage of allied shipping to date.

The effects of German exploitation of these new bases on the operational policy of Coastal Command were far reaching and determined the lines of development of the Command as the chief means, in co-operation with the Royal Navy, of hunting and attacking U-boats. Other effects were felt - for example, the presence of enemy major naval units in the French Atlantic ports entailed a considerable amount of reconnaissance and bombing effort - but the war against our shipping carried on by U-boats and enemy aircraft was of primary importance(1).

A re-orientation of the main Coastal Command effort followed naturally upon the alterations made to the routing of our convoys. The vulnerability of shipping routes in the Channel and Western Approaches meant that the main outward and homeward bound convoys had to be routed north about Ireland. As far as Coastal Command was concerned, this had the effect of moving the main centre of convoy activity to an area off the North West coast of Ireland and the North Channel, and gave prominence to the only bases available in this area, Aldergrove in Northern Ireland, and Stranraer and Oban in Scotland, the last two being seaplane bases only. A programme of airfield construction in Northern Ireland and the Hebrides was undertaken, and six of the squadrons hitherto engaged in the North Sea were used to strengthen the forces available in the Atlantic(2).

With the re-deployment of the limited Coastal Command forces to the West coast, difficulty was experienced in maintaining the system of anti-invasion patrols, particularly as the vast area over which general reconnaissance was now required could not be covered with the number of aircraft available in the Command. Four squadrons of Blenheims were accordingly loaned to Coastal Command by Bomber Command for reconnaissance purposes only, although they were in fact employed in the bombing of the so called "fringe" targets, a sequel to the German possession of all European North Sea and Channel ports and to the invasion threat.

Enemy fighter opposition to regular reconnaissance of the ports from which an assault against this country was expected forbade the use of general reconnaissance aircraft and this task fell almost exclusively to the high altitude reconnaissance aircraft of the photographic reconnaissance unit, an organisation which henceforth rapidly developed.

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- (1) These points are dealt with in greater detail in the sections dealing with the Battle of the Atlantic, particularly Chapter VIII.
- (2) For details see Chapter VIII.

SECRET

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CHAPTER V

THE INVASION THREAT (OCTOBER, 1939 - JUNE, 1941)

(i) Anti-Invasion Measures

(a) Initial Precautions - October, 1939

C.C.7010/9
Encl. 2A

On 27 October, 1939, the Service Ministers and Chiefs of Staff met to consider and examine various reports which had been received on a possible enemy seaborne and airborne invasion of the United Kingdom.(1) Rumours of a similar nature had also appeared in the Press, and the Committee were in some doubt as to their significance.

In November, 1939, their report on the subject was submitted to the War Cabinet.

Broadly speaking in the circumstances then prevailing, the Committee reached the conclusion that small scale raids, although a possibility, did not constitute a serious threat, and that, so long as our naval and air forces remained intact, and provided certain precautionary measures were effectively maintained, the invasion of this country by means of a combined airborne and seaborne expedition did not threaten our security, but it would indeed be unwise to entirely ignore the possibility. Therefore, in order to increase our state of readiness to meet such an emergency, the necessary precautionary measures to be taken by all three services were decided, although in general, any interference with the existing dispositions and precautions already designed to meet more likely German courses of action, was to be avoided.

The Committee decided that the Officers responsible for co-ordinating the measures outlined should be, the Commander-in-Chief, Home Forces; the Assistant Chief of the Naval Staff (Home), and the Director-General of Operations, Air Ministry.

C.C.7010/9
Encl.

At the first meeting of representatives of these Officers which took place on 28 October, 1939, one of the Admiralty's members in presenting an appreciation of the situation, stated, that the Expeditionary Force would probably comprise 20 to 30 ships of 20,000 tons which would be accompanied by a strong destroyer force, but the heavy ships would not be present. The expedition would probably assemble in the Ems, Jade or Elbe estuaries and ships would be collected at the place of embarkation some two days before the operation took place. The Admiralty did not press for reconnaissance of the estuaries at present, but any information that could be obtained in the normal course of operations, would be of assistance. The points of landing on our coast would probably be at ports such as the Tyne, Tees and Humber, or on the beaches between Lowestoft and Orfordness.

(1) The possibility of invading England was first considered by the German Naval Staff in the late autumn of 1939, but the project was not mentioned to Hitler until 25 May, 1940. ("Operation Sealion" - Supplement to Naval Monthly Intelligence Report March, 1947).

To locate the approach of a possible expeditionary force, it was considered by the Admiralty that certain reconnaissance requirements were required at this early stage.(1)

Form Green
C.C./G2/
23/10
C.C./G3/
28/10

In accordance with these requirements Coastal Command laid on two patrols for 28 October, 1939, but the weather precluded the dusk reconnaissance from being carried out and was also the cause of the moonlight sortie being abandoned after only one hours flying.

C.C./G4/
28/Oct.

At dawn the following morning a second reconnaissance was ordered,(2) but the take-off was delayed until 1030 hours owing to poor visibility. This patrol was eventually completed by 6 Ansons of No. 220 Squadron from Thornaby, and may well be regarded as the forerunner of the intricate network of anti-invasion patrols which were built up as the threat of an enemy invasion gathered momentum during the following twelve months.

C.C./7010/
9/3
Encl. 4A

(b) The Employment of Air Forces in meeting the threat of invasion

Consequent upon the Chiefs of Staff appreciation on the likelihood of an invasion of this country, a conference took place at the Air Ministry on 31 October, 1939, under the chairmanship of the Director-General of Operations, in the absence of D.C.A.S., to consider the employment of Air Forces in meeting a threat of this kind.

The Air Officer Commanding-in-Chief, Coastal Command, attended the meeting in person.

After reading part of a telegram received from the Foreign Office and the Minutes of a War Cabinet Meeting which set out the problem, the chairman proceeded to deal with the Agenda which comprised (a) The functions of Fighter Command, (b) the allocation of Bomber Forces for attack on a seaborne invasion and enemy troops disembarking, and (c) the Role of Coastal Command.

C.C.7010/
9/3
Encl. 8A

The points raised and conclusions reached of immediate concern to Coastal Command, were those dealing with Air Reconnaissance and Air Striking Force.

In regard to Air Reconnaissance the following arrangements were agreed upon:-

(i) Reconnaissance by day of the Estuaries (3) was to be carried out by Bomber Command when considered necessary as the result of consultation between the Admiralty and Air Ministry.

-
- (1) (a) A reconnaissance one hour before dusk from 55 degrees North, 06 degrees East southwards to the Dutch Coast turning in time to avoid being sighted from the coast.
(b) During the present moon, a full moon reconnaissance 60 miles west of the line in (a) above.
(c) Reconnaissance of our own coasts each morning in the Tyne and Tees area, and Humber and between Lowestoft and Orfordness.
 - (2) Patrol of area between 53.30 N., and 55.30 N., and from meridian 03 degrees East to the coast.
 - (3) Ems, Jade, Weser and Elbe.

- (ii) Until further commitments intervened, Bomber Command would provide in accordance with the requirements of the A.O.C.-in-C., Coastal Command, reconnaissance at dusk, and on moonlight nights, over the North Sea on the general line indicated, (1) and where necessary over the Estuaries. The purpose of this reconnaissance was to locate at sea an expedition (if attempted) which could arrive on our coasts at dawn the following morning.
- (iii) An inshore reconnaissance on the East Coast as far as the Tyne to be provided at dawn by Coastal Command.

The A.O.C.-in-C., Coastal Command would co-ordinate these reconnaissances to avoid overlapping and wastage of effort.

Regarding the allocation of Bomber forces for attack on a seaborne invasion, 24 aircraft of Bomber Command were already held available at the disposal of Coastal Command for action against surface warships, and in addition there was one torpedo-bomber squadron (2) already operational within Coastal Command, a portion of which was standing-by at short notice. Certain other units of Bomber Command could be made available in such an emergency from two to three hours notice.

In addition to the air reconnaissance commitment already arranged for Bomber Command, it was proposed, by the A.O.C.-in-C., Bomber Command, that a formation of three or six aircraft of the stand-by squadrons comprising the Air Striking Force should be utilised to carry out a search to seawards at 1300 hours each day, if they had not been engaged beforehand on shipping strikes. This proposal was agreed to, and it was arranged that the A.O.C.-in-C., Coastal Command would indicate the areas of search.

C.C.
7010/9
Encl. 13A

In confirmation of the arrangements completed at the conference on the question of air reconnaissance, instructions were received at Headquarters, Coastal Command, from the Air Ministry during the evening of 31st October, 1939, for the reconnaissance (3) of an area to the west of the Estuaries, which was to be carried out forthwith and continued until further notice. This search was to commence one hour before dusk, and a second sortie was to take place during the current moon phase at the most appropriate time during the night, in an area some sixty miles to the west of that covered by the dusk patrol. To cover this requirement, the appropriate orders

-
- (1) From 55 degrees North to 06 degrees East towards the coast of Holland.
 - (2) No. 42 Squadron at Bircham Newton, armed with Vildebeest III & IV, with a limited radius of action of 150 sea miles. No. 22 Squadron (Vildebeest III) at Thorney Island, during September and October was ferrying torpedoes to Bircham Newton for No. 42 Squadron, and carrying out conversion training on Blenheims. In November, 1939, the first Beaufort aircraft arrived.
 - (3) From latitude 55 degrees North, Longitude 06 degrees East, thence South turning West in time to avoid being sighted from the Dutch coast.

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were drafted and despatched to the Area Combined Headquarters concerned, viz: Nos. 16 and No. 18 Groups, and to Bomber Command.(1)

CC/G3/31
10

In the meantime, plans had been prepared and instructions issued to the Group Headquarters concerned, for the inshore reconnaissance(2) which had been laid-on for dawn on 1st November, 1939. The scheme consisted of two patrols, both of which were carried out by six aircraft and four aircraft respectively, and with slight modification were repeated during the following four days.

C.C.7010/
9/3
Encl.11A

The resources of the Command on the East Coast were already strained to meet the existing requirements, of routine reconnaissance in the North Sea, convoy escort and heavy calls for extended searches on special tasks. However, a limited number of aircraft were forthcoming for this new commitment, and in addition the provision of aircraft to cover the dusk and moonlight reconnaissances was also required for the first nine days of November, pending the rearmament of the squadron chosen by Bomber Command to fulfil this role. Coastal Command also intended to maintain the moonlight reconnaissance but the weather prevented its fulfilment during the first six nights of the month.

RO/G4/6/11
RO/G6/6/11
RO/G7/6/11

On 7 November, the character of the inshore reconnaissance was changed from the existing diverging search to that of a line patrol about ten miles off shore. The southernmost section extended from Orfordness to Flamborough Head, while the northern half now stretched from Flamborough Head to Montrose.

C.C.C.
Controllers
Log 12/Nov/39
Item 9

For the next four days these new patrols were consistently maintained by two aircraft apiece, from dawn, but on 12 November, 1939, it was decided by the A.O.C.-in-C. Coastal Command to discontinue them as they were no longer of any value owing to early morning mist. It was considered more than likely that news of a landing would now get through by other available channels quicker than from aircraft.

CH/G4/6/11

A review of the remaining anti-invasion patrols was also carried out at the same time as the inshore reconnaissance was revised i.e. 7 November, and it was decided to institute a new daily routine search(3) in the No. 16 Group Area - to be known as Bircham Newton No. 1 Patrol - which was to be flown by two

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- (1) Two Whitleys of No. 4 Group (B.C.) carried out a reconnaissance of the river estuaries in N.W. Germany during the night 31 October/1 November, with a view to locating reported concentrations of merchant shipping. Owing to poor visibility, however, this reconnaissance was ineffective. Aircraft of No. 16 Group (C.C.) were also detailed to undertake a moonlight reconnaissance during the same night, but the sortie was cancelled owing to bad weather.
 - (2) Diverging patrol from Hunstanton to depth of 125 miles between 040 and 090 degrees by No. 16 Group.
Diverging patrol from Whitby to depth of 130 miles between 054 and 090 degrees by No. 18 Group.
 - (3) Two aircraft to patrol the area enclosed by the following points: 53.40N.- 0026E, 55.00N. - 04.08E., 53.50N.- 05.30E., 52.27N.- 01.44E. Patrol to be carried out from datum points 53.30N.- 00.36E., 52.55N.- 01.16E., on tracks of 058 degrees for 140 miles, 145 degrees for 21 miles and 238 degrees for 130 miles thence to base. (See Map III).

aircraft (later amended to three)(1) as late as possible in the afternoon, but to be completed by dusk. Each aircraft carried out a parallel track search within the specified area.

RO/G5/6/11

The original dusk reconnaissance to six degrees East thence south to the Dutch coast, which aircraft of No. 18 Group undertook - weather permitting - in the absence of Bomber Command aircraft, was also brought into line and given a number, i.e. Thornaby No. 2 Patrol.(2) One aircraft was ordered to standby daily from 1400 hours to carry out this sortie if Bomber Command were unable to do so, for any reason.

RO/G5/6/11

In addition, two aircraft from Thornaby were to undertake daily, a parallel track search of a new area to the north west of No. 2 Patrol. This additional search was to be known as Thornaby No. 1 Patrol,(3) and the take off was to be as late as possible in the afternoon consistent with the aircraft landing before dark.

Two further attempts to regularise these patrols took place within the next twelve days, after which they settled down to a combined letter and number system, which was retained until the introduction of the "S.A." scheme, of anti-invasion patrols in June, 1940.

CC/G4/19/11

The Bircham Newton No. 1 Patrol eventually became known as B.1 with a very slight change in position and reduction in area, and was usually flown by two or three Ansons at dusk.(4)

RO/G6/19/11

Thornaby No. 2 Patrol retained its original tracks but changed its designation to T.1, and was maintained, when necessary, by one Hudson before dusk. Thornaby No. 1 Patrol was cancelled.(5)

H.Q.C.C.
Location
Statements in
H.Q.C.C.
Forms 540

The small number of aircraft required to fulfil the anti-invasion commitment during the initial precautions in November - December, 1939, was met from the limited resources available in Nos. 16 and 18 Groups.

No. 220
Squadron
Forms 540

In the North Sea area for which No. 16 Group was responsible, Ansons of No. 206 Squadron, based at Bircham Newton, carried out the allotted tasks, and in No. 18 Group, Ansons of No. 220 and 608 Squadrons at Thornaby were employed for a similar purpose. During November, 1939, No. 220 Squadron had completed conversion to Hudsons and this type of aircraft gradually replaced the Anson, on the patrols for which this squadron was responsible.

- (1) Reference CH/G4/6/11. Patrol No. 1 is in future to be undertaken by three aircraft. Patrol is therefore to be carried out from datum points 53.33N. - 00.33E., 53.09N. - 01.01E., 52.45N. - 01.27E.
- (2) See Map III
- (3) Parallel track search leaving datum 148 degrees - Flamborough Head - 2 and 22 miles on track 058 degrees to depth of 140 miles thence on track 328 degrees for 20 miles, thence return on reciprocal tracks to coast (See Map III).
- (4) See Map IV.
- (5) On the occasions when aircraft of Bomber Command carried out Patrol T.1., or practice sweeps were despatched to reconnoitre areas off the Dutch coast and German North Sea ports, Coastal Command aircraft were released from any similar tasks on hand. (Ref. Coastal Command Controllers logs and Forms Green.)

Forms
Green
RO/G4/6/11

On the introduction of an inshore reconnaissance on 6 November, 1939, Ansons of No. 612 Squadron, based at Dyce, carried out the northern sector of the patrol between Montrose and Farne Island, during the few days this patrol was in operation.

C.C./S.7010/3/
3 d/d
24.1.40

The torpedo-bomber striking force available in the Command at this time consisted of one squadron armed with Vildebeest,⁽¹⁾ with a limited radius of action of 150 sea miles, but as no sea targets presented themselves within this range, no opportunity occurred for using the squadron offensively. A second squadron of Vildebeest⁽²⁾ were in the process of re-arming with Beauforts. In addition, the twenty-four aircraft of Bomber Command, already held available at the disposal of Coastal Command for action against surface warships, could be utilised as a striking force against a seaborne invasion.

CC/S.7010/
9/3
Encl. 8A

(c) A Change of Intention

Although the anti-invasion patrols were maintained up to early December with a regularity consistent with the weather, there was no indication that an invasion of the United Kingdom was imminent. Coupled with the fact that as the winter approached the possibilities of assembling and operating an expedition of this nature was further lessened, the need to maintain patrols specifically for detection and locating such a force, was no longer an urgent requirement.

This did not mean however, that the aircraft engaged on the Armada patrols now became spare; on the contrary, the need had arisen for their employment in the same area but on a more general commitment. For at this time an abundance of reports, coming in from Agents and Bomber Command aircraft engaged on Nickel raids, concerning the presence of enemy warships, minesweepers, minelayers and other suspicious craft⁽³⁾ off the coasts of Holland and N.W. Germany, were in need of clarification, especially if a Strike Force was being despatched to attack such targets.

C.C.O.I.
No. 9 d/d
27.11.39

Conveniently situated for this task were the areas covered by the Armada patrols, and it was therefore decided to change the intention and increase the scope of these patrols to assist in meeting this commitment. Their designations were retained, and further patrols⁽⁴⁾ were added to the series as the situation demanded during the next four months culminating in the German conquest of Norway⁽⁵⁾ Denmark, Holland, Belgium and France.⁽⁶⁾

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- (1) No. 42 Squadron at Bircham Newton.
 - (2) No. 22 Squadron at Thorney Island (in reserve to No. 42 Squadron) received the first Beaufort aircraft during November, 1939, and thereafter proceeded with conversion to this type of aircraft.
 - (3) Unidentified Enemy Units believed to be engaged in giving information and bearings to enemy aircraft operating in the North Sea.
 - (4) T.3 - Reconnaissance of area between parallels 54.10N and 54.50N., and between coast and 0500E. - Observation of foreign shipping. (See Map V).
T.4 - Diverging search from Flamborough Head to depth of 200 miles on tracks 070 degrees, 078 degrees, 086 degrees and 094 degrees. On reaching limit 10 miles south returning on parallel tracks of 250 degrees - Observation of foreign shipping - dusk. (See Map V).
T.5 - To Dutch Coast in latitude 53.00N. Coastwise to 0600E., thence to base through 53.50N., 0600E and 53.30N., - 04.00E. - Observation Surface Vessels, Merchant Vessels in convoy and Anti-Submarine nets - Dusk. (See Map V).
B.5 - Continuous patrol from Bircham Newton to Haaks Light Vessel, thence Maas Light Vessel - Southwold - base - Observation U/boats and Surface Vessels.
B.6 - Continuous patrol from Bircham Newton to Maas - Hoaks - 54.00N., 04.20E - Base. Observation U/boats and Surface Vessels. (See Maps IV and V).
 - (5) For Coastal Command's commitments during the Norwegian Campaign see Chapter III.
 - (6) For Coastal Command's commitments during the French Campaign see Chapter IV.

A.M.
S.5341
Encl. 2A
(C.O.S.
(40)332)

(d) Review of Invasion Plans by the C.O.S. Committee -
May, 1940

In the light of the situation in May, 1940, created by the German invasion of Denmark and Norway, the Chiefs of Staff Committee re-examined their previous report(1) on a seaborne and airborne attack on the United Kingdom, and submitted their conclusions to the War Cabinet.

C.O.S.
(40)332
Para. 3

It was pointed out by the Committee, that the German invasion of Denmark and Norway might well be the prelude to a major strategic plan aimed at seeking a decision during that year. If this was true, then the main attack would most likely fall on this country, the most serious threat to our security being an intensive air offensive, which, if successful might culminate in an attempt at actual invasion.(2)

C.O.S.
(40)332
Paras. 4,
5 & 6

Possible Combined operations against this country could be divided into two kinds, viz: raids and invasion. The first could be either seaborne or airborne, and in view of the current situation the danger had indeed been extended northwards to the Shetlands. Such raids were more likely to be carried out as diversions, simultaneously with an intensive air bombardment or invasion, rather than isolated operations in themselves. In regard to the second possibility; under existing conditions, the Committee saw no reason to revise their previous conclusion that, so long as our naval and air forces remained in being and provided the necessary precautions were maintained effectively, invasion was not a serious danger, at this time.

The crux of the problem was, whether the Germans could succeed in neutralising our naval and air forces, but as it was clearly impossible to estimate with any accuracy their chances of success, nothing short of the ultimate test in the conditions of widespread and heavy air attack could provide the answer to this problem.

C.O.S.
(40)332
Para. 8

The Chiefs of Staff considered it would indeed be unwise to assume that the Germans might not achieve a sufficient measure of success to encourage them to risk a gamble on actual invasion.

The occupation of Holland would be a necessary preliminary to this success, as this would enable Germany to employ short range fighters for air escort to her dive-bombers and air transport fleet. Furthermore, she would then have the added advantage of the short sea routes between Holland and the British Isles.

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- (1) Submitted to the War Cabinet in November, 1939.
(2) At the first two discussions, which took place on 31 May and 20 June, 1940, on the possibility of invading England, Hitler regarded the execution of such a project as impossible. However, during the last days of June, a surprising change of view occurred in the Fuhrer's Headquarters, and on 2 July, 1940, a Supreme Command directive was issued to the three services, instructing them to initiate preparations for an invasion of England. Air supremacy being stipulated as an indispensable condition for the operation. ("Operation Sealion" - Supplement to Naval Monthly Intelligence Report - March, 1947).

SECRET

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C.O.S.
(40)332
Para. 11

It was therefore considered that the most vulnerable area was between the Wash on the East coast and Folkestone on the South coast, and in view of the necessity to pass through the Straits of Dover and the longer passage from German or Dutch ports, attacks appeared less likely on the south than on the east coast.(1) Initial landings at the defended ports of Yarmouth, Harwich and Dover were unlikely, but there were numerous beaches on both coasts suitable for such operations.

C.O.S.
(40)332
Para. 14

The provision of the necessary troops for a seaborne invasion presented no problem from the German point of view, and ample shipping suitable for transports was at his disposal.(2) It was also known that a considerable number of troop-carrying barges had been prepared, and in view of the fact that they were not used for the invasion of Holland, they might well be intended for an invasion of this country.

C.O.S.
(40)332
Para. 14

The choice of the initial landing places and subsequent entry ports would be dependent partly on the mined areas through which the approaching forces would have to pass. Reconnaissance of the movements of our shipping might easily reveal the limits of our swept channels and so enable the expeditionary forces to pass through the gaps in our minefields. During the approach, sweeping could also be employed.

C.O.S.
(40)332
Para. 15

A warning of enemy intentions could be deduced from the inception of an air offensive, and the concentration of ships and troops; but the actual date of sailing and the point or points of attack, would remain in doubt until the last moment.

C.O.S.
(40)332
Para. 14

The possibility of diversions in the form of raids in the North of England and Scotland(3) was enhanced by the fact that the Norwegian harbours and aerodromes were in German hands. The occupation of the Shetlands for instance, could be a serious inconvenience to us, and the effects on our prestige would be far reaching.

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- (1) In a second directive which was issued from the Fuhrer's Headquarters on 16 July, 1940, it was stated that Hitler had decided on "preparations and eventual execution" of a landing, which was to take place over a wide area approximately between Ramsgate and West of the Isle of Wight. ("Operation Sealion" - Supplement to Naval Monthly Intelligence Report - March, 1947.)
 - (2) On 21 July, 1940, Hitler's attitude towards the planned operation was expressed to the Heads of the three services. He emphasized that the main difficulties lay in the field of supplies and that 40 divisions would be needed. The German Naval Staff calculated the total requirements as 155 transport steamers, (700,000 gross tonnage), 1,722 barges, 471 sea-going tugs and 1,161 motor boats. (Operation Sealion - Supplement to Naval M.I.R. - March, 1947).
 - (3) In order to disperse our defence force, the German Naval Staff planned a feint operation in the northern part of the North Sea to be carried out as conspicuously as possible to simulate a landing in Scotland; and also, by means of operations by the cruiser 'Hipper' and the pocket battleship 'Admiral Scheer' in the Iceland-Faeroes region and in the North Atlantic to draw off our naval forces in the area. (Operation Herbstreise - Supplement to Naval M.I.R. - March, 1947).

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A.M.
S.5341
Encl. 2A
Annex. II

(e) The Formation of a "Home Defence Executive"

To ensure that plans and action to meet an invasion of the United Kingdom were fully co-ordinated, a "Home Defence Executive" was set-up at once under the chairmanship of the Commander-in-Chief, Home Forces. The Executive, while remaining individually responsible to their own Ministries, would be jointly responsible to the Chiefs of Staff Committee.

The members were the Air Officers Commanding-in-Chief Bomber, Fighter and Coastal Commands; a representative of the Air Ministry; the Deputy Chief of Operations, Ministry of Home Security, and a representative of the Admiralty.

From among the many deliberations of the Home Defence Committee and its various sub-committees during the next two months the main item of interest to emerge for Coastal Command, as far as this narrative is concerned, was the provision of special air reconnaissance to give the earliest possible warning of the assembly and passage of an enemy seaborne expedition. In the early days of its existence, the Committee examined this question and agreed that they could not displace the functions of the Admiralty and the Air Ministry, but could only suggest variations and increases in the reconnaissance plan. Their chief function was the preparation of the defences in the United Kingdom to combat an invading force if a landing was effected.

(f) Review of Plans and Preparations for the employment of Air Forces in connection with Invasion.

A.M.
S.5341
Encl. 3A

In view of the Chiefs of Staff Report it was necessary to review the existing arrangements, which had come into force in November, 1939, under a Home Forces Plan - known as the J.C. Plan.

In general in those early days, the danger was not regarded with any seriousness but recent events had changed the outlook, and it was now desired to place before everybody the new situation and to instil the Government's wish for our defence preparations to be taken seriously.

With this object in mind a conference was held at the Air Ministry on the 7 May, 1940, under the chairmanship of D.C.A.S.

CC/7010/9/3
Encl. 39B

Arising out of the discussion which followed, it was decided in the first instance, that Coastal Command should be responsible for carrying out the reconnaissance plan and that Bomber Command should not have any specific commitment for this role. Secondly, that in an emergency, aircraft from Operational Training Units should be used to replace wastage in first line Squadrons. Thirdly, that any Fleet Air Arm Squadrons of Skuas and Rocs which could be made available, should be placed at the disposal of Fighter Command, and any other Fleet Air Arm Squadrons placed under Coastal Command.

(g) An Interim Plan of Reconnaissance

C.C./S.15087
Encl. 31B

By 10 May, 1940, the German invasion of Norway and Denmark had been consolidated and the campaign in the Low Countries had commenced. This change in the situation brought immediate advantages to the enemy's U/boat service, Commerce Raiders and Surface units; the first two had easier access to the Atlantic and the last named force enjoyed the same advantage in regard to attacks against our East Coast Convoys.

CC/S.15087
Encl. 31B

Moreover, the occupation of these countries had placed at the enemy's disposal established aerodromes from which he could operate against our reconnaissance aircraft and convoys. The natural difficulties already in the way of effective reconnaissance of the Norwegian Coast, was further increased by the opposition now to be expected from enemy fighters all along this coast and deep into the North Sea.

CC/S.15067
Encl. 30A

Yet a further factor was that the enemy could be expected to set up a chain of R.D.F. stations on the Norwegian and Danish coasts, facilitating the interception of our aircraft by fighters.

Certain other advantages accrued to the enemy relative to the build-up of an Expeditionary Force for the invasion of this country. He had acquired from the occupied countries additional transports and other surface craft in which to carry his invading force, and also more ports and harbours in which to assemble this armada. It was now possible for him to disperse his forces along a coastline extending from Northern Norway to the Low Countries; large transports could be berthed in distant ports, while smaller craft could be collected in numerous canals and estuaries closer to our coast. The whole expedition could then debouch from many ports along this extensive coastline, each unit proceeding independently to its point of attack.

CC/S.15087
Encl. 31B

All such advantages which the enemy had gained as a result of his successes, conversely affected Coastal Command's operational policy, and naturally led to some major alterations in the plan of operations. Quite apart from these considerations, the fact that the Command had also been made responsible for carrying out the anti-invasion reconnaissance, also necessitated a change of plan.

During this period of rapid changes in events, the A.O.C.-in-C., Coastal Command, made several appreciations on the problems confronting the Command, among which was one dealing with anti-invasion measures.

CC/S.15087
Encl. 32A

In regard to a seaborne invasion the A.O.C.-in-C., was of the opinion that the most probable areas for landing were Yarmouth - Harwich, Tyne - Flamborough Head. In this respect it was significant that in the enemy's plan for mining the East Coast he had left open two avenues of approach:- viz:- Tyne to Withernsea and Lowestoft to Orfordness. These approaches may have been left to permit his minelaying submarines to pass to and fro; nevertheless, it was considered that the most dangerous areas were the beaches opposite these unmined areas.

It was also feasible to assume that the most favourable area for the concentration of this force would be that which provided the optimum conditions for landing the first wave, that is within the area where his fighters and bombers could operate in conjunction. At this stage of the enemy's campaign it extended from the Wash to Newhaven, but might well extend to the westward according to the enemy's progress in the Low Countries and France.

A landing in the Shetlands as a diversionary measure, was also contemplated.

C.C. File S.15087
Encls. 30A & 31A

The importance of these islands in the broad strategic plan followed by Coastal Command had already been emphasised on 7 May by the A.O.C.-in-C., who had continued to express

anxiety that, in view of their isolated position and lack of adequate anti-aircraft and fighter defences, the islands were open to heavy attacks by bombers and long range fighters based in Norway and might become untenable as a flying-boat base.

A reconnaissance at dusk of the area to the East of the islands(1) was therefore ordered on 14 May and became a daily routine commitment for No. 18 Group from 17 May.(2)

See Map V

Mention should be made in this connection of two further patrols which commenced about this time. Although they were both primarily intended for the interception of E boats attempting to approach our shipping routes, they must be regarded also as "anti-invasion" patrols, particularly as the second one was ultimately incorporated into the regularised scheme of S.A. patrols which came into effect in the first week of June. Patrol S11, a daily commitment by an aircraft from the Shetlands over an area to the East of the islands,(3) was also used as an alternative to the routine security patrol from Wick by extending the area flown well to the East(4) The second patrol, flown daily at dusk from Thornaby, commenced on 14 May, and covered an area in the North Sea, through which it was estimated that E-boats must pass when attempting to approach our East Coast shipping routes.(5)

On 22 May the patrols over lettered tracks Q to V were recommenced daily at dusk with a limit of 240 miles from our coast,(6) to intercept enemy surface vessels approaching from the Skagerrak or North of the enemy declared minefield. Aircraft fitted with A.S.V. were used, the top two tracks being flown from Leuchars and the remaining four tracks from Thornaby.

The anti-invasion commitments of No. 18 Group during May thus amounted to a daily patrol East of the Shetlands at dusk and coverage of the Southern half of the North Sea up to a distance from our coast calculated to intercept enemy sea forces intending to make an attack during the hours of darkness or at first light.

Following the enemy occupation of the Dutch ports, patrols between our coast and Holland were strengthened. A night patrol across the North Sea from the Norfolk Coast to Holland was introduced on 17 May, and a crossover patrol flown continuously from dawn until dusk off the Dutch Coast, began on 27 May.(7) The stated purpose of both these patrols was to provide early warning of enemy surface forces approaching our shores.

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- (1) Between parallels 59 and 61 degrees North and meridians 01 West to 02 East. (Form green CC/G1/14/5)
 - (2) Three aircraft from Wick to fly parallel tracks from 01 degrees West to 03 degrees East between latitudes 60 and 61 degrees North, returning between latitudes 59 and 60 degrees North. Also flown on occasion by aircraft from Shetlands (Form green CC/G6/16/5)
 - (3) Area search between latitudes 60 and 61 degrees North and the meridians of Greenwich and 01 degrees East (form green RO/G6/6/5)
 - (4) Form green RO/G4/2/5
 - (5) Between parallels 5340 and 5500 North and between the meridians of Greenwich and 05 degrees East (Form green CC/G1/14/5).
 - (6) Given the label of T7. Commenced on 22 May by two aircraft each from Thornaby and Leuchars; on 24 May flown by 3 ASV aircraft from Thornaby and after 24 May flown by Leuchars and Thornaby. (Forms green CC/G2/22/5, RO/G2/24/5 RO/G6/26/5 and RO/G14/26/5)
 - (7) Patrol Enemy (replaced by patrol Coast on 19 May) and patrol Crossover, both flown by aircraft from Birchan Newton. For details see Chapter IV Section (IV)(c).

Provision was made for an alternative reconnaissance by two Ansons from Bircham Newton if weather conditions at Thornaby and Leuchars interfered with the routine dusk patrols by No. 18 Group. These aircraft covered an area across the narrowest part of the Southern half of the North Sea between the Norfolk Coast and Holland.(1)

See Map V

A detailed account of the patrols flown by Coastal Command during May and June will be found in the preceding chapter. To complete the picture of precautions against an enemy sea-borne invasion taken before the introduction of the regularised system of S.A. patrols, three further patrols already described in Chapter IV must be mentioned again. Patrol T5 flew from Bircham Newton to the Texel and along the Dutch Islands as far as 06 degrees East.(2) Commencing on 2 June one Hudson equipped with A.S.V., also from Bircham Newton, flew a continuous night patrol twenty-five miles East of the shipping route from Orfordness to the river Humber.(3) In the English Channel two Ansons from Thorney Island searched an area roughly between Le Havre and Dieppe nightly for E-boats and surface craft.(4)

This was the position of Coastal Command anti-invasion precautions up to the end of the first week in June, although, as has been already stated, other routine and special patrols flown by Nos. 16 and 18 Groups during the Norwegian and French campaigns must also be considered before a full appreciation of the extent of the Command's effort in this reference can be obtained.(5)

(h) The Introduction of Operation S.A. (C.C.O.I. No.21)

The evacuation from Dunkirk was still in progress when orders were given from H.Q., Coastal Command for a completely new scheme of anti-shipping patrols designed to provide warning of the approach of an invading enemy force. A distinction was drawn between reconnaissance to provide observation of weather conditions and of enemy shipping movements along the Norwegian and Danish Coasts and in the Heligoland Bight, and anti-invasion reconnaissance. The former patrols were the routine weather flights in areas A, B and C(6) and were to continue as before, although in the course of time the duties of these flights were assumed by the aircraft on the second series of patrols, as was inevitable in view of the acute shortage of aircraft in the Command and the disproportionate increase in responsibilities

Form Green
CC/G2/3/6

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- (1) Parallel tracks of 076 degrees from datum positions 5305N x 0100E and 5325N x 0100E, as far as 0420 degrees East. Return on reciprocal tracks 40 miles to the northward of outgoing tracks. Patrol flown as late as possible consistent with returning before dusk (forms green CC/G2/29/5 and CC/G1/30/5).
 - (2) Incorporated into patrol Crossover from 30 May.
 - (3) Patrol Coast 2, after completing the sweep roughly from Orfordness to the Dutch coast patrolled to the East of the shipping route. This was then continued until daylight by patrol ship (forms green CH/G10/2/6 and CH/G14/3/6).
 - (4) Patrol Embree commenced on the night of 1/2 June. From datum positions 5004N. x 0000E & 5014N. x 0000E., the two aircraft flew tracks 062 degrees for 63 miles, 360 degrees for 20 miles, 242 degrees for 63 miles and thence to base.
 - (5) See Chapters III & IV. On 10 June, for instance, a reconnaissance of Bergen as part of the search for the enemy naval force known to be at large in the North Sea (Chap. III, Sect. xxii), revealed 30 merchant vessels present. Other evidence pointed to invasion preparations and attacks on the port were made by Coastal Command aircraft but with little success owing to the extremely bad weather conditions.
 - (6) For details see Chapter III section (xxi) and Map V.

after the fall of France. Patrol T5 was also continued as an independent reconnaissance for enemy shipping until the end of June.(1)

All other routine shipping patrols were cancelled, and replaced by seven patrols designed to cover the areas of approach of an invading force from Norway to the Channel ports.(2) Six of these patrols had been in force previously, the new directive to Groups serving to clarify the general reconnaissance position.

See Map VI

Patrol S.A.1., previously flown as the Security patrol from Wick, covered the same area to the East of the Shetlands(3) daily at dusk. Patrol S.A.2 comprised the former lettered tracks Q to V inclusive to a depth of 240 miles from our Coast. This had also been a routine commitment for Thornaby and Leuchars as patrol T7, covering at dusk a large area of the North Sea roughly from Scarborough to Berwick on a rough bearing of 065 degrees to a depth of just under half the total width of the North Sea at this point. S.A.3 had been previously flown as the Thornaby E-boat patrol. Four aircraft covered the area roughly from the River Tyne to the River Humber, penetrating into the North Sea up to a distance varying between 300 and 400 miles from our Coast.(4)

An alternative patrol to be flown from Bircham Newton when weather conditions made flying from Thornaby impossible was laid down to cover an area across the narrowest part of the North Sea between the Norfolk Coast and Holland.(5)

The three patrols just described were all flown by No. 18 Group stations, that is, mainly from Wick, Leuchars and Thornaby. No. 16 Group aircraft from Bircham Newton, Detling and Thorney Island were responsible for the remaining five patrols of the scheme in its original form. As has already been stated patrol T.5(6) was retained and was flown from Bircham Newton to reach the Easternmost extremity of the patrol at latest daylight.

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- (1) This patrol was in use from 16 April and was cancelled on 29 June (form green CC/G1/29/6).
 - (2) For the purpose of this scheme, it was assumed that the vanguard of an invading force would be transported by fast minor naval units, probably E-boats and destroyers.
 - (3) Three landplanes, flying parallel tracks to cover the area between 59 and 61 degrees North and the meridians 01 degree West and 02 degrees East. The area was extended to 03 degrees East by form green CC/G5/4/6.
 - (4) Four aircraft to fly parallel tracks over the area between 5340 and 5500 degrees North and the meridians of Greenwich and 05 degrees East.
 - (5) Two aircraft on parallel tracks of 076 degrees from positions 5305N x 0100E and 5325N x 0100E, as far as 05 degrees. Return on reciprocal tracks 40 miles further North (form green CC/G2/3/6).
 - (6) Bircham Newton to the Texel, along the Dutch islands as far as 0600 degrees East and return to base via 5330N. x 0400E.

Patrol S.A.4 from Bircham Newton was a modification of patrol Coast which had begun during May. Three aircraft flew parallel tracks from the Norfolk Coast to Holland(1) commencing two hours before dusk and repeating the patrol three hours later.

The continuous patrol during the hours of darkness by one A.S.V. aircraft along a line 25 miles to the East of the East Coast shipping route from Orfordness to the River Humber, previously flown from Bircham Newton as patrol "Ship", was now continued as patrol S.A.5. One further continuous patrol flown during the hours of darkness by an aircraft from Detling over the North Sea to the South of latitude 5210 North, S.A.6., completed the coverage over the North Sea.(2)

The last patrol in the original plan, S.A.7. was a modified form of patrol Embree and amounted to a square search at the Eastern end of the English Channel(3) by two aircraft from Thorney Island. It lasted from two hours after dusk until the following dawn.

The new scheme of S.A. patrols was to be brought into force as soon as the heavy commitments at that time permitted. In fact No. 18 Group commenced the three patrols allotted to their squadrons on the night of 4/5 June. No. 16 Group commenced on the following night.

Amendments to the original plan commenced almost immediately. It was anticipated that, in order to draw off a proportion of our naval forces prior to attempting an invasion of this country, a diversionary attack on the Northern patrol or the Narvik shipping route might be made by enemy warships. A routine crossover patrol North of the Shetlands(4) was therefore ordered on 4th June. Ideally this should have been continuous during daylight but two Sunderlands from Sullum Voe each flying two circuits daily was all the limited aircraft resources permitted. This patrol fully occupied the present strength of the Sunderland aircraft based in the Shetlands and took priority over the anti-U-boat patrols from that base, which were only to be flown when weather conditions interfered with the anti-invasion patrol.

Although all these patrols were originally ordered at dusk or during the hours of darkness, the four patrols

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- (1) Three aircraft from datum positions 5230N. x 0200E, 5245N x 0200E, & 5300N. x 0200E. Course 090 degrees to the Dutch coast. Return from positions 5215N x 0405E., 5315N x 0435E, & 5330N x 0500E. on course 270 degrees.
 - (2) Map VI will assist in giving a clear picture of the extent of this coverage.
 - (3) The exact area for this patrol was originally the Dover Straits and English Channel East of the meridian of Greenwich and North of latitude 5010N. On 11 June the area was extended to parallel 5000N and meridian 0100 West (forms green CC/G2/3/6 and CC/G1/11/6.) Chatham forms green CH/G6/5/6 and CH/G7/11/6 prescribe in detail the route to be followed.
 - (4) Labelled S.12. Positions 6100N x 0050W - 6400N x 0030E - 6344N x 0150E - 6118N x 0200W. (form green CC/G1/4/6). This was in addition to the routine crossover patrol W2 flown from Wick in the Faeroes-Orkneys Channel continuously throughout daylight.

Form Green
CC/G1/5/6

covering the larger part of the North Sea, SA1, 2, 3, & 4, were subsequently ordered also daily at dawn.(1) Slight modifications were made to relieve the shortage of aircraft.(2) Observation of the areas covered by patrols SA6 & SA7, were also to be made from time to time during daylight.

It can be seen from this description that the plan introduced on 3 June was little more than a restatement of commitments undertaken by Nos. 16 and 18 Groups, during the Norwegian and French campaigns. Attention was now concentrated on the reporting of enemy invasion shipping rather than on enemy shipping movements generally. Shortage of aircraft and the urgency of other commitments were the particular causes of the neglect of more widespread anti-shipping reconnaissance and attacks. Reconnaissance of the Norwegian coast was limited to patrols by a flight of three Blenheims from Sumburgh. It is, however, true that the aircraft engaged on the anti-invasion patrols did attack opportunity targets which were presented to them. A particularly outstanding example of this spirit is evident in the work of No. 206 Squadron based at Bircham Newton. Targets in Holland were frequently attacked by the Hudsons of this squadron when flying the routine SA4 patrol.

C.C./S.15087
Encl. 32A

The Limited resources of the Command were already fully occupied at this time with the many tasks connected with the actual campaigns in progress, and therefore, during the latter part of May, 1940, only a compromise could be offered in regard to the provision of aircraft for the anti-invasion commitment. The conclusion of the enemy's campaigns in the Low Countries and France, however, released more aircraft for the anti-invasion role.

H.Q.C.C.
Location
Statements No. 6

At the commencement of the new scheme of regularised anti-invasion patrols early in June, 1940, the aircraft employed to carry out the tasks were again drawn from No. 16 and No. 18 Groups. In addition the Groups had operational control of various disembarked Fleet Air Arm Squadrons, who contributed some very valuable assistance in times of great stress. In July, 1940, when the scheme was expanded to the western end of the English Channel and the South Western Approaches, aircraft from No. 15 Group were utilised to cover the areas concerned.

Most of the squadrons employed were called upon at some time to combine the task of reconnaissance with that of attack against enemy shipping, barge concentrations and Land objectives.

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- (1) Form green CC/C1/5/6 ordered SA2, 3 & 4 daily at dawn from 5 June. Form green CC/G1/17/6 gave the same orders for SA1 from 17 June.
 - (2) SA3 at dawn could be flown by two aircraft fitted with ASV or by two aircraft covering the southern half of the area on the outward track and the northern half of the return track. This was instead of the four aircraft required for this patrol at dusk.
(form green CC/G3/4/6).
Either the second SA4 or SA5 at dawn could be omitted if the aircraft position made this necessary
(form green CC/G1/6/6).

In the Southern part of the North Sea and the Eastern end of the English Channel, No. 16 Group disposed, one combined Anson/Hudson squadron(1), one Blenheim squadron,(2) two Anson Squadrons (3) two Beaufort Squadrons,(4) one Swordfish and one Skua squadron of the Fleet Air Arm.(5)

For operations in the Northern part of the North Sea and off the Norwegian Coast, No. 18 Group deployed, two Sunderland squadrons,(6) one Blenheim squadron,(7) three Hudson squadrons,(8) and one composite Anson/Hudson squadron.(9)

H.Q.C.C.
Location
Statement
No. 8

When aircraft of No. 15 Group commenced their anti-invasion commitment in the South West, one Anson squadron(10) and one Sunderland squadron(11) became available for operations in this area.

(j) Reconnaissance of Enemy Ports and Aerodromes

Following the fall of France, the Low Countries and our withdrawal from the continent, some of our most fruitful sources of information about German intentions were cut-off at the very moment when such knowledge was most vital.

Towards the end of May, 1940, when it became evident that a British withdrawal from the Continent could no longer be delayed, the Joint Intelligence Sub-Committee of the Committee of Imperial Defence reviewed the means by which it might be possible to obtain the earliest warning of German preparations for the invasion of this country. It was recognised by the Committee that one of the chief sources of intelligence left open was that of air reconnaissance over enemy territory, and it was suggested that preparations for organising such reconnaissance should be put in hand at once.

An attempt to define the scope of air reconnaissance required, and to allot responsibility for carrying it out, was therefore made the subject of a conference held at the Air Ministry on 10 June, 1940. It was agreed that reconnaissance was required of certain specified ports and air-fields in South-west Norway, Jutland, North-west Germany, the Low Countries and such of the north French coastal region as was already in German hands. So far as ports were

C.C. 7010/9/3
Encl. 68A

C.C. 7010/9/3
Encl. 71A

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- (1) No. 206 Squadron at Bircham Newton originally equipped with Ansons. During May only two Flights of Hudsons were available, but a third Flight became operational during June.
 - (2) No. 235 Squadron at Bircham Newton. One of the four trade protection squadrons.
 - (3) No. 48 Squadron at Thorney Island and No. 500 Squadron at Detling.
 - (4) No. 22 Squadron at North Coates and No. 42 Squadron at Thorney Island. The first named squadron remained at North Coates throughout the whole period under review, but No. 42 Squadron on completion of their re-equipment with Beauforts moved to Wick (No. 18 Group) on 19 June, 1940. A detachment of the squadron was sent to Sumburgh (No. 18 Group) on the 11 June, 1940, and carried out their first operation in Beauforts with a raid on Trondheim/Vaernes aerodrome. On the same day No. 22 Squadron carried out its first torpedo attack on shipping off Calais. Relieved of operational duties w.e.f. 22 June, 1940, both squadrons concentrated on training whilst awaiting the fitting of modified engines to their aircraft. No. 22 Squadron resumed operations on 31 August, 1940, with a bombing raid on the Seaplane base at Amsterdam, and No. 42 Squadron came back to operations with a minelaying sortie on 28 September, 1940, off Lorient.
 - (5) No. 812 Squadron at North Coates and No. 861 Squadron at Detling.
 - (6) No. 204 Squadron and No. 201 Squadron at Sullum Voe.
 - (7) No. 254 Squadron at Sumburgh; another of the trade protection squadrons.
 - (8) No. 224 Squadron and No. 233 Squadron at Leuchars. No. 220 Squadron at Thornaby.
 - (9) No. 269 Squadron at Wick.
 - (10) No. 217 Squadron at St. Eval.
 - (11) No. 10 (R.A.A.F.) Squadron at Mount Batten.

concerned, it was concluded that photographic reconnaissance might be carried out as an alternative over Jutland, the Frisian Islands, the channels between the Scheldt and the Maas, and the French Channel Ports.

The order of priority for the reconnaissance of the ports was decided(1), and the aerodromes to be covered at frequent intervals, was also drawn up and approved.

Although no clear decision was reached concerning the manner in which the necessary reconnaissance would actually be organised, it was significant that the conference was of the opinion that "high altitude photographic reconnaissance was by far the best method."

CC.7010/9/3
Encl. 74A

After further consideration, the Air Ministry decided that the A.O.C.-in-C., Coastal Command would be responsible for ordering and co-ordinating all the reconnaissance of enemy ports.

Intelligence from these reconnaissances and other sources would be collated by the Combined Intelligence Committee who, from the information available, would indicate to the A.O.C.-in-C., Coastal Command each day, the ports which should be reconnoitred in order of priority.

To carry out this commitment, the A.O.C.-in-C., Coastal Command was expected to use the resources of his own Command but, in addition, he was to have first call on the resources of the Photographic Development Unit to whom he was empowered to pass orders for this purpose direct.

Although it was recognised that reliance would have to be placed in the main on photographic or visual reconnaissance by day, the possibility of obtaining information about enemy preparations for invasion by means of night photography was not overlooked.

CC/S.7010/26
Encl. 2A

The matter was considered at the Air Ministry conference of 10 June, 1940, and the policy laid down provided that the "facilities already available in Bomber Command for night photographic reconnaissance were also to be made use of to supplement daylight reconnaissance, although it was not intended that special night photographic reconnaissance should be undertaken by Bomber Command." The A.O.C.-in-C., Coastal Command, indicated the ports for which night reconnaissance was required, and Bomber Command would, if possible, route aircraft on night sorties so as to include such ports, provided this could be done without prejudice to the primary task on hand.

CC/S.7010/26
Encl. 1A

As a logical consequence of this policy the Photographic Reconnaissance Unit was transferred from the control of the Director of Intelligence, Air Ministry, to that of the A.O.C.-in-C., Coastal Command, with effect from 18 June, 1940.(2)

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- (1) (i) The original German ports, i.e. those in the Bight.
(ii) Norwegian Ports.
(iii) Danish Ports.
 - (2) See also R.A.F. Narrative - Photographic Reconnaissance by the Royal Air Force in the war of 1939 - 1945 (Vol. I.)

Meanwhile, A.C.A.S.(G) pressed for the policy of equipping P.R.U. to take night-photographs on its own account, and to this end tentative arrangements were made, but owing to shortage of certain equipment, this never came to pass. In point of fact P.R.U. passed through the invasion crisis of the summer and autumn of 1940 without having any facilities for night-photography, nor does it appear that the procedure suggested at the Air Ministry conference of 10 June, 1940, for the taking of night-photographs of enemy invasion ports was carried out to any extent.

As far as the photographic reconnaissance of enemy preparations is concerned, (1) the period between the taking over of P.R.U. by Coastal Command and the end of the immediate threat in October, 1940, could be divided into three main phases. During the first phase (18 June - 31 August, 1940) the photographs obtained gave largely a non-committal picture and failed to confirm the reports and rumours of German intentions to invade this country; on the other hand, the intermediate phase during the first half of September revealed the rapid development of preparations for invasion by sea; during the third and last phase the speed of visible preparations had appreciably slowed down. The activities of the Unit during this period amounted to 681 sorties of which 492 were successful, for the loss of 6 Spitfires and 2 Hudsons.

During the next six months, despite the lessening of the tension which followed the enemy's postponement of the invasion of this country and the influence of the winter season, a good proportion of the sorties flown by P.P.U., were to obtain intelligence on the progress, if any, of enemy preparations for invasion during the spring of 1941.

(k) Attack on the Enemy's Invasion Preparations in Norway

C.C. S.7010
Encl. 16A

From reconnaissance reports received during the first two weeks in June, it was considered by the Air Ministry that preparations for the invasion of England were taking place in Norwegian ports and fjords. This matter formed the subject of an Air Ministry directive to Coastal Command on 14 June, 1940, wherein it was directed that all Merchant Vessels situated in Norwegian Fjords between Trondheim in the North and Kristiansand in the South were to be attacked and sunk.

Coastal Command's own Striking Force, consisting of two squadrons of Beauforts, which at that time had been temporarily limited to activities on Coastal Waters, (2) was inadequate for this dangerous task of attacking shipping along the Norwegian coast, especially in view of the fact that air opposition from both single and twin-engined enemy fighters based on local aerodromes, could be expected. Again in view of the shortage of aircraft and the multifarious commitments of the Command, it was impossible to keep an adequate striking force standing by in the right place armed with the right weapons.

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- (1) See also R.A.F. Narrative - Photographic Reconnaissance Vol. I., Part III.
(2) Serious trouble experienced with the Taurus engine was the cause of these two Squadrons being limited to short operational patrols close to our shores.

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C.C.
7010/9/3
Encl. 100A

In the circumstances, therefore, the Air Ministry had no alternative but to instruct Bomber Command to provide a Striking Force to assist Coastal Command in Anti-invasion operations in the Northern part of the North Sea and Norway.

C.C.
7010/9/3
Encl. 101A

Two medium bomber squadrons of Blenheim aircraft⁽¹⁾ were detailed for this task and were ready to operate from Lossiemouth on 24 June, 1940.

C.C.
7610/9/3
Encl. 101A

Their primary role was to be that of a striking force for use against enemy invasion transport moving across the North Sea, particularly from Norway. The attack of shipping and troop carrying aircraft being assembled in Norway and believed to be intended to carry an invading force, together with the attack of aerodromes when particularly vulnerable targets were presented, were also included in this initial role. A secondary role would be the attack of enemy warships under favourable conditions, when this could be done without prejudice to the primary role.

Coastal Command was responsible for all necessary reconnaissance in the area concerned, and as a result of such reconnaissance indicated to Bomber Command the targets against which offensive action should be taken by the two squadrons.⁽²⁾

Coastal Command's anti-invasion commitment along the Norwegian coastline, was really a continuation of the policy which had been pursued throughout the enemy's Norwegian campaign.

Routine anti-invasion patrols were flown daily off the coast of Norway, and in addition, offensive reconnaissance was carried out over the coastline if suitable cloud cover was available. Occasional attacks on both naval and merchant shipping and invasion objectives were also made as the opportunities occurred.

CC/S.15087
Encl. 34A

With the aircraft resources available, in the Command at this time, one hundred per cent coverage of the Norwegian coast was impossible, in view of the fact that 2,500 nautical miles of water-ways were involved, not to mention the distances to be covered before the objective was reached. The nature of the terrain to be reconnoitred was another factor against complete coverage. Many of the fjords were surrounded by high hills which made it necessary for aircraft to come in close and examine each

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- (1) Nos. 21 and 57 Squadrons based at Lossiemouth.
 - (2) The first, and only bombing operation carried out by these two Squadrons took place on 9 July, 1940, against Stavanger Aerodrome. The target was successfully bombed, but on leaving the Norwegian Coast, all but three of the twelve aircraft employed on the operation, were engaged by Me. 109s and 110s, with the result that six of our aircraft were shot down. Subsequently, one of the two surviving aircraft of No. 21 Squadron was heavily attacked by enemy fighters and forced down into the sea. Despite repeated searches in the area, no trace of the crew was found. Thereafter, the Squadron continued with training, paying particular attention to the type of operation their primary role demanded.

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individually; they could not be fully explored from a distance. So deep were many of the fjords that big ships could be easily hidden from a distant viewer.

Such areas as Narvik and Oslo, were beyond the range of the majority of aircraft in the Command, in fact the only aircraft with the necessary range, at this time, was the Sunderland Flying Boat, of which there was a grave shortage. The present range of these boats was only just sufficient, and though it was possible to cover the Narvik area periodically it was not practicable, unless ideal weather conditions prevailed all the way, to carry out an Oslo search.

The situation was relieved with the arrival of a detachment of the Photographic Reconnaissance Unit, (1) based in the North of Scotland, for operations over Norwegian territory.

Enemy opposition, now fully operational in the area, made it necessary to rule that operations, over the more dangerous areas, were only to be carried out if cloud cover was available in sufficient quantities.

As objectives for attack were often barely within the range of our aircraft, the time spent in the target area was very limited and the search for targets if these were not found at once could not therefore be extended.

However, in spite of all these difficulties, Coastal Command carried out its tasks with vigour and tenacity which was a credit to all concerned.

(1) A redistribution of forces

Germany's ability to make use of air bases along the whole of the northern coast of France had by July, 1940, rendered the shipping routes in the Channel and Western Approaches extremely vulnerable to air attack.

Thus it became necessary from then onwards to re-route all Atlantic shipping so that its entry and departure to and from United Kingdom ports was via the North-Western Approaches and the North Channel.

In consequence of this change, Coastal Command had to redispense certain squadrons engaged in North Sea reconnaissance, (2) in order to afford protection in the new area.

The new disposition meant that the total number of aircraft available for anti-invasion patrols in the North Sea was now seriously curtailed. In the vast area over which reconnaissance was now required, the number of aircraft available for this task even prior to the re-orientation, was inadequate for satisfactory coverage.

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- (1) "A" Flight of No. 1 P.R.U. based at Wick with effect from 1.7.40.
 - (2) No. 48 Squadron (Ansons) was transferred to Hooton Park and a detachment of No. 612 Squadron (Ansons) was also transferred to Stornoway. In addition two Beaufort Strike Squadrons - Nos. 22 and 42 - were relieved of operational duties due to engine modification.

H.Q.C.C.
Location
Statement No. 8 d/d
4.7.40

CC/S.15087
Encl. 31B

CC/S.15087
Encl. 36A

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CC/S.7010/9/3
Encl. 117B

CC/G.1/1/7

CC/G.1/7/7

To fill the gap, it was decided at a conference held at the Air Ministry on 26 June, 1940, to transfer Nos. 53 and 59 (AC) Squadrons to Coastal Command for anti-invasion reconnaissance duties of enemy ports aerodromes etc. Orders for the commencement of their reconnaissance duties were issued by Coastal Command on 1 July, 1940. A week later, further orders were issued by H.Q. C.C. warning the squadrons that they may be called upon at anytime to provide a striking force. Throughout the period covered by this narrative both squadrons combined the role of reconnaissance with that of attacks on shipping and land targets.

C.C.
7010/9/3
Encl. 155A

Additional assistance for anti-invasion reconnaissance in August, 1940, was also forthcoming from the two Bomber Command Squadrons already on loan to Coastal Command for other anti-invasion duties. On 2 August, 1940, after consultation between the Headquarters of the two Commands, orders were issued to the effect that aircraft of Nos. 21 and 57 Squadrons should be employed to supplement Coastal Command's anti-invasion effort, and suggested the best method(1) whereby the squadrons could combine their training with this further commitment.

RO/G.4/3/8

From 4 August, 1940, six aircraft of No. 21 Squadron commenced operations in the selected area, to be followed the next day by six aircraft of No. 57 Squadron. Weather permitting, this routine was continued until the two squadrons were recalled to Bomber Command at the end of October, 1940.

(m) Amendments and Additions up to 16 July, 1940
("Operation S.A.")

Forms Green
RO/G8/18/6 and
RO/G12/18/6

Form Green
CC/G1/18/6

Efforts to conserve the available aircraft were made at every opportunity. On 18 June patrol SA2 which had been increased in extent,(2) was given the additional task of providing the daily weather report in areas A and B in place of the routine "met and follow up recce" flights. Similarly orders were given that aircraft on patrols SA6 and SA7 were to take every opportunity whenever adequate cloud cover was available, of making a reconnaissance of the harbours bordering these two patrol areas, including the Dutch estuaries and IJmuiden. If successful this would allow the day patrols to be considerably reduced. A further saving was made on 20 June when the number of aircraft required for patrol SA4 was reduced from three to two, entailing some small modifications in the area covered.(3)

- (1) Two sections each of 3 aircraft to proceed to Wick and Buchan Ness respectively. Aircraft then to spread to 20 miles apart from these two datum points and proceed on a parallel track sweep as far as 03 degrees East by tracks of 090 degrees returning on reciprocal tracks. Eastern boundary of patrol to be reached two hours after dawn.
- (2) Extended to include tracks J to P inclusive up to a distance of sixty miles from the Norwegian coast (Form green CC/G1/17/6).
- (3) First aircraft from datum position 5315 N x 0100 E on track 090 degrees to the Dutch coast returning from position 5330 N x 0500 E on track 270 degrees. Second aircraft from datum position 5255 N x 0200 E on track 090 degrees to the Dutch coast. Return from 5240 N x 0420 E on track 270 degrees as far as position 5225 N x 0200 E. Thence return to Dutch coast on track 090 degrees, finally returning from 5210 N x 0400 E. on track 270 degrees. (Form green CC/G2/20/6).
From 30 June the track of the second aircraft was modified as follows:- from position 5300 N x 0200 E on track 090 degrees to the Dutch coast, returning from position 5245 N x 0424 W on track 270 degrees as far as position 5230 N x 0200 E. Thence to the Dutch coast again on track 090 degrees, returning finally from position 5215 N x 0400 E on track 270 degrees. (Form green CH/G12/30/6).

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Form Green
CC/G2/9/7

Other examples of this need to conserve the aircraft effort, illustrative of the difficulties encountered in trying adequately to fulfil urgent operational commitments without sufficient aircraft for the purpose, are continually met during the record of alterations and amendments to the anti-invasion patrols. On 9 July for instance, an order to No. 16 Group cancelling patrols SA6 and 7 and the middle sortie of patrol SA4 commenced, "owing to the necessity of reducing the number of aircraft sorties, the SA patrols are now under revision". To provide more economical coverage of the areas contained in the cancelled patrols, patrol SA5 was extended to a position just West of North Hinder (5140 N x 0230 E) and a constant patrol by single aircraft of the harbours from the Hook to Cherbourg was maintained during the night.

Form Green
CC/G1/26/6

Towards the end of June the patrols to give warning of an enemy attack on the Shetlands were strengthened. In place of the previous routine patrol SA1, four separate patrols, labelled SA1(a), (b), (c) and (d), were introduced. The first covered the area included by tracks A to H inclusive (roughly from the North Shetlands to Moray Firth), as far as 03 degrees East and commenced one hour before sunrise. As patrol SA2 now included tracks J to V the whole of the North Sea was covered daily at dawn South of a line drawn from the North Shetlands to Alsboen light up to a sufficient distance from our shores to provide adequate warning of the approach of a seaborne invasion force.

The second of the new SA1 patrols, SA1(b), was in the form of a continuous crossover patrol by one Sunderland during daylight(1) over an area roughly half way between the Shetlands and the Norwegian coast.(2)

Patrol SA1(c) consisted of the two most northerly tracks A1 and B1 as far as 03 degrees East flown at dusk.(3) Finally patrol SA1(d) covered the area included in tracks G and H as far as 03 degrees East. This last sortie, also flown at dusk, was synchronised with patrol SA4. As before, these commitments took priority over anti-U-boat patrols, although it was laid down that important ships should be escorted. Whenever weather conditions or any other causes interfered with the patrols, Headquarters Coastal Command were informed and extra precautions were then taken by our surface vessels.

Form Green
CC/G3/10/7

See Map VII

Commencing on 11 July these patrols protecting the Shetlands were again revised. Patrol SA1(a) was flown as before commencing before sunrise. One hour later patrol SA1(b) commenced and continued until noon, instead of until one hour after sunset as had been previously ordered. In place of the former patrols SA1(c) and SA1(d), two new patrols, labelled S15 and S16, were ordered. The first was a continuous crossover patrol by one Sunderland from Sullum Voe North of the Shetlands,(4) which was flown from 1600 hours for six hours. The other patrol was flown from 1600 hours until dusk by a Walrus aircraft of No. 700 (F.A.A.) Squadron along the East coast of the Shetlands.

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- (1) From dawn until one hour after sunset.
 - (2) Between positions 6130 N x 0140 E - 6130 N x 0220 E - 5940 N x 0140 E - 5940 N x 0220 E.
 - (3) Outward journey on track B1 commencing one hour before sunset. Return on track A1.
 - (4) S15. A continuous crossover patrol through the following positions:- 6130 N x 0000 W - 6215 N. 0330 W. - 6232 N x 0310 W - 6110 N x 0025 W (Form green CC/G3/10/7).

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Form Green
CC/G2/14/7

One other alteration to the SA patrols flown by No. 18 group was introduced on 14 July when the times of the dawn sorties of patrols SA2 and 3 were amended for the aircraft to reach the extreme points of the patrols between 1000 and 1200 hours.

Commencing on 30 June a new crossover patrol, SA8, was flown daily from 1000 until 1600 hours by a single aircraft from Bircham Newton over an area to the North West of the Dutch islands.(1) This replaced patrol T5 which was cancelled on 29 June.

Form Green
CC/G1/30/6

The scheme of anti-invasion patrols was designed to give the maximum possible information about hostile ships approaching our shores under cover of darkness and partial protection only during daylight. As the effectiveness of the patrols was governed by the visibility and the accuracy of the tracks flown, Groups were ordered to telephone to Command Headquarters the estimated percentage effectiveness of every patrol flown, a patrol being regarded as fully effective when perfect tracks were maintained with a visibility of ten miles north of latitude 5340 North and eight miles South of this. On 14 July orders were given for coastwise patrols at earliest daylight in all areas where the dusk patrols were less than 90 per cent effective.

Form Green
CC/G2/14/7

On 1 July an attempt was made to strengthen the patrols in the English Channel and the Eastern approaches to the Dover Straits with the addition of two crossover patrols, SA9 and SA10, to be flown during daylight by Blenheims when available from Thorney Island and Detling.(2) SA9 was a crossover patrol continuous from 0500 until 1900 hours between points off the North Foreland and the Texel.(3) S.A.10 was also a continuous crossover patrol flown from dawn to dusk in the Dover Straits and the Eastern end of the English Channel.(4) To obtain continuous cover of these areas, patrol SA7 was now flown from dusk until dawn, extending the duration of this patrol by two hours.

Forms Green
CC/G1/14/7
and
CC/G2/16/7

As was to have been expected, considerable enemy fighter opposition was met on a continuous daylight patrol over the Channel and, after orders had been given on 14 July that patrol SA10 would be restricted to occasional sweeps by Blenheim fighters over the area, the patrol was finally cancelled until further orders on 16 July. Instructions had already been given that patrol SA9 was to be curtailed at the discretion of the A.O.C., No. 16 Group

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- (1) Between positions 5250 N x 0200 E - 5430 N x 0230 E - 5420 N x 0300 E - 5300 N x 0130 E. (Form green CC/G1/29/6).
 - (2) Two Bomber Command Squadrons, Nos. 53 and 59 both equipped with Blenheims had been temporarily placed on 29 June under the operational control of Coastal Command to assist with the wide reconnaissance commitments. They moved to Detling and Thorney Island on 2 and 3 July respectively.
 - (3) SA9. A patrol between positions 5120 N x 0200 E - 5310 N x 0340 E - 5300 N x 0410 E - 5122 N x 0122 E. Flown by single aircraft at two hourly intervals (Form green CC/G1/1/7).
 - (4) SA10. A patrol between the following positions:- 5000 N x 0050 W - 5100 N x 0115 E - 5035 N x 0115 E - 5020 N x 0100 W. (Form green CC/G1/1/7).

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to ensure that sufficient aircraft were available for a strike force from Nos. 53 and 59 Squadrons, the two squadrons responsible for these patrols.

See Map VII

A new crossover patrol in the English Channel, roughly between St. Catherine's Point and Start Point between 25 and 50 miles off our coast, (1) commenced on 16 July. It was flown daily at dusk by a single Blenheim from Thorney Island.

The first anti-invasion patrols to be flown by No. 15 Group were ordered on 15 July, SA12, an extensive crossover patrol in an area to the South West of Land's End (2) and SA13, also a dusk crossover patrol, in the Western half of the English Channel roughly between Start Point and Land's End. (3)

Reconnaissance of the Channel ports was, as had already been stated, a major commitment of the photographic development unit. (4) Visual reconnaissance, particularly at night, was however required from Coastal Command general reconnaissance squadrons. In contrast to photographic reconnaissance, which was able to give comparative figures of increases in enemy shipping and other preparations, general reconnaissance may be said to have provided an insurance against a surprise launching of the invasion forces. On 1 July, orders were given for reconnaissance of the harbours from Dunkirk to Dieppe daily, provided adequate cloud cover was available. On 9 July three sections of the continental coastline were detailed for constant patrol for single aircraft during the hours of darkness. One Anson patrolled from the Hook of Holland to Ostende and two other single aircraft patrolled the stretches from Dunkirk to Dieppe and Le Havre to Cherbourg, particular attention being paid to the harbours. (5) Further orders on 11 and 16 July amended the last two patrols to reconnaissance of all harbours between Dieppe and Dunkirk and from Cherbourg to Le Havre, with particular attention to Trouville and the mouth of the Seine, at least twice every twenty-four hours, either under cloud cover or by moonlight.

(n) The position on 16 July, 1940

It is convenient at this point to recapitulate by recounting in detail all the S.A. patrols in existence on 16 July. Reference should be made to Map VII.

For the purposes of this explanation, the patrols can be divided, according to the times at which they were flown,

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- (1) SA11. Two circuits at dusk between the following positions: 5026 N x 0120 W - 5010 N x 0120 W - 5004 N x 0340 W - 4947 N x 0340 W. (Form green CC/G3/14/7).
 - (2) SA12. A crossover patrol between positions Bishops Rock - 4820 N x 1100 W - 4800 N x 1040 W - 5008 N x 0648 W. Three circuits to be flown by one Sunderland at each sortie; the last circuit to end at 2000 hours (Form green CC/G1/15/7).
When an aircraft fitted with ASV was available the positions were amended as follows:-
4928 N x 0635 W - 4900 N x 1344 W - 4820 N x 1320 W - 5008 N x 0700 W.
Two circuits only.
 - (3) SA13. A crossover patrol between positions 4930 N x 0350 W - 4930 N x 0600 W - 4913 N x 0550 W - 4947 N x 0400 W. Two circuits to be flown at dusk. (Form green CC/G2/15/7).
 - (4) For a detailed account see the narrative "Photographic Reconnaissance in the War of 1939-1945" Part III, Section 6, prepared by A.H.B.1.
 - (5) As has already been explained in this section, these patrols replaced patrols SA6 and 7.

into four rough categories - patrols flown at dawn to locate an enemy force which departed the previous night or was beyond the range of the previous dusk patrols; patrols flown during the day; patrols flown at dusk to ensure that no enemy shipping was sufficiently close to our shores to land forces that night or the following dawn; and patrols flown continuously during the night.

To consider the patrols flown at dawn first, the whole of the North Sea was covered roughly from the North Shetlands to Orfordness. No. 18 Group was responsible for the protection of the Shetlands with patrol SA1(a) and for coverage of the North Sea from Kinnairds Head to the River Humber to a depth varying between 200 and 260 miles (patrols SA2 and 3).(1) The main changes to be noted since the inception of the scheme are the closing of the gap between the Orkneys and the Firth of Forth by the addition of tracks J to P inclusive to patrol SA2 and by the extension of patrol SA1 as patrol SA1(a). Patrol SA3 was now flown by three aircraft which had to be fitted with A.S.V. Only one dawn patrol was flown by No. 16 Group, SA4. The area covered remained practically the same as before, although some change had been made in the actual tracks flown.

Patrols during the day comprised four continuous crossover patrols and one other patrol. Three of these were flown by No. 18 Group to locate any enemy attempt to attack the Shetlands. SA1(b), a continuous crossover patrol, roughly halfway between the Shetlands and the Norwegian coast, commenced approximately at dawn(2) and continued until noon. At 1600 hours a further continuous crossover patrol to the north west of the Shetlands (S15) and a patrol along a line between 20 and 30 miles off the East coast of the islands(3) commenced, both lasting until dusk, when patrol SA1(a) again left the datum position. Roughly speaking, then, these patrols to protect the Shetlands were in effect continuous throughout the day and night.

The remaining two daylight crossover patrols, SA8 and 9 were flown by No. 16 Group aircraft and covered the approach to our shores of enemy forces setting out from the Dutch and German North Seaports. It should be noted that they also provided warning of impending attacks on our East coast shipping routes by light surface craft. Patrol SA8 was flown continuously from 1000 until 1600 hours and two sorties of two circuits each were flown between 0700 and 1900 hours by the aircraft on patrol S.A9.

It is difficult and unnecessary to draw a hard line between the patrols flown during the day and these flown at dusk to ensure that no enemy forces could approach our shores during the night or the following dawn. The North Sea coverage by Nos. 16 and 18 Groups was repeated at

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- (1) Patrols SA2 and 3 were actually timed to reach their extremity between 1000 and 1200 hours.
 - (2) Actually one hour after the early morning SA1(a) had left the datum line.
 - (3) Flown from Sullum Voe by a F.A.A. Walrus of No. 700 Squadron under the operational control of Coastal Command.

dusk(1) with the addition of a crossover patrol maintained by the southernmost aircraft on patrol SA3 until one hour after dusk between position 5450 N x 0500 E and visibility distance of the Dutch coast. Three further crossover patrols were flown at dusk by Nos. 15 and 16 Groups, SA11, 12 and 13, covering the English Channel West of the Isle of Wight and the South West approaches.

Two continuous patrols during the hours of darkness(2) were flown to intercept fast enemy minor naval units, based on the Dutch ports, which might leave harbour after dark either to make a surface attack on our East Coast shipping or to land small numbers of enemy shock troops for sabotage purposes or to seize a beach head for further landings.

Three reconnaissances fall outside the four categories dealt with above. Two of these covered the French Channel ports from Dunkirk to Dieppe and from Le Havre to Cherbourg.(3) They were additional to the routine high altitude photographic reconnaissance by P.R.U.(4) aircraft of the invasion ports and were flown at least twice every twenty-four hours using cloud cover or by moonlight. In addition, reconnaissance of one French Atlantic port, Brest, was flown by moonlight or at late dusk when ordered.

Alternative patrols when weather conditions interfered with the routine SA patrols were summarised on 22 July. When No. 18 Group was unable to fly patrol SA3, No. 16 Group flew the alternative patrol already in force between the Norfolk coast and Holland.(5) When this alternative as well as patrols SA2 and 3 were impracticable, an attempt was made to fly coastwise patrols some 30 miles off shore with aircraft fitted with ASV. These were flown at dusk, as long as possible during the night. Coastwise patrols were also flown at dawn when the previous SA2 and 3 patrols at dusk had been less than 90 per cent effective. Finally the continuous night patrol seaward of our East coast shipping route, SA5, was to be flown by No. 18 Group if No. 16 Group aircraft found the task impracticable.

(o) Directive on the Role of Air Forces in the Event of Invasion

On 30 July, 1940, the Air Ministry despatched to the three Air Force Commanders-in-Chief, an Air Staff Memorandum on the "Role of the Operational Commands of the Metropolitan Air Force in the event of an Invasion of this Country", advising them that it was to be regarded as their principal directive in this eventuality.

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- (1) Patrols SA1(a), SA2, 3 and 4.
 - (2) SA5 flown by an aircraft equipped with ASV. Mainly designed to protect the East Coast shipping route from attacks by surface vessels, and a continuous line patrol between the Hook of Holland and Ostende, labelled patrol Hookos.
 - (3) Labelled patrols Dundee and Hatch respectively. The latter paid special attention to Trouville and the mouth of the Seine river.
 - (4) Photographic reconnaissance unit based at Heston. Transferred to the direct operational control of Headquarters, Coastal Command on 18 June, 1940.
 - (5) Two aircraft on parallel tracks of 076 degrees from datum positions 5305 N x 0100 E and 5325 N x 0100 E as far as 05 degrees East. Return on reciprocal tracks 40 miles to the northward of the outward tracks.

Form green
CC/G1/22/7

A.M.
S.4759
Encl. 14

According to this memorandum, it was impossible to forecast with any certainty or precision the form in which Germany might attempt to carry out an invasion of this country, but it was possible to predict the broad courses of action open to her.

Thus it was possible to define the role of our air forces in the face of various forms and scales of attack as they developed, irrespective of the order in which they might occur.

The primary task of Coastal Command in the event of an air offensive against this country or airborne landings, was given as that of continued reconnaissance, in order that early warning could be given of enemy troop concentrations in the vicinity of ports, or, concentrations of shipping which might indicate an enemy seaborne invasion following the air offensive.

If a seaborne invasion was attempted, it was considered that there would be three principal phases viz:-

- (a) the concentration of troops and shipping at points of departure.
- (b) The voyage from Continental ports to our shores.
- (c) The establishment of a bridgehead in this country.

From the commencement of (a) Coastal Command would, in addition to reconnaissance, undertake bombing or torpedo operations against enemy transports and naval vessels at the points of departure. During (b) the Command would in addition to reconnaissance and bombing duties, provide protection with long range fighters for our naval forces engaged in destroying the enemy. In the event of (c) the primary task of the Command would be to continue reconnaissance and to attack with bombs or torpedoes enemy transports and war vessels in that order.

Of all these possible courses of action, a seaborne invasion, if successful, would be most dangerous, since not only would our naval bases be captured but our industrial areas and aircraft industries would be liable to seizure by the enemy. Our ability to sustain war would be, thereby, removed. Accordingly, the predominant and first task must always be to concentrate our attack upon the sea-borne invasion.

With only slight modifications, this directive remained in force throughout the period covered by this section of the narrative.

- (p) The Anti-Invasion Scheme on (Form Green CC/GL/1/8)
3 August, 1940

By the end of July daily variations of the anti-invasion scheme were so frequent that it can serve no useful purpose to give them in detail. The development of the general plan of SA patrols can best be studied by describing the plan as it stood on three dates, 3 August, 26 September and 1 December, when Headquarters, Coastal Command issued summaries of all anti-invasion patrols in operation. As before, the text must be read with close reference to the Maps in the Appendices, as much which is apparent at a glance from the Map, is not therefore described in words.

See Map VIII

The commitments in the North Sea remained the same in broad outline, although several changes had taken place since 16 July. The routine coverage at dawn was now limited to two patrols off the Norfolk coast, both modifications of the former patrol SA4.(1).

The former dawn patrols SA2⁽²⁾ and 3⁽³⁾ were now flown to reach their extremity between 0800 and 1000 hours, whilst SA1(a) was discontinued at dawn. Coverage of the area East of the Shetlands was however provided during the morning by patrol SA1(e)(4) flown by Blenheims from Sumburgh. This new patrol replaced SA1(b) which had fallen out of use.(5)

Form Green
CC/G1/21/7

Reductions were made in the two continuous crossover patrols flown by No. 16 Group in the Southern half of the North Sea. Patrol SA8 was now flown when patrol SA3 was not flown during the morning or when it was considered that weather conditions had seriously reduced its effectiveness. Patrol SA9 was now also reduced to three circuits daily between 0700 and 1900 hours.

Form Green
CC/G1/17/7

Of the two patrols formerly flown to the east and north west of the Shetlands during the afternoon and evening, S15 was cancelled on 17 July and S16 was extended to include a reconnaissance approximately 50 miles North of Muckle Fluggie, at last light. Subsequently the original patrol and the

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- (1) Patrol SA4 had been divided into three sections:-
 - SA4(a) - one aircraft between positions 5316 N x 0100 E - 5423 N x 0500 E - 5403 N x 0500 E - 5256 N x 0100 E at dawn and dusk.
 - SA4(b) - one aircraft between positions 5251 N x 0200 E - 5330 N x 0424 E - 5300 N x 0400 E - 5245 N x 0300 E - 5224 N x 0400 E - 5224 N x 0200 E at dawn and dusk.
 - SA4(c) - one aircraft to 05 degrees East at visibility distance off the Dutch Coast; thence a cross-over patrol between this point and 5450 N. To be flown at dusk and continue after dark at discretion. This patrol replaced a similar patrol previously flown by the southernmost aircraft on patrol SA3.
 - (2) SA2. To be extended occasionally, when cloud cover permits to the Norwegian coast. (Form green CC/G4/1/8).
 - (3) SA3. Amended area on 1 August covered tracks W, X, Y and Z, four new tracks parallel to those already existing and 20 miles apart, to between 05 and 06 degrees East. (Form green CC/G4/1/8).
 - (4) Patrol of the area between parallels 5930 and 6130 North and meridians of Greenwich and 03 degrees East to be flown before noon. (Form green CC/G1/26/7).
 - (5) An alternative patrol to be flown whenever ASV aircraft were available was ordered on 18 July as follows:- Positions 5940 N x 0220 E - 6120 N x 0140 E - 6155 N x 0120 W - 6228 N x 0045 W - 6120 N x 0140 E - 5940 N x 0100 E. (Form green CC/G2/18/7). The patrol was cancelled until further orders on 26 July (Form green CC/G1/26/7) but used as an alternative to patrol S16(a) from 5 to 10 August, when it was again cancelled. (Forms green CC/G1/5/8 and CC/G1/10/8)

extension were relabelled S16(a)⁽¹⁾ and (b) the latter being the more important of the two.

Form Green
CC/G1/5/8

Form Green
GO/G1/3/8

Before we leave the anti-invasion coverage of the North Sea at dawn and during the day, it must be remarked that on 5 August orders were issued to No. 18 Group to confine the morning SA2 patrol to tracks Q to V inclusive as Bomber Command aircraft⁽²⁾ were undertaking daily reconnaissance of the area covered by tracks G to P to a depth of 160 miles from Rattray Head, at times to be synchronised with the morning SA2 patrol.

The main changes in the dusk SA patrols over the North Sea were the amendments to patrols SA3 and 4 already described and the flying of patrols SA2 and 3 to reach their extremity at between two and four hours before dusk. Patrols SA1(a) and SA4(a), (b) and (c) were flown at dusk.

Apart from a minor alteration to patrol Hookos⁽³⁾ the two patrols flown continuously during the hours of darkness were unchanged. Similarly no change was made in the three crossover patrols in the English Channel and in the South West approaches⁽⁴⁾ apart from a reduction in the number of circuits flown on patrols SA11 and 13.⁽⁵⁾ The two patrols over the French channel ports from Dunkirk to Dieppe and Le Havre to Cherbourg were likewise reduced to one sortie every twenty-four hours.⁽⁶⁾

(q) The Scheme on 26 September, 1940.
(Form Green CC/G1/26/9)

CC/S.7010
Encl. 48A
A.M. Letter
S.46368 d/d
21.9.40

By September, 1940, when the enemy's invasion preparations were considered to be complete, and the emphasis was on shipping targets, the disposition of squadrons in the Command had undergone very little change.

H.Q. CC.
Location
Stnts.
No. 11

In No. 16 Group, the number of squadrons available was the same, but a slight change had taken place in the composition of the force, which now stood at, three

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- (1) S16(a) was replaced on 5 August by SA1(b). This was cancelled on 10 August and S16(a) was reinstated to be flown whenever Walrus aircraft were available. Anti-U-boat duties and patrol S16(b) however took priority over S16(a). (Forms Green CC/G1/5/8 and CC/G1/10/8).
 - (2) Nos. 21 and 57 (Bomber Command) Blenheim Squadrons, placed under the operational control of No. 18 Group from 24 June. Operated from Lossiemouth. Six sorties daily were normally made on this patrol.
 - (3) Patrol Hookos between the Hook of Holland and Ostende now flown continuously on moonlight nights only. Otherwise flown after dusk and before dawn.
 - (4) Patrols SA11, 12 and 13.
 - (5) Patrol SA11 one circuit at dusk only in place of the previous two circuits. Patrol SA43 also reduced to one circuit at dusk on 5 August.
 - (6) No. 16 Group were instructed to maintain close liaison with P.R.U. to avoid duplication of effort over the invasion ports from the Hook to Cherbourg.

squadrons of Blenheims,(1) one Beaufort squadron,(2) one Hudson squadron,(3) one Anson squadron(4) one Swordfish Squadron(5) and one Albacore squadron.(6)

The few changes that had taken place in No. 18 Group had been to the advantage of the Group, for it was now credited with eleven squadrons as against seven in June. An extra Blenheim squadron(7) had been transferred back to Coastal Command from Fighter Command: one Beaufort squadron(8) had been sent up from No. 16 Group; and three squadrons - two Blenheim(9) and one Walrus(10) - on loan to the Command for anti-invasion duties, had also been put into the area. On the debit side, through various detachments, the Group was deprived of the services of practically one whole Hudson squadron(11) throughout the rest of the year.

See Map IX

In regard to the anti-invasion reconnaissance tasks however, very few modifications had been made to coverage of the North Sea proper.(12) Minor alterations only had been made to the six patrols by No. 16 Group. Patrols SA4(a) and (b) were unchanged.(13) The position of patrol SA4(c), which was now flown by an A.S.V. aircraft, had been moved a little to the South-West;(14) and SA5 had now been converted into a crossover patrol by an A.S.V. aircraft and terminated further to the North than previously.(15) Aircraft on the latter patrol now only flew two circuits commencing at 2300 hours instead of maintaining a continuous line patrol as previously. Similarly the number of sorties for patrol SA9 had been

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- (1) No. 235 Squadron at Bircham Newton. No. 53 Squadron at Detling and No. 59 Squadron at Thorney Island.
 - (2) No. 22 Squadron at North Coates, now operational.
 - (6) No. 206 Squadron at Bircham Newton.
 - (4) No. 500 Squadron at Detling.
 - (5) No. 812 Squadron (F.A.A.) at Thornaby.
 - (6) No. 826 Squadron (F.A.A.) at Bircham Newton.
 - (7) No. 248 Squadron at Sumburgh, relieved No. 254 Squadron which was now at Dyce.
 - (8) No. 42 Squadron at Wick; not operational until the end of September.
 - (9) No. 21 and No. 57 Squadrons at Lossiemouth from 24.6.40 to 31.10.40
 - (10) No. 700 Squadron (F.A.A.) at Sullom Voe.
 - (11) Detachments, first of No. 233 Squadron and then of No. 224 Squadron from Leuchars to Aldergrove for A/U duties in the North Western Approaches.
 - (12) Patrols SA1(a), SA1(e), SA16(a) and (b), SA2 and SA3. The times for the last two patrols were now laid down as follows:- In both cases the first sortie was to commence at dawn and the second sortie to finish at dusk. Patrol S16(a) was cancelled on 27 September, and reinstated on 13 October. (Forms green CC/G1/27/9 and CC/G1/13/10).
 - (13) On 18 October, permission was given to reduce the morning sorties of patrols SA4(a) and (b) occasionally to 04 degrees East for variation (Form green CC/G1/18/10).
 - (14) Patrol SA4(c) a crossover between 5330 N x 0500 E and 5415 N x 0420 E. (Form green CC/G1/10/9).
 - (15) Patrol SA5 a crossover between 5335 N x 0310 E x 5215 N x 0310 E. (Form green CC/G1/10/9). Area revised on 31 October to a crossover between 5330 N x 0245 E x 5150 N x 0245 E. (Form green CC/G1/31/10).

reduced to one only shortly after dawn.(1) Patrol Hookos was extended to cover the coast from Ostende to Ijmuiden.(2)

Form green
CC/G2/2/10

Before leaving the patrols over the North Sea, it is of some interest to note that, with the immediate invasion threat over by the beginning of October, the morning sorties of patrols SA2 and 3 were cancelled(3) and an offensive patrol each morning by a formation of three Hudsons against shipping off the Danish and Norwegian coast from Horn Reefs to Stavanger was substituted. Occasional sorties were to be made into the Skagerrak when conditions were suitable. The coast north of Stavanger was now partly covered by the Blenheims on patrol SA1(e) which was extended by the same order to include a reconnaissance of part of the Norwegian coast between Romsdale Fjord and Stavanger.

See Map IX

The main alterations to the general scheme of SA patrols had taken place in the English Channel where the two crossover patrols, SA11 and 13, had been replaced by three line patrols, Moon 1, 2 and 3,(4) to be flown at dusk and continued after nightfall when there was a reasonable possibility of seeing a large convoy or the wake of fast ships.(5) The first two were flown by No. 16 Group and the last by No. 15 Group.

Form green
CC/G2/14/9

The two patrols along the French Channel ports, Dundee and Hatch, were unaltered. A third routine patrol, appropriately labelled Bust, was ordered on 14 September. Flown twice daily under cloud cover, it covered the coastal area Eastwards from Brest towards Guernsey. It was replaced on 5 October by a daily reconnaissance of Brest to determine the number of destroyers present when P.R.U. aircraft failed to obtain this information. When these

Form green
CC/G1/5/10

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- (1) Patrol SA9 was originally restricted on the introduction of patrol E.1, a cross-over patrol between positions 5200 N x 0200 E - 5310 N x 0320 E - 5253 N x 0340 E - 5217 N x 0140 E flown at latest daylight to protect our convoys against E-boat attacks. (Forms green CC/G1/6/9 and CC/G1/7/9). This patrol was cancelled on 10 September. (Form green CC/G1/10/9) but patrol SA9 was left with only one sortie.
 - (2) On 31 October Hookos was cancelled for moonless nights (CC/G1/31/10).
 - (3) This did not include the daily morning reconnaissance by Nos. 21 and 57 Squadrons from Lossiemouth, which continued as before.
 - (4) Moon 1 between positions 5000 N x 0030 W and 5020 N x 0100 E.
Moon 2 between positions 5000 N x 0240 W and 5000 N x 0100 W.
Moon 3 between positions 4930 N x 0500 W and 4950 N x 0300 W.
These patrols were originally temporary alternatives to SA11 and 13 during the moon period commencing 8 September. They were however retained and incorporated into the regular scheme of SA patrols (Forms green CC/G1/8/9 and CC/G1/10/9).
 - (5) The exact times of the Moon patrols were varied slightly according to requirements. From 8 October they were to be flown for two hours by moonlight as late as possible before midnight. On 18 October the time of termination of the patrols was changed to 0200 hours (Forms green CC/G2/7/10 and CC/G1/18/10).

reconnaissances over Brest were ineffective or showed that the enemy destroyers had left harbour, No. 15 Group was then responsible for flying further patrols.(1)

Form green
CC/G1/6/10

Further reconnaissance over the French Atlantic ports was ordered on 6 October, when daily cover of Lorient was required as well as Brest, whenever these ports were not photographed by P.R.U. General reconnaissance of Brest was further extended to a morning and afternoon sortie by No. 15 Group aircraft when P.R.U. failed to obtain photographs. The extra sortie, was, however, only required when the S.L.(2) convoys were not within the immediate danger area of attack by destroyers from Brest.

Form green
CC/G1/14/10

Patrol SA12 and its alternative when an A.S.V. aircraft was available, SA12(a), were continued as before with a slight modification to the latter.(3) Shortage of aircraft and the demands made on No. 15 Group for long range convoy escort had led to the cancellation of these three patrols on 13 August. They had however been re-ordered six days later. On 23 August daily sorties of these two patrols were again cancelled unless the absence of other forms of intelligence rendered them necessary. A week later they were again re-ordered as a daily commitment for No. 15 Group and remained in force until the end of the immediate invasion threat.(4)

Forms green
CC/G1/13/8 and
CC/G2/19/8

Forms green
CC/G1/23/8 and
CC/G1/30/8

Alternative patrols to be flown when poor visibility interfered with the routine scheme were laid down in the same orders. When No. 18 Group patrols SA1(a), SA2 and 3 were impracticable or not fully effective, coastwise dawn patrols were to be flown to cover these areas. Similarly when No. 16 Group patrols SA4 or Hookos were ineffective, an A.S.V. patrol at a distance of about 40 miles from our coast from the latitude of the river Humber to the Belgian coast was to be attempted for a period of five hours ending at daylight. When the Moon patrols were ineffective, a further A.S.V. patrol was to be attempted in the English Channel between the longitudes of Dungeness and Falmouth from about 0100 hours until daylight. Sunderland aircraft from Mount Batten were to be used for this sortie.

Form green
CC/G1/27/9

(r) The end of the immediate invasion threat

CC/S.7010/
9/13
Encl.8A

At a meeting of the War Cabinet Defence Committee on 31 October, 1940, under the chairmanship of the Prime Minister,

- (1) Lizard to 180 Lizard 50 to 4907 N x 0700 W to St. Mary's Scillies. Wolf Rock to 180 Wolf Rock 30 thence to 4927 N x 0740 W to 4944 N x 0740 W to St. Mary's Scillies. (Form green CC/G3/2/10).
- (2) S.L. Convoys formed up at Sierra Leone to sail to United Kingdom.
- (3) Positions 4928 N x 0632 W - 4904 N x 1240 W - 4825 N x 1218 W - 5008 N x 0657 W. A further modification to intercept U-boats based at Lorient and believed to arrive and depart at high water was ordered on 16 October as follows:- Bishops Rock - 4800 N x 1130 W - 4740 N x 1110 W - 5008 N x 0657 W. (Form green CC/G2/16/10).
- (4) On 22 October the Western extremity of patrol SA12 was moved 30 miles to the north. It was eventually cancelled as an anti-invasion patrol from 18 November and replaced by a routine anti-U-boat patrol (Forms green CC/G2/22/10 and CC/G2/17/11).

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it was agreed that during the winter months the threat of a sea-borne invasion would be diminished, and remain relatively remote, provided we maintained our vigilance. The Committee took note that Coastal Command would continue to maintain as effective air reconnaissance as possible over the invasion ports, in addition to providing the increased effort called for on trade protection.

See Map X

Although it was considered unlikely that the necessary weather conditions, amounting almost to a flat calm, for transporting an enemy force across the Channel in the large collection of river barges assembled in Dutch, Belgian and French ports, would prevail for a sufficient period after the beginning of October the scheme of anti-invasion patrol continued until the end of November. It must, however, be remarked that the patrols were losing their purely defensive character, as is illustrated, for instance, by the substitution of an offensive patrol between Stavanger and Horn Reefs for the morning sorties on patrols SA2 and 3. Anti-invasion patrols by No. 15 Group were acquiring other purposes. The reconnaissance of Brest and Lorient was a precaution against an attack on our convoys by the enemy destroyers based at Brest, as well as a safe-guard against invasion. Patrol SA12 was made to serve also as an anti-U-boat patrol with particular reference to the interception of U-boats based at Lorient on passage to and from that port.

Form Green
CC/G2/16/11
See Map X

(1)
On 16 November, No. 16 Group patrols in the North Sea were cancelled. Two day area patrols between Norfolk and the Dutch Coast(2) and one night coastal patrol from Emden to Rotterdam(3) were substituted.

This step was followed by a complete redrafting of anti-
shipping reconnaissance patrols for all three Groups of the
Command. This was in force from 1 December until
25 December when the new scheme was restated with minor
variations only.(4) It is this second version we are to
consider here.

-
- (1) Patrols SA4(a), (b) and (c), SA5 and 9
(Form green CC/G2/16/11).
 - (2) Area A by one Hudson three hours before noon between
positions 5320 N x 0200 E - 5400 N x 0500 E -
5155 N x 0335 E - 5155 N x 0200 E.
Area B by one Blenheim during the last three hours of
daylight, landing before dark between positions
5315 N x 0300 E - 5315 N x 0415 E - 5125 N x 0300 E -
5125 N x 0145 E.
Area amended by form green CC/G2/18/12 to 5315 N x
0300 E - 5315 N x 0400 E - 5125 N x 0215 E - 5125 N x
0145 E.
 - (3) Patrol Emro; Bircham Newton to 5425 N x 0525 E to
mouth of Ems river thence coastwise from Emden to
Rotterdam. After dark by one Hudson.
 - (4) The most important of these was patrol Coldsnap flown
over the area 6600 N x 0600 W - 6600 N x 0300 W -
6400 N x 0100 W - 6400 N x 0400 W.
It was ordered on 29 November and cancelled on
19 December. (Forms green CC/G2/27/11 and CC/G1/19/12).

Form green
CC/G1/25/5

See Map X

The former patrols protecting the Shetlands were abandoned completely, and although the area of the remaining North Sea coverage by No. 18 Group was unchanged, (1) the frequency of this coverage was reduced to three times a week. Four new patrols were, however, introduced to cover the Norwegian and Danish coastlines from Stadtlandet to Horns Reef three times every seven days. (2) Instructions were to observe the movements of and attack enemy shipping. The coast was, however, only to be approached when cloud cover permitted. With the same object sorties from Trondheim to Stadtlandet (3) and occasionally into the Skagerrak (4) were to be flown when weather conditions were favourable.

A new patrol for No. 16 Group was introduced to complete the coverage of German coastal shipping traffic - patrol "Sweep" from Horn Reefs into the Heligoland Bight, to be flown every other day under favourable conditions. Patrols Emro, Hookos, Dundee and Hatch then completed coverage of the European coastline from Emden to Cherbourg. The North Sea in the narrows between East Anglia and Holland were provided for by two area patrols, patrol Pat (5) to be flown for three hours before noon and patrol Roll (6) for three hours after noon.

See Map X

The three Moon patrols in the English Channel were retained, (7) the first two by No. 16 Group and the third by No. 15 Group. A final patrol for No. 15 Group was patrol Brest, which covered Brest and Lorient once every twenty-four hours when cloud cover permitted and the routine P.R.U. sortie had been ineffective.

(s) The scheme of Anti-Invasion Patrols on
25 December, 1940 (form green CC/G2/25/12)

Simultaneously with the issue of orders for the new scheme of general anti-shipping reconnaissance, orders were given that, in the event of an invasion again becoming imminent, Groups must be prepared to revert to the patrols detailed on 26 September. These orders were superseded on 25 December, when a full scheme of anti-invasion patrols was laid down for use if future developments again brought the threat of an invasion of this country. It will be apparent from a comparison between the maps that the final scheme incorporated patrols from the new system to be followed from 26 December.

See Map XI

Patrols SA1(a) and S16(b) to protect the Shetlands, and patrols SA2 and 3 remained unchanged, (8) and were flown at

- (1) A small variation allocated the two lower lettered tracks formerly flown by patrol SA2 and patrol SA3.
- (2) Patrol Stab - Stadtlandet to Bergen
Bert - Bergen to Stavanger
Stand - Stavanger to Kristiansand (S)
Hornli - Lister to Horn Reefs.

The number of aircraft and times of these patrols were unspecified.

- (3) Patrol Trost
- (4) Patrol Sleeve
- (5) Patrol Pat. Area bounded by 5320 N x 0200 E - 5400 N x 0500 E - 5155 N x 0335 E - 5155 N x 0200 E.
- (6) Patrol Roll. Area bounded by 5315 N x 0300 E - 5315 N x 0415 E - 5125 N x 0200 E - 5125 N x 0145 E.
- (7) One sortie to be flown by moonlight.
- (8) Tracks U and V were now flown under patrol SA3 instead of patrol SA2 as previously.

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dusk and dawn⁽¹⁾ with the exception of patrol S16(b), which was flown at dusk only.⁽²⁾

No. 16 Group patrols incorporated the three new patrols already described in the previous section, Emro,⁽³⁾ Pat and Roll. As a small variation patrols Pat and Roll were to be continuous from dawn to noon and noon to dusk respectively. Patrol SA5 was flown in a slightly different position⁽⁴⁾ from that laid down on 26 September, for three hours commencing at 2300 hours.

Other patrols covering the coastline from Ijmuiden to Cherbourg (Hookos,⁽⁵⁾ Dundee and Hatch) and the three Moon patrols in the English channel were to be flown as detailed on 26 September. A slight change was, however, made in patrol Brest which was now required to carry out a coastwise reconnaissance from Brest to Lorient.

The early morning crossover patrol in the south west approaches was kept as before.⁽⁶⁾ Whenever an A.S.V. aircraft was available, patrol SA.12(a) was to be flown.

Alternative patrols when bad visibility interfered with the routine patrols, were also laid down. If patrols SA.1(a), SA2 and 3 were impracticable or non-effective, coastwise dawn patrols were to be flown. If patrol SA4 or Hookos were ineffective, an A.S.V. patrol about 40 miles off the coast from the latitude of the river Humber to the Belgian coast was to be attempted for a period of five hours ending at daylight. If the Moon patrols were ineffective, an A.S.V. patrol was to be attempted in the Channel between the longitudes of Beachy Head and Falmouth. These alternatives were not new and are repeated here for the sake of completeness.

To summarise the scheme as briefly as possible, it will be seen that the North Sea from Muckle Flugga to the Wash was to be covered twice a day at dawn and dusk.⁽⁷⁾ A continuous patrol during daylight was maintained in the narrows between East Anglia and Holland⁽⁸⁾ whilst the East Coast shipping route was protected at night by a crossover patrol.⁽⁹⁾ Coastwise patrols of harbours from Emden to Ostende were flown at night⁽¹⁰⁾ and the Channel ports from Dunkirk to Cherbourg, Brest and Lorient were examined every twenty-four hours.⁽¹¹⁾

-
- (1) First sortie to leave datum line at dawn. Second sortie to land at dusk.
 - (2) It will be noted that the coastal patrols from Trondheim to the Heligoland Bight were to be dropped in the event of a further threat of impending invasion.
 - (3) Emro. An A.S.V. aircraft was to be used.
 - (4) S.A.5. Crossover patrol between positions 5330N. x 0245E and 5150N. x 0245E. by an A.S.V. aircraft.
 - (5) Hookos. An A.S.V. aircraft was to be used.
 - (6) A small alteration had been made in patrol SA12. The positions now were - Bishops Rock - 4820 N. x 1100 W. - 4800 N. x 1040 W. - 5008 N. x 0658 W.
 - (7) Patrols SA1(a), SA2 and 3 by No. 18 Group.
 - (8) Patrols Pat and Roll by No. 16 Group.
 - (9) Patrol SA5 by No. 16 Group.
 - (10) Patrols Emro and Hookos.
 - (11) Patrols Dundee, Hatch and Brest. By No. 16 Group.

Additional cover in the English Channel was provided after dark by the three Moon patrols, whilst the crossover patrol in the south west approaches provided protection in that area. It must again be emphasised that this account of the effort by Coastal Command in maintaining this scheme of patrols designed to provide warning of the approach of an enemy invasion force does not include the effort by the Photographic reconnaissance unit, which also had large commitments for daily reconnaissance of the enemy occupied "invasion ports".

Form Green
CC/G2/25/12

No. 217 Sqdn.
Form 540

No further major changes in the disposition of squadrons engaged on anti-invasion tasks were made, up to the time that the full scheme of patrols was gradually abandoned in favour of the more general anti-shipping reconnaissance, finally adopted in December, 1940. The Anson squadron (1) in the south west was re-arming with Beauforts during the period and the first flight of new aircraft became operational on 1 December, 1940.

Many of the squadrons formerly engaged on anti-invasion reconnaissance patrols were now employed on the routine Anti-shipping patrols - an offensive task with the primary objective of seeking out convoys along the enemy's shipping routes and attacking with torpedoes or A/S bombs. Other squadrons continued with their attacks on land targets.

CC/S.7010
Encl.98A
(S.3562/
DONC d/d
9.3.41)

In March, 1941 with the arrival of the enemy battle cruisers at Brest, and an intensification of the enemy's campaign against our shipping in the North Atlantic the consequent re-disposition of the Command's resources denuded the North Sea and the English Channel of aircraft; but to compensate the losses, two squadrons of Blenheims (2) from Bomber Command were transferred to No. 18 Group, and rendered valuable assistance in carrying out some of the anti-invasion patrols (as well as attacks on shipping) still being maintained as part of the general reconnaissance scheme.

(t) Attacks on Invasion Objectives - Germany, the Low Countries and France

In addition to their anti-invasion reconnaissance role, Coastal Command, (3) in co-operation with Bomber Command, was called upon to carry out bombing attacks on a variety of invasion objectives, by day and by night, throughout the next twelve months.

For the light and medium bombers possessed by Coastal Command, the aim of these operations was to destroy concentrations of barges, small craft and merchant vessels found in enemy ports, with the secondary object of harassing the facilities and communications within and adjoining the ports.

During the month of June, 1940, evidence from both photographic and visual reconnaissance of the Dutch and Belgian waterways, revealed a concentration of barges and other shipping which suggested that the enemy might be using this means to dispose his forces and equipment preparatory to launching an invasion of this country.

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- (1) No. 217 Squadron at St. Eval.
 - (2) No. 107 Squadron at Leuchars and No. 114 Squadron at Thornaby.
 - (3) Assisted by aircraft of the Fleet Air Arm.

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Barge activity above normal was first noticed on the Beveland, the Ghent-Terneuzen and the Bruges-Ostend Canals.

CC. O.1 No. 32
d/a 19.6.40

The opening of Coastal Command's campaign against these barge concentrations commenced on the night of 19/20th June, 1940, when Albacores of No. 826 Squadron (F.A.A.) carried out an attack at Scheveningen. This Squadron was given a special task three nights later. This was to lay W mines⁽¹⁾ in the waterway system at the mouth of the Maas River in conjunction with the project of launching similar small mines into the Rhine tributaries by special land force detachments known as Operation Royal Marine. However, bad weather cancelled the intended air sorties until the night of 25/26th June when four Albacores succeeded in dropping a total of 26 in the area. Subsequent sorties were successful on the nights of 27/28th, 28/29th June and 1/2nd July, in each case 48 mines being released. The W mine which was laid in similar numbers by Bomber Command aircraft in other canal systems in Germany was then realised to be ineffective as no casualties were ever reported or occurred in fact. The mine was by its constructional nature useless in salt water and after one further sortie by Blenheims of No. 53 Sqdn. on the 6/7th July to the Ymuiden Canal, in which 48 mines were released, the laying of this weapon ceased by Coastal Command controlled aircraft in favour of the 1,500 lb magnetic mine.

A.M.
S.4759
Encl. 10A

At the end of June the A.O.C.-in-C., Coastal Command informed the Air Ministry of the trend in the movements of barge and small craft traffic on the Dutch and Belgian waterways, and suggested that immediate action was required, both by bombing and mining.

The lack of the means to carry out an operation of this nature on the scale it deserved was pointed out to the Air Ministry, and their attention was drawn to the fact that even the mine-laying programme for the ports on the Dutch, Belgium and French coasts, was being undertaken solely by one Fleet Air Arm Squadron equipped with Swordfish.

To do justice to an operation of this kind, it was the A.O.C.-in-C's opinion, that at least three squadrons would be required, and in these circumstances it was urged that one or two Battle or Blenheim Squadrons should be loaned to Coastal Command for the purpose.

A.M.
S.4759/
D.C.A.S.
Enc. 11A

After consideration, the Air Ministry instructed Bomber Command on 28th June, 1940, to co-operate with Coastal Command in attacks on these barge concentrations by such means as considered necessary. It was suggested that the effort employed should not be less than three squadrons.

In the situation existing at the end of June 1940, where rapid changes were to be anticipated, it was not possible to lay down hard and fast priorities in regard to bombing, since action must be in accord with the general situation.

(1) W mines were of pre-war design intended for use in shallow canal systems. The mine, which is fully described in the A.H.B. Armament Monograph, weighed 35 lbs. and was made up for release into containers each holding 24 mines. The F.A.A. Albacores and No. 53 Sqdn. Blenheims each carried one container on a sortie.

CC/S.7010
Encl.18A

However, on 29th June, 1940, the Air Ministry decided to issue a bombing directive⁽¹⁾ which gave first priority to attacks on enemy occupied aerodromes in north western France and the Low Countries, and second priority to attacks on barge and small craft concentrations.

Attacks on enemy occupied aerodromes were not new to Coastal Command, as since their first attack against Stavenger aerodrome on 10th April, 1940,⁽²⁾ they had continued to participate to a limited extent in operations of this nature throughout the enemy's campaigns in Norway and the Low Countries.

CC/S.7010
Encl.20A

On 4th July, 1940, and further review was made to the bombing policy and as a result the Air Ministry decided that as a first priority, an intensification of our attacks on enemy ports and shipping against the threat of invasion, was desirable.

The first task for the medium bombers would therefore be attacks on barge and small craft concentrations on the canals and ports in Holland and Belgium. In addition, attacks on concentrations of shipping reported in Norwegian ports were also to be undertaken as opportunity offered.

Objectives in Germany and German occupied territory, particularly against the aircraft industry, oil refineries and stocks, and concentrations of aircraft on aerodromes in north-west France and Belgium now took second place.

CC/S.7010
Encl.23A

Further consideration was given to the bombing priorities nine days later, but the situation remained unchanged. Such efforts as could be spared from the primary task were to be directed against three oil installations at Donges, Nantes and Cherbourg in occupied French territory.

CC/S.7010
Encl.31A

At the end of the month yet a further change in the main bombing offensive was to take place. In view of recent reports and information which had confirmed the fact that oil was the weakest link in Germany's war economy, the destruction of oil stocks, whenever and wherever found, became of prime importance, and operations against such targets were to be co-ordinated between Bomber and Coastal Commands. It was suggested by Bomber Command that if Coastal Command would indicate the targets for which it would be responsible, Bomber Command would deal with the remainder.

CC/S.7010
Encl.35A

In a reply to this suggestion, the A.O.C.-in-C., Coastal Command pointed out the difficulties of supplying a bombing force from his own resources, but was prepared to accept the smaller fuel installations in Norway which were within the range of the available Coastal Command aircraft, and if Nos. 53 and 59 Squadrons remained in his Command, he was also willing to accept the fuel targets in Holland and Belgium, and those adjacent to the north coastline of France. It was emphasised that these oil targets could only be regarded as alternatives to shipping when no suitable targets of this nature were available.

It was impossible at this time to name in advance specific details of the anti-invasion objectives for attack, as their

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- (1) Action copy to Bomber Command and copies also for Coastal and Fighter Commands.
 - (2) Carried out by the first Blenheim long-range fighter squadron - No. 254 Squadron - to take its place in the first line of Coastal Command.

selection depended upon the day to day reconnaissance and other sources of immediate information. This matter therefore, had to be dealt with by telephone or signal.

The primary aim, for Coastal Command, of course, continued to be the major barge, small craft and shipping concentrations in enemy ports and waterways, with a wide variety of land targets as secondary objectives.

During the month of August for instance, the Command was called upon to deliver attacks, ranging from one to ten on each of the following objectives:- dockyards and shipping at Den Helder and Emden; enemy aerodromes at St. Omer, Caen, Abbeville, Dinard, Flushing and Lannion; oil tanks at Vlaardingen, Middelburg and Cherbourg; seaplane base at Amsterdam; E-boats and shipping at Boulogne, Calais, Zeebrugge and Lorient. A total of 58 tons of bombs was expended on these targets.

C.S.U. 17.7.41
CC/S.7010
Encl.48A

Throughout September, the story was the same, but as it was considered that the enemy's invasion preparations were complete the emphasis was on shipping targets, particularly the assembled concentrations in the enemy ports of the English Channel and Dover Straits area - Ostend, Calais, Boulogne, Le Havre and Cherbourg.⁽¹⁾ Occasional visitations were also made outside this area, to Den Helder in the North and Lorient in the South.

Form Green
CH/G6/15/9

The introduction of the roving patrol for aircraft against enemy shipping occurred during this month, for it was on 18 September, 1940, that aircraft of Coastal Command were directed to attack shipping at Den Helder, but if no suitable targets were found, 50 per cent. of the force engaged were to reconnoitre along the coast to Cuxhaven and the other 50 per cent. southwards along the Dutch coast. On the same night in the Channel area, aircraft of the Command were seeking out shipping for attack in the neighbourhood of Cherbourg and the Channel Islands.

Similar operations were repeated at infrequent intervals during the next few months; in fact they may be regarded as the commencement of the Command's switch-over to an Anti-Shipping offensive.

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- (1) On 1 September, 1940, extensive preparations for "Operation Sealion" began with the movement of shipping from the German North Sea ports to embarkation ports. During this operation it became evident that undisputed air superiority in the area had by no means been achieved. The British light naval forces were mining practically undisturbed in this area, and were threatening German sea communications. British attacks increased on the Channel ports, where the invasion preparations were observed. The German air defence was not strong enough to prevent reconnaissance and considerable losses were sustained. However, in spite of continuous casualties in shipping space, the German Naval Staff were able to report after every loss, that it could be made good by drawing on the reserves which had been held in readiness and that the invasion preparations were not affected. ("Operation Sealion" - Supplement to Naval M.I.R. - March, 1947).

CC/S.7010
Encl.61A

Towards the end of the month, although enemy shipping concentrations in Channel ports remained, it was considered by the Air Ministry that the imminence of an invasion had, in the prevailing weather conditions somewhat receded.⁽¹⁾

In these circumstances authority was given to transfer a proportion of the heavy-bombing effort to other objectives in Germany, but for the medium and light bombers there was no relaxation. The invasion ports between Rotterdam and Lorient received periodical attention from both Coastal and Bomber Command aircraft.

CC/S.7010
Enc. 66A

By the end of October, 1940, it seemed likely that the enemy had, at least temporarily abandoned the intention to invade this country, and it was therefore decided by the Air Ministry that the bombing policy should once again be reviewed, with the particular aim of examining the extent to which a more decisive effect, both in the material and moral spheres, could be achieved. The result of these deliberations and the subsequent orders for bombing became the chief concern of Bomber Command.

In regard to operations against Invasion ports, the Air Ministry considered it was necessary to continue a moderate scale of effort against the enemy ports and harbours in occupied territory, so long as shipping concentrations remained and signs of preparations were still evident. Coastal Command therefore continued to pursue as vigorous an offensive against anti-invasion objectives as its limited resources would allow.

A limited effort was also to be expended against the enemy night bomber aerodromes in Northern France where regular activity was taking place. Objectives of this type became a

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- (1) When in mid-September, 1940, the time had arrived for a decision whether to proceed with "operation Sealion", the requisite degree of air superiority had not been attained. D-Day which had originally been fixed for 15 September, 1940, was in the meantime postponed to 21 September, at the request of the Naval Staff, as the enemy's counter activity and the unfavourable weather had caused some delays in carrying out preparations. With 21 September, as D-Day, the preliminary order for the operation had to be issued on 11 September, since 10 days were needed for the final preparatory measures, such as the laying of tactical minefields and the disposition of U/Boats. On the 11 September, Hitler decided to postpone the preliminary order for 3 days "having regard to the fact that the essential conditions for carrying out the operation do not yet exist, especially the defeat of the British ~~Naval~~ Air Forces." After discussions between Hitler and the three Service Chiefs, the preliminary order was again postponed until 17 September. By this date the situation had not changed, and Hitler then decided to postpone "Sealion" indefinitely. This was followed on the 12 October, by Hitler's directive to maintain preparations until the Spring, "purely as a means of political and military pressure on the English", and then - on 9 January, 1941, came the order to discontinue preparations for "Sealion" in every sphere except "the development of special equipment and the deception of the enemy". (Operation Sealion - Supplement to Naval M.I.R. - March, 1947).

C.S.U.
17.7.41

leading feature of Coastal Command's operations against land targets during the last quarter of the year. During these three months, 52 tons of bombs were dropped, mostly by single aircraft, on aerodromes in the coastal strip between Lorient and Ostend. Blenheim bombers of Nos. 53 and 59 and Squadrons were mainly employed for this task.

CC/S.7010
Enc.80A

After making an analysis of the general bombing policy of the Command at the end of 1940, the A.O.C.-in-C. Coastal Command, forwarded a request to Air Ministry for a restatement of the bombing policy as applied to units of the Command, with particular reference to:-

- (a) Enemy shipyards, submarine building yards, naval dockyards and mercantile ports.
- (b) Enemy aerodromes.
- (c) Oil targets, within the radius of action of Coastal Command aircraft.

Guidance was also requested in the application of bombing policy in regard to attacks on factories and other establishments in enemy occupied territory.

Previously, with one exception, all bombing directives issued to Coastal Command had consisted of only brief references in Bomber Command instructions.

CC/S.7010
Encl.99A

In March 1941, Air Ministry issued a list of fringe targets situated within 30 miles of the West Coast of enemy occupied territory, which could be regarded as alternatives to the existing primary targets for aircraft of Coastal Command, i.e. shipping, port and harbour facilities and aerodromes.

For the first quarter of 1941, land targets and port installations continued to be the main target for the Hudsons, Bomber Blenheims and Beauforts, although there was an all round reduction in the Command's bombing effort in the North Sea area.

materially increase
his convoy escorts

The attack on shipping at sea was sufficient to force the enemy to ~~adapt a system of convoys~~, for it was during these early months that attacks on the shipping routes, between the Hook and Elbe and along the Norwegian coast, began to crystallize.

CC/S. 7010
Encl. 98A

However, the arrival of the enemy battle cruisers in Brest at the end of March, 1941, and a sudden intensification of the enemy's campaign against our shipping in the North-Western Approaches, dictated the concentration of the majority of the Command's operational effort into these two areas for the next few months, with the result that anti-invasion reconnaissance and the bombing of shipping and fringe targets was accordingly reduced in intensity.

C.O.S. (41)
133. CC/S.
7710/3
Encl.1A

This state of affairs was envisaged by the Chiefs of Staff Committee in their appreciation of the "German Invasion of the British Isles" (dated 5 March, 1941) which was submitted to the War Cabinet.

Ibid
Para.3

In their opinion Germany would do everything possible to intensify her attacks on our trade, industry and morale and to stretch our naval and shipping resources to the maximum extent, before playing the last card of invasion, possibly in the Autumn of 1941.

Ibid
Para.4

If on the other hand Germany could succeed in bringing in Japan without the United States coming in on our side, she would have hopes of success without having to attempt invasion; in these circumstances she might postpone invasion until 1942. The Chiefs of Staff did not consider, however, that there was any likelihood of the United States remaining neutral if Japan entered the war.

Ibid
Para.5

In any event, Germany must have feared America's entry into the war, because by the end of 1941, with the full effects of the U.S.A. assistance, ~~the invasion~~ ^{Great Britain} would be so strong that Germany would be faced with the prospect of defeat, or at best, stalemate. And, again, if the United States entered the war, Germany's only hope of success would be to invade this country before American military aid became effective.

Ibid
Para.6

In these circumstances, our anti-invasion preparations must not be relaxed.

The Chiefs of Staff did not think, at this time, that the Germans had yet taken the final decision to invade, but they would continue to perfect and maintain their preparations, and would be ready to launch an invasion as soon as the weather allowed, and when they thought there were reasonable conditions for success.

It was anticipated that this state of uncertainty might prevail throughout 1941.

From the table appended below⁽¹⁾ which shows the tonnage of bombs dropped by Coastal Command throughout the period under review, the commencement of the anti-invasion campaign is clearly defined, likewise the reduction in intensity, referred to in a previous paragraph, which took place ~~in 1941~~ ^{early in 1941}.

C.S.U.
Records
V/E2
17.7.41

(1) Period 1940	Targets		Total
	Shipping, docks barges, (a)	Aerodromes	
May - June	68	21	89
July - Sept.	205	26	231
Oct. - Dec.	222	52	274
1941			
Jan. - Mar.	159	11	170
Apr. - June	187	35	222
TOTAL	841	145	986

(a) Including enemy vessels on the high seas.

(u) Plan "BANQUET"

C.C. 7010/9/
4/I Encl.1A

Arising from the conclusions of the conference held at the Air Ministry on 7 May, 1940, the possibility of placing the training aircraft of the Southern Fleet Air Arm Stations at the disposal of the Air Officer Commanding, No. 17 Group, in an extreme emergency, was discussed early in June, 1940.

In the draft plan which was formulated it was stated that the scheme would be brought into force only to assist in repelling invaders when our own first line forces were proving inadequate. So, until the scheme was actually under way, it was intended that training should continue according to the normal programme.

Briefly, it was proposed that all available training aircraft, fitted where possible with bomb racks and guns, should be reformed into operational units with a definite role, viz:- Air Striking Force, Bomber Force, General Reconnaissance etc., and placed under the operational control of the A.O.C., No. 17 Group.

In the first instance this proposed scheme was given the temporary code name of "Operation Eland", but was changed later to "Operation Alert".

C.C. 7010/9/
4/I Encl.5A

In a similar manner, it was intended to form as many as possible of No. 17 Group's training aircraft into operational units and to place them under Station Commanders for operations in the capacity for which they were best suited.

The primary employment of these units would be to reinforce Coastal Command in opposing an enemy landing, particularly in the Channel area, but some of the units up north might be required to reinforce Nos. 16 and 18 Groups so as to relieve operational squadrons for more urgent duties.

It would be essential to keep all such arrangements flexible owing to the necessity for making good the wastage of front line squadrons, and the probable effects of enemy bombing raids would also need to be kept in mind.

On this basis, a detailed scheme was prepared by the A.O.C. No. 17 Group and submitted to a conference held at H.Q.C.C., on 8 June, 1940. The scheme was approved by the A.O.C.-in-C., Coastal Command, subject to a few amendments. The Admiralty concurred generally in the organisation proposed and in particular with the reservation that the decision as to when, and how many of the squadrons concerned were to be placed under the operational control of the A.O.C., No. 17 Group, should rest with the Admiralty. The scheme when implemented would provide 148 first line aircraft and 15 reserves comprising a diversity of types - Albacore, Roc, Skua, Battle, Swordfish, Gladiator, Anson, Hudson, Shark, Singapore, Walrus and Wellesley.

A.M.
S.4789/II
Encl.61A

As the result of a conference held at the Air Ministry on 28 June, 1940, for the purpose of discussing a number of outstanding points in "Plan Banquet", a general directif was issued on 13 July, 1940, which incorporated all existing "Banquet" schemes including "Operation Alert."

It was stated in the directif that arrangements in respect of "Alert" were the responsibility of the Admiralty, with the exception of the provision of ammunition, bombs and fuel at operational stations other than Fleet Air Arm Stations, and

operational direction of the aircraft, both of which were the responsibility of the A.O.C.-in-C., Coastal Command.

C.C. 7010/9/
4/II Encl.92A

As some confusion arose over the use of the codeword "Alert", it was requested by the Admiralty on 8 September, 1940, that the codeword "Ceiling" should be used instead.

CC/S.7010/
9/4/II
Encl.52A

Various exercises including exercise "Victor", were held during the period June 1940 - February 1941, to test the organisation set up under "Plan Banquet", and many valuable lessons were learned. Although "Banquet Ceiling" was not introduced until very late in the last named exercise, it became increasingly apparent as the exercise progressed that the current method of operation of "Banquet Ceiling" by No. 17 Group, was fundamentally unsatisfactory.

In the light of experience which had accumulated since the inception of the scheme, it was submitted by the A.O.C., No. 17 Group, to H.Q. C.C., that the current policy should be revised.

It was possible to divide the existing organisation of "Banquet Ceiling" into two Groups:-

- (a) Fleet Air Arm and No. 17 Group units, which on "Ceiling" being brought into force operated under one of the four Coastal Command Operational Groups.
- (b) Fleet Air Arm and No. 17 Group units which on "Ceiling" being brought into force would operate under No. 17 Group.

The policy concerning the operation of the units in group (a) were considered to be satisfactory and it was this policy which it was desired to advocate for the operation of the units in group (b), and thereby bring the operation of all "Ceiling" units into line under the operational control of the appropriate operational Groups.

Many reasons for the suggested change in policy were given in support.

No improvement in the existing situation could be foreseen without the inclusion of No. 17 Group in the operational framework of Coastal Command, a course which was not contemplated.

A.M.
S.4789/II
Encl.117A

In the meantime, a conference had taken place at the Air Ministry on 6 February, 1941, to consider the lessons learnt from Exercise "Victor", and D.C.A.S. had ruled that action should be taken to make use of fighter, bomber and coastal reconnaissance pilots now in Flying Training Schools. He also ruled that Fighter and Coastal Operational Training Units should be brought into the operational picture, in the event of an invasion, in a manner analogous to that developed by Bomber Command.

A.M.
S.4789/II
Encl.122A

Since the inception of "Banquet Ceiling", Coastal Command had gradually added extra training aircraft into the scheme with the result that they now had aircraft of their 3 O.T.U.s. included in a scheme which could only be brought into force by the Admiralty. In view of this situation it was suggested by the Air Ministry that a new section should be introduced into the plan to be known as "Banquet Coastal", which would make provision for Coastal Command training aircraft to be absorbed into the operational Groups of the Command, and leave "Banquet Ceiling" composed of Fleet Air Arm aircraft only, as an Admiralty affair. These aircraft to be placed at the disposal

SECRET

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of the A.O.C.-in-C., Coastal Command when the Admiralty agreed that the emergency called for such action.

A.M.
S.4789/II
Encl. 122A

The A.O.C.-in-C., Coastal Command had already agreed to this arrangement, and a letter in confirmation of this amendment was despatched to Coastal Command on 22nd February, 1941.

A.M.
S.4789/II
Encl.124A

In a further communication bearing the same date, the Air Ministry informed the A.O.C.-in-C., Coastal Command of the desire that certain pilots in Flying Training Command should be employed, in an emergency, on flying duties which would make use of their previous training and experience to the greatest advantage. It was requested that the Air Officers Commanding-in-Chief of Flying Training and Coastal Commands should formulate a detailed scheme for the reinforcement of Coastal Command from pilots who had previous experience of Coastal Command work.

A.M.
S.4789/II
Encl.153A

A scheme was devised, and "Plan Banquet" was amended in due course to include this arrangement under the section "Banquet Training".

In a revised edition of the General Directif on "Plan Banquet" issued on 1st March, 1941, these two amendments were incorporated.

C.C./S.7010/
9/4/11
Encl.62A
A.M.
S/4789/11
Encl.139A.

With regard to the suggestion by the A.O.C. No.17 Group that, in an emergency, the operational control of both the R.A.F. and the Fleet Air Arm units should be transferred to the Operational Groups, this was agreed to by Headquarters Coastal Command with Admiralty Approval and the scheme was submitted to the Air Ministry. This modification received approval on 13th March, 1941, subject to the one consideration concerning the employment of certain first line F.A.A. squadrons included in the scheme. It was felt that the employment of such units might well be considered at an earlier stage of an emergency, and it was therefore requested that the A.O.C.-in-C., Coastal Command and R.A.N.A.S.,⁽¹⁾ should examine the possibility of these squadrons reinforcing Coastal Command independently of the "Plan Banquet" scheme.

C.C. 7010/9/
3/II Encl.48A

This matter was discussed with R.A.N.A.S., who stated that it was not desirous at the moment, to tie down a somewhat nebulous and uncertain force in the main plan, but there was no doubt that when the time came, every available operational aircraft and crew would be placed at the disposal of Coastal Command.

CC/S.7010/
9/4/II
Encl.112A

Air Ministry approval of the transfer of operational control of all training aircraft in the event of an emergency from No. 17 Group to the Operational Groups, made necessary the replacement of existing orders. Each of the Operational Groups drafted their respective schemes which were incorporated in Coastal Command Operational Instruction No. 99, dated 6th June, 1941, which was issued to cover "Banquet Coastal".

CC/S.7010/
9/4/II
Encl.101A

A new set of orders dated 17th June, 1941, was also issued by R.A.N.A.S. to cover "Banquet Ceiling".

C.C.O.I
No.99 &
R.A.N.A.S.
operation
Banquet Ceiling
d/d 17.6.41

Under the two schemes, a total of approximately 340 aircraft could be made available to assist Coastal Command, if an emergency ever arose.

(1) Rear Admiral, Naval Air Stations.

(ii) Conclusion

Although Coastal Command was actively engaged on the anti-invasion commitment almost continuously from November 1939 to June, 1941, the most intensified period was contained within the six months June, 1940 to December, 1940.

After the initial scare in November/December 1939, the anti-invasion measures were combined with a more general commitment until the advent of the enemy's campaigns in Norway, Denmark, the Low Countries and France, during which time the Command's limited resources were severely strained to keep pace with the ever increasing demands.

With the fall of France, and the evacuation of our forces from the Continent concluded, the Command was able to concentrate a larger proportion of its forces on the anti-invasion tasks throughout the next six months.

On visual reconnaissance alone, an average of 40 sorties per day was consistently put out, weather permitting. Many of these sorties were of an offensive character and combined the role of reconnaissance with that of bombing shipping and land targets, in that order.

H.Q.C.C.
Narratives
June-Dec. 1940

The wastage of aircraft engaged on visual reconnaissance throughout the half year amounted to 97(1), of which just under 50 per cent. were lost through unknown causes. Of the remainder, some came down in the sea before they could reach a landing ground, others managed to make their bases only to crash on landing. The damage sustained in combat with enemy aircraft or through encountering flak from enemy ships and land batteries undoubtedly contributed to many of the failures to return "from unknown causes".

From the results of the visual reconnaissance and that carried out by the Photographic Reconnaissance Unit, the main anti-invasion targets for attack were determined. For strike purposes a limited number of aircraft in the Command were available, and, in co-operation with Bomber Command, carried out the bombing policy as laid down by the Air Ministry, from time to time.

As the primary task for Coastal Command was reconnaissance, the number of aircraft that could be spared for the bombing effort was very small. In view of the limited number and type of aircraft available, and the consequent small amount of weapons carried, the amount of damage inflicted was obviously much less in comparison with that of the large and medium bomber force employed against invasion objectives, by Bomber Command.

H.Q.C.C.
Narratives
June-Dec. 1940

During these strike operations against shipping and land targets, Coastal Command lost 103 aircraft,(2) of which more than 50 per cent. failed to return from the sorties flown. By far the greater losses, i.e. 42, were sustained by aircraft of No. 16 Group within the coastal belt stretching from N.W. Germany to Brittany.

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- (1) For details of wastage of aircraft see Appendix XIV.
(2) For further details see Appendix XIV.

Although a fair proportion of the sorties flown on reconnaissance were of little or no avail, in view of the fact that the invasion of this country never took place, the photographic and visual reconnaissance, carried out over enemy territory, did reveal the preparation for invasion in time for a vigorous bombing policy to be pursued.

In the early autumn of 1940, when it became evident that the enemy's preparations for invasion were slowing down, the anti-invasion commitment was gradually abandoned in favour of an offensive against shipping, traversing the now very long enemy occupied coastline from Northern Norway to the Spanish border. It is the opening of this offensive which forms the subject of the following chapter.

CHAPTER VI

ANTI-SHIPING OPERATIONS - SEPTEMBER, 1939 - JUNE, 1941

(i) Introduction

The anti-shiping policy of Coastal Command at the outbreak of the war did not include a specific plan for any long term disruption of Germany's naval and merchant shipping. Indeed, in those early days, the anti-shiping role of the Command was confined very largely to reconnaissance, and even this in many ways, had to be strictly limited owing to shortage of available aircraft.

C.C/S.
7010/AIR
30.6.39.

The main plan of general reconnaissance adopted by the Command and set in motion on 23rd August, 1939, (1) was designed primarily to detect outward or homeward bound enemy warships, but in addition provided for special reconnaissance sorties which might locate fleeting targets at sea or ships lying at naval anchorages.

A.H.B.
IIR/36/5
Dec, 13.

To take advantage of the opportunities for attack which might have been provided by this reconnaissance, twenty-four aircraft of Bomber Command were stood-by, daily, at short notice of readiness, to be placed at the disposal of the A.O.C.-in-C, Coastal Command, for operation under his direct control as a striking force against enemy naval units of the battleship or cruiser class. In order to conserve the bomber force for its main strategical role on the Continent, these aircraft were only for employment against ships at sea in areas where serious fighter or A.A. opposition was unlikely to be encountered, and on occasions which offered good prospects of an effective attack.

C.C.S/
7010/3/3
30.1.40.

The necessity for the provision of this force was entirely due to the fact that the operational strength of Coastal Command at the outbreak of war, did not in any way provide for a suitable striking force. (2) In point of fact this unfortunate state of affairs continued to exist throughout the period covered by this section of the narrative and proved a serious handicap to the Command in carrying out a shipping offensive on any appreciable scale.

A.M. letter
S.46239
d/d
22.8.39.

Another factor which, during the initial stages of the war, contributed to the delay in the commencement of an offensive against enemy shipping, was the bombing policy adopted under the terms of the accepted principles of international law. (3) The restrictions thus imposed on attacks against shipping involved some surrender of initiative in regard to the neutralisation of the enemy's naval and mercantile forces, and were considered to be more severe than those required under a reasonable interpretation of the "Draft Hague Rules of Air Warfare - 1922/23"; (4) although it was

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- (1) For full details see Chapter I, Section (IV) also Map.1.
 - (2) Two squadrons (No.22 and 42 Squadrons) of Vildebeest IV represented the sole striking power of the Command against enemy naval units. Owing to their slow speed and limited range, they were useless as a striking force and were never used in this role.
 - (3) For full details of this initial bombing policy see Chapter I, Section (IV)
 - (4) The "Draft Hague Rules of Air Warfare" were drawn up by a commission of Jurists at the Hague in 1923. These rules were signed by representatives of the U.S.A., the British Empire, France, Italy, Japan and the Netherlands. They were not, however, formally adopted by any government and therefore did not acquire the force of international law. In the absence of any other codes of rules of air warfare which had been formally accepted by international agreement, these draft rules, with certain reservations and exceptions, together with the generally recognised principles of air warfare were, however, used as the basis of the instructions governing naval and air bombardment in the opening stages of the war.

emphasised at the time of issue i.e. 22nd August, 1939, that these instructions did not necessarily represent the policy that would be pursued by H.M. Government throughout the war. If the enemy, for example, had proceeded at once to unrestricted air warfare, the existing instructions might well have had to be replaced by the authorisation of a considerably wider scope of operations.

It will be seen later on, that in view of the developments which took place in the war at sea, these initial instructions were completely revised.

Defensive operations against the German major naval units, such as they were, largely developed into individual campaigns apart from the main shipping offensive; and, as such, they have been dealt with in separate sections.⁽¹⁾ Therefore except for a brief reference to individual ships as they effect this part of the narrative, no further comments on the major naval units will take place in this section.

The development of the Command's offensive against the minor naval units and merchant shipping, however, will be combined in this section, as during the period under review they were invariably found together both in port and at sea.

(ii) Summary of events up to June, 1940

During the autumn of 1939, the work of reconnaissance was often carried out under difficult weather conditions and in the face of determined enemy opposition.

H.Q.C.C.
Narrative
CC/N3/10/
10

Sightings of minor naval units were made on a number of occasions, the most important of which was the finding of a force of six enemy destroyers by a Hudson aircraft while on patrol between Borkum and Amsterdam, during the month of October.

H.Q.C.C.
Narrative
CC/N4/13/
12

The first attack made by aircraft of Coastal Command on any enemy surface shipping took place on 13th December, 1939, when a Hudson aircraft of No. 220 Squadron sighted four enemy destroyers off the west coast of Denmark. Having made a sighting report to base, the aircraft continued to shadow the enemy. At 1100 hours instructions to attack were received, and in the face of heavy anti-aircraft fire the Hudson released 2 x 250lb A/S bombs from 2000 feet. No hits were scored. Immediately after the attack the aircraft was intercepted by four HE. 115 float planes, but returned safely to base.

Although a number of attacks on minesweepers, flakships and destroyers followed, the existing regulations regarding direct attacks on enemy merchant shipping continued to be scrupulously observed. While the enemy, on the other hand, carried out bombing and machine gun attacks on Allied merchant shipping off the east coast of England from about mid-December, 1939, without discrimination.

A.H.B.
IHK/36/5
Doc. 30

Since the issue of the existing regulations governing Allied aircraft action against enemy shipping at sea, the use, by enemy, of anti-aircraft artillery on merchant ships and the introduction of Flak ships in the Heligoland Bight, which not only attacked our aircraft but were also used for reporting air raids, made it necessary to consider what action, if any, could be taken by aircraft against such vessels.

(1) In this chapter sections (ii) (iii), & (iv), also Chapter III, section (xxii) and (x)

A.H.B.
IHK/63/5
Doc. 30,
Annexe.B

It had already been pointed out to the Air Ministry by the A.O.C.-in-C., Coastal Command, the difficulties experienced in applying the existing regulations in a practical manner; and at the same time attention was drawn to the fact that the uncertainty which existed as to what action could be taken when dealing with shipping, had placed an unfair responsibility upon the pilots whose duty it was to carry out these orders.

To consider the question of amending the existing instructions relating to aircraft action against shipping, was, therefore, made the subject of a joint conference, between representatives of the Foreign Office, the Admiralty and the Air Ministry, which was held at the Air Ministry on 30th December, 1939.

A.H.B.
IHK/36/5
Doc. 43

The meeting discussed the existing orders and formulated new draft instructions based on Maritime law, which, after sundry amendments had been made, were finally circulated to all operational Commands on 4th February, 1940.

A.M. letter
S.43020/
S.6 d/d
4.2.40.

Apart from the fact that the new instructions laid down the procedure for aircraft action against enemy shipping at sea in a more definite manner, there were certain main differences between the old and new orders which increased the scope for aircraft to attack shipping under certain conditions.

The sink at sight policy for enemy warships, minelayers, minesweepers, patrol vessels, troopships and any other vessel definitely established by observation to form part of an enemy fleet, remained in force. Merchant ships in convoy were not, however, to be regarded as part of an enemy fleet.

A.H.B.
IHK/36/5
Doc. 43

For the purpose of combatting the Flak ship menace, a "Special War Zone"⁽¹⁾ was declared in the Heligoland Bight within which it was permissible to attack any vessel which opened fire on aircraft, provided no risks were involved to innocent merchant ships in the vicinity.

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- (1) The "Special Zone" referred to included, in the first instance, the area of the British and German declared minefields in the Eastern part of the North sea with slight modifications, and was defined as follows:
- (a) Northern limit - the parallel of 56.30 degrees North
 - (b) Western limit - the meridian of 04.30 degrees East
 - (c) Southern limit - from the meridian of 04.30 degrees East - along the parallel of 53.35 degrees North to the meridian of 06.30 degrees East, thence due south to the limit of the Dutch territorial waters and along that limit in a south-easterly direction up the Ems estuary to the coast at the Dutch-German frontier and thence along the German coast.
 - (d) Eastern limit - to follow the German coast to the German-Danish frontier, thence along the limit of Danish territorial waters to the parallel of 55.24 degrees North, thence due west to the meridian of 07.41 degrees East, thence due north to the parallel of 55.40 degrees, thence due east to the limit of Danish territorial waters and thence north along that limit to the parallel of 56.30 degrees North.

For aircraft engaged on Contraband Control operations, the procedure to be followed in order to secure compliance with the orders given to vessels for examination, was laid down in the new instructions. If at any stage of this procedure the ship opened fire on the aircraft, it was now permissible for the aircraft to carry out an attack on the vessel whether it was within a "Special Zone" or not.

In the case of an aircraft which had been ordered to search for, and had been successful in finding, a suspected vessel, e.g. a raider or a particular enemy merchant ship, under the terms of the new instructions the aircraft could, after repeated requests had been ignored, continue to attack the ship until compliance with its orders had been secured. Here again if the ship opened fire, the aircraft was permitted to attack at once with all the force at its command, whether the ship was in a "Special Zone" or not.

It was emphasised in the concluding paragraph of the new regulations, that aircraft must in all circumstances be careful not to provoke an innocent merchant ship to open fire, by approaching in such a manner as to give the vessel reasonable grounds for apprehension that she was about to be attacked.

C.C.T.I.
No. 7

The new instructions were conveyed to the operational Groups of Coastal Command in the form of a Tactical Instruction which was dated 30th March, 1940.

A.H.B.
IIK/36/5
Doc. 54
(A.M.
Signal)
X.76-
10/4/40)

When Germany invaded Norway and Denmark on 9th April, 1940 a new phase in the anti shipping war was opened for Coastal Command by the fact that the Air Ministry, on the War Cabinet's authorisation, issued instructions on the following day that aircraft could now attack, without warning, any ships, merchant or otherwise, under way in the Skaggerak and Bohus Bay area to the eastward of the meridian of 08 degrees East. Ships in harbour within this area could also be attacked if believed to be enemy.

H.Q.C.C.
Narratives

Naturally, this relaxation of the restrictions on the attack of shipping at sea and in harbour, led to an increase in the offensive against both minor naval units and merchant shipping in this area.

During the first ten days of the campaign, six attacks were made on minor naval units, four by Hudsons with 250 lb. anti-submarine bombs and two by Blenheim fighters with machine guns. The latter attacks were made against a destroyer which was forced to stop, but no further results were observed.

H.Q.C.C.
Narrative
C.C/N1/
12/4/40.

The first attack against a merchant vessel in Norwegian waters took place on 11th April, 1940, when a Hudson of No. 224 Squadron attacked the Theseus at Bergen fjord with bombs and machine gun fire. All the bombs missed the target.

Thereafter, a limited number of attacks on enemy shipping continued at intervals during the month without decisive results. (1)

(1) For further details see Chapter III, Section (XI) - Coastal Command in the Norwegian Campaign.

HQ.
No. 16
Group
S. 5024/7/
Ops
Encl. 11A

As the campaign developed, the latitude allowed by the Air Ministry Instruction issued on 10th April, 1940, relating to attacks on shipping under certain conditions, was extended at intervals during the month to meet the prevailing situation. In order to clarify the position Coastal Command summarised the instructions as at 25th April, 1940, in a signal to the operational groups concerned, in which it was stated that, "aircraft may attack without warning any ships, merchant or otherwise, underway within ten miles of the Norwegian coast south of latitude 61 degrees North and anywhere east of longitude 06 degrees East as far south as latitude 54 degrees North. Ships at anchor may also be attacked if definitely observed to be enemy except in certain areas, (1) where all ships, including merchant ships, may be attacked provided they were not alongside. Special care was to be taken not to infringe Swedish territorial waters. In the event of British submarines operating and proceeding on the surface in the areas mentioned restrictions would be promulgated"

H. Q. C. C.
Narrative
C. C. / N3/
7/5/40.

Lower down the enemy coastline, an event of some importance to the Command in the anti-shipping war took place during the first week of May, 1940, when the first Beaufort squadron (2) commenced operations, by carrying out its first attack with 2000lb. bombs against enemy naval shipping off Borkum. This attack was delivered during the time that the enemy was busily plying his ships along the northwest coast of Germany preparatory to the invasion of Holland. Three days later, the enemy's campaign against the Low Countries was commenced, and the focal point of operations moved to that area.

It was during this campaign that the threat of attacks by enemy light surface craft against our Channel and East Coast shipping became increasingly apparent, particularly as the German armies so rapidly occupied the Low Countries and Northern France and thus made available suitable ports from which these small craft could operate.

Ten days after the invasion commenced, a battle flight of Anson aircraft (3) sighted eight or nine E-boats off the Texel and proceeded to carry out a dive bombing attack, and thus started Coastal Command's long campaign against the E-boats.

Before the fall of France (4) no less than 22 attacks had been made on these craft, but owing to their small size and manoeuvrability little success was achieved; in fact, not one claim to a bomb hit was made during any of these encounters, although several of the aircraft involved were able to carry out successful machine gun attacks.

To conclude the immediate part played by Coastal Command in the battle of the Netherlands, Belgium and France, there were the tasks performed during the evacuation from the Continent. (5) In this operation aircraft of the Command provided cover in the Narrow Seas while Fighter Command provided closer protection. When evacuation operations were at their

No. 16
Group
Narrative

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- (1) Kiel Bay, Trondheim Fjord, any fjords running into Trondheim Fjord and Oslo Fjord.
 - (2) No. 22 Squadron at North Coates.
 - (3) No. 48 Squadron (Detachment) at Detling.
 - (4) On 25 June, 1940.
 - (5) For full details see Chapter IV - Coastal Command in the French Campaign.

maximum, aircraft of No. 16 Group made 327 sorties during the last days of May and the first three days of June. Not only were German bombers and their escorts attacked but also, where possible, German troop concentrations, bridges, and piers on the foreshore. (1) In the direction of surface craft to the rescue of personnel in the sea and adrift in small boats, aircraft of the Command played a leading role, and on more than one occasion enemy aircraft which appeared on the scene were driven-off, and some destroyed.

After Dunkirk, escort and rescue facilities continued to be provided for the evacuation still taking place from ports between Le Havre and St. Nazaire.

numbers of
(iii) An increase in Enemy patrol and escort craft

The possession of the continental coast from Narvik to Bayonne was of great importance to the enemy in many respects. It provided the means for instance, whereby valuable cargoes could be moved by sea, thus relieving the strain on the rail and road traffic in enemy and enemy-occupied territory; and in the northern sector it was used for the important task of maintaining supplies to the forces in Norway.

The acquisition of many fine ports and canals also provided the necessary facilities for the assembly of the enemy's seaborne force which was to be employed in the invasion of the United Kingdom.

The interruption of this traffic throughout the entire length of the enemy controlled coastline was, therefore, of equal importance to the Allies, but in order that aircraft could seek out the various craft in the enemy ports and harbours, it was necessary, first of all, to revise the existing instructions relating to aircraft attack against enemy shipping to facilitate such actions.

The "Instructions governing Naval and Air Bombardment" issued on 22nd August, 1939, was now replaced by a new Air Ministry directive dated 4th June, 1940, in which it was clearly defined that bombardment by naval and air forces was limited to military objectives, (2) among which were included "naval auxiliaries of whatever description and whether or not attendant on the fleet; troop transports or military supply ships whether at sea or in port." A qualification was given that all shipping could be treated as enemy transport or military supply ships in areas which would be specially notified.

This counter action on the part of the Allies, naturally provided the enemy with the problem of combatting the blockade now being enforced, and to assist in accomplishing this the German High Command was compelled rapidly to develop a much

A.M.
Signal
A 5600
dated
4.6.40

C.C./
S.7743/1
Encl.12A

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- (1) In this respect some very valuable assistance was rendered by the Fleet Air Arm Albacores and Skuas operating under the direction of Coastal Command.
 - (2) The term "military" was used in its widest sense to include all armed forces. Merchant ships, whether defensively armed or not, were not included amongst the military objectives which could be attacked.

larger fleet of minor naval units than they already possessed, (1) in order to afford greater protection for their coastal convoys against sea and air attack, and to keep the shipping lanes free from mines.

In addition to embarking upon an impressive building programme, the conversion of a large number of trawlers and other suitable craft as escort and patrol vessels, was also put in hand.

All available torpedo-boats, gun-boats or naval auxiliaries had already been requisitioned from the occupied countries.

A.M.
Signal
X320
dated
16.7.40

(iv) Extensions to the "Sink at Sight Areas"

The first special notification of a "sink at sight" area, subsequent to the issue of the new directive, was made by the Air Ministry on 16th July, 1940, wherein it was stated that "all ships whether underway, at anchor or alongside, may be attacked within a prescribed area in the North Sea and Skagerrak." (2) Attacks were also permissible against ships at anchor inside territorial waters (i.e. 3 miles off the coast) of enemy occupied territory, or alongside in any European port in the enemy's possession. Enemy ships found in Swedish territorial waters could only be attacked if underway, while those located in a special channel referred to in a Notice to Mariners (3) could be attacked at sight.

With regard to Neutral Ships, upon whose description and movements aircraft were briefed, these could not be attacked within the prescribed area, unless they failed to adhere to the route promulgated by the Admiralty.

A.H.B.
IHK/36/5
Doc.69

The "sink at sight" or "all-in" areas were treated in the same manner as minefields and were publicly declared as dangerous areas for shipping. (4)

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- (1) In September, 1939, Germany had at her disposal a total of 22 destroyers, 30 torpedo-boats, 14 'M' class minesweepers, 7 escort vessels, 16 motor torpedo-boats and 40 R-boats. The destroyers and torpedo-boats were used almost exclusively as escorts for naval units and merchant vessels of high importance although the torpedo-boats also carried out a limited amount of defensive minelaying. The main minesweeping force consisted of the 'M' class vessels, which were not only used in this role, but also as heavily armed convoy escorts and even as patrol craft. In addition to their convoy escort duties, the 7 escort vessels were also employed in patrol work and minesweeping. For offensive patrols with torpedoes and for offensive minelaying, the 16 motor torpedo-boats (E-boats) were used, and on a few notable occasions were employed as escorts for vessels of importance on passage through the English Channel. The R-boats, played their part in a defensive role as fast minesweepers, minelayers and patrol vessels. They were also extensively used, particularly in the English Channel and North Sea, as convoy escorts, often combining this role with the task of sweeping ahead of the convoy.
 - (2) An area bounded by a line drawn from the intersection of the parallel of 69 degrees North with the Norwegian coast. Thence along the parallel of 69 degrees North to a position in latitude 69 degrees North longitude of 04 degrees East. Thence southward along the meridian of 04 degrees East to a position in latitude 64 degrees North longitude 04 degrees East to position latitude 64 degrees North 02 degrees East. Thence southward along the meridian of 02 degrees East to a position in latitude 58 degrees North longitude 02 degrees East to position latitude 57 degrees 38 minutes longitude 04 degrees 36 minutes East thence southward along the meridian of 04 degrees 36 minutes East to its intersection with the coasts of Holland thence North Eastwards along the coast of Holland, Germany and Denmark as far as the S. W. Thence southward along the coasts of Denmark and Germany to the meridian of 13 degrees East and up until its intersection with the Swedish coast thence northwards along the Swedish and Norwegian until the parallel of 69 degrees is reached.
 - (3) No. 1264/40/x5. 4303-5 1264/40/T Section 1.
 - (4) In the public declaration of a dangerous area no differentiation was made between a submarine or an aircraft area; the total dangerous area only was declared. It was only in secret instructions to C-in-C., that precise details of the respective areas were defined. The submarine area was invariably the larger of the two.

Admty.
Signal
T.O.O.
1111/20/
9/40. &
C.C.T.L.
No. 7
Supple-
ment d/d
19.10.40

An extension of the existing "all-in" area already declared in the North Sea, Skagerrak and Kattegat, was sought by the Admiralty in August, 1940, and was placed before the War Cabinet for approval.

As the Admiralty memorandum outlining the precise limit of the new "all-in" areas needed clarifying before instructions could be issued to aircrews, there was slight delay in announcing the new areas after War Cabinet approval had been given; however, this was finally achieved on 20th September, 1940.

The limits of the North Sea area remained unchanged but two new "sink at sight areas" were introduced for the English Channel(1) and the Bay of Biscay.(2)

In the Channel, the instructions for attack by day were the same as those in force for the North Sea, but by night aircraft were only to attack ships sighted when permission had been given by the Naval C-in-C., concerned. It was intended that aircraft should be given the maximum possible freedom to attack shipping compatible with the safety of our own ships and naval forces in the area.

The attention of all aircrews was directed to Spanish Territorial waters which were not to be infringed unless an attack had already been delivered from Spanish waters, when it could be returned. Special care was also to be taken not to interfere with Spanish ships engaged in Coastal trade between Spanish ports.

Further modifications were made to existing instructions periodically in order to keep abreast with the prevailing situation. For example, on 15th March, 1941, the western limit of the Bay of Biscay was extended to 07 degrees West and the northern boundary of the Channel area was dropped a few miles to the south almost throughout its entire length. At the same time, it was announced that all ships, underway, at anchor or alongside could be attacked at all times by day or night within the prescribed areas.

The next major change, and the last to take place during the period under review, was made on 8th June, 1941, when the western limit of the North Sea area was altered to coincide with that of surface craft and submarine.(3)

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- (1) English Channel - East of the line joining the Bishop Rock Light (49 degrees 52 minutes North, 06 degrees 27 minutes West) to the Chaussee de Seine, and South of the line joining the following points:- (i) 10 miles 153 degrees from the following Lights:- Bishop Rock, Lizard, Start Point, Portland Bill, St. Catherine's, Beachy Head and (2) 50 degrees 59 minutes North, 01 degrees 22 minutes East (3) 51 degrees 42 minutes North, 02 degrees 31 minutes (East) (4) 53 degrees 30 minutes North, 04 degrees 38 minutes East. The eastern limit of the area was the meridian of 04 degrees 38 minutes East.
 - (2) Bay of Biscay - in the waters lying to the eastward of a line drawn from the Chaussee de Seine (48 degrees 03 min North, 05 degrees 05 mins West) to the Socca Light (43 degrees 23 minutes North, 01 degrees 41 minutes West.)
 - (3) North Sea Area - (i) Northern Limit - latitude 69 degrees North. (ii) Western Limit - by line drawn through the following positions 69.00N - 00.09W, 59.30N - 00.09W, 58.38N - 01.15W, 57.30N - 00.28W, thence along the eastern edge of the East coast mine barrier to 51.42N - 02.31E, 51.13.N - 02.31E. (iii) Southern Limit - by 51.13N and the coasts of Belgium, Holland, Germany and Denmark. (iv) Eastern Limit - from coast of Germany by the meridian of 13 degrees East to the limit of Swedish territorial waters and thence along the limits of Swedish territorial waters and the coast of Norway to the parallel of 69 degrees North.

To sum up the position as at the middle of June, 1941, there were three permanent "sink at sight" areas in Home Waters, i.e. North Sea, English Channel and Bay of Biscay, in which all ships, underway, at anchor or alongside, could be attacked at all times by day and night. Ships in Swedish territorial waters could only be attacked if underway, whereas ships located in the Special Channel defined in the Notice to Marines F.O.113/41 could be attacked at sight. Spanish ships engaged in the coastal trade between Spanish ports were not to be interfered with, and Spanish territorial waters were not to be infringed unless an attack had actually originated from Spanish waters, when it could be returned.

Certain neutral ships, of which descriptions and movements would be promulgated to all concerned, might be routed through the prescribed areas, but they were not to be attacked unless they failed to proceed along the route indicated by the Admiralty.

(v) Coastal routes of enemy shipping in Northern Waters

C.C./
S.743/1
Encl. 12A

The movement of traffic along the extensive enemy controlled coastline between North Norway and the Franco/Spanish frontier conveniently fell into three distinct areas (i) the Bay of Biscay, (ii) the Channel, and (iii) the North Sea, (1) by which is meant the area extending from the coasts of Holland and Germany northwards including the Norwegian Coast (as far as the North Cape.)

During the early stages of the German occupation of France, the Bay of Biscay was relatively unimportant commercially, as far as any major movement of independent ships or convoys was concerned. Although a general contraband running between Portugal, Spain and France was in progress, it was difficult to distinguish from local neutral traffic. Later on, however, this area did assume some measure of importance, in view of the fact that it became the European terminal and departure point for some very rare and valuable cargoes urgently needed by the Axis partners, Germany, Japan and Italy.

With the exception of the period when the enemy's preparations for invasion in the Channel ports were the objectives for attack by aircraft of Coastal and Bomber Commands, the Channel area was also commercially, of little importance, and remained as such for most of the war. The small amount of traffic passing through was an occasional vessel on passage from north to south or vice versa, in accordance with the demands of the enemy's reinforcement programme. The main traffic along the French coast consisted of warlike stores and supplies for his naval bases in occupied France.

Of considerably more importance to the enemy was the North Sea area, which naturally fell into two parts, (i) the section along the Norwegian and Danish coasts, and (ii) that along the North German and Dutch coasts.

(1) Operations in the Bay of Biscay area became the responsibility of No.15 Group, those in the Channel and southern part of the North Sea were carried out by No.16 Group, while the rest of the North Sea area was controlled by No.18 Group.

The one single item that had the greatest bearing on enemy shipping both along the Norwegian and Dutch coasts, was iron ore. There were two distinct flows of this important commodity, (a) the Norwegian ores from North Norway, and the Swedish ores shipped through Narvik, which together move down the Norwegian Coast through the Skagarrak and Kattegat to the Kiel Canal; and (b) the bulk of the Swedish ores that were shipped from Baltic ports, of which about half went to German Baltic ports and the remainder, having joined up with (a) passed through the canal and was delivered to Rotterdam and Emden.

In addition to iron ore, the following also came from Norway:- fertilisers, pulp and paper, pyrites and copper ores, fish and fish products. From Baltic ports came grain, flax and timber, which were also delivered to southern North Sea destinations.

In the reverse direction, cargoes of coal and coke were carried by that part of the shipping traffic which returned from Rotterdam and Emden, for delivery to Norwegian and Baltic ports. An undetermined, though extremely valuable flow of military supplies, and a limited amount of oil emanating from Baltic ports such as Stettin, joined the northward flow along the Norwegian coast.

It can thus be clearly seen that events which took place at opposite terminals, far apart though they were, could affect the volume of shipping in both sections of this area.

Most of the traffic, both north and southbound, was carried in ships of about 3,500 tons at this stage of the war, and it is probably fair to state that most of those under 1,000 tons were, at this time, devoted to essential Norwegian coastal trade, though when convenient the enemy quite frequently utilised small vessels.

The route followed, as far as the Norwegian coast was concerned, with few exceptions, was that of the Inner Leads, which meant that in Southern Norway (Trondheim to Kristiansand South), they had the natural protection of the islands, except where they were forced out into the open sea at Stadtlandet, and on the stretch from Stavanger to Kristiansand South.

Owing to the naturally protected section of this route, torpedo attacks could only be carried out off Stadtlandet or between Stavanger and Kristiansand South.

Unlike this route, the shipping lane off the Dutch and Danish coasts lacked such protective islands, inside which ships could shelter from torpedo attack. In fact, an attack could be made by torpedoes the whole way from Horns Reef to the Hook of Holland, provided the target was sailing in ten fathoms of water.

From the above it can be deduced that enemy shipping operating between Rotterdam and Northern Norway could at all times be attacked by bombing aircraft, but only under certain conditions was a torpedo attack possible.

(vi) Resources available for Anti-Shipping operations

So far as aircraft specially equipped for the attack of shipping was concerned, Coastal Command began the war very modestly with two torpedo bomber squadrons, which were already

obsolescent and only one of which was operational.⁽¹⁾ As already mentioned their limited radius of action of 150 sea miles and slow speed, made them useless as a striking force.

The delay in the replacement of this type of aircraft by a modern torpedo bomber was a matter of considerable concern to the Command, and the A.O.C.-in-C. made repeated representations to the Air Ministry for an improved long range torpedo carrying aircraft, which, as the war developed became more and more a necessity if a shipping offensive was ever to be started.

For the want of a striking force with sufficient range and speed, units of Bomber Command were frequently called upon to assist Coastal Command in attacking enemy shipping at sea.

No. 42 Sqn.
O.R.B.

The re-equipment of the first squadron of Coastal Command's strike force with Beauforts, commenced on 15th November, 1939, and during the period January to April, 1940, the training of the crews on the new type of aircraft was carried out. In March, 1940, however, the training in torpedo dropping was interrupted and that of minelaying introduced. The development of the "A" Mark I Magnetic Mine, and the fact that the Beaufort was one of the two types of aircraft in the whole of the Royal Air Force that was capable of carrying this weapon, were the reasons for a change in policy. The squadron was moved to the East Coast on 8th April, 1940, for minelaying activities.

A.M. D.O.N.C.
No. 80 Enc. 8

Progress towards operational fitness on the part of the second squadron whose re-equipment had commenced on 8th April, 1940, was very slow. The delay was mostly due to the trouble experienced with the Taurus engines; there had been several accidents with the loss of valuable trained crews. Apart from the engine difficulty, trouble was also encountered from several other directions; the training of crews in the many aspects of their new weapon; the conversion from single to twin-engined aircraft; the development of torpedo tactics suitable to a modern twin-engined aircraft; the detachment to another station of crews and aircraft for night-flying training; the lack of target ships for torpedo dropping exercises; and the training of air gunners in the operation of power driven turrets. Finally, on 20th June 1940, it became necessary to place a restriction on the operational use of all Beauforts until they had been fitted with modified engines. In the interim period the squadrons were confined to short operational patrols close to our shores and torpedo training.

With this temporary failure of the Beaufort, Coastal Command was still without a striking force, except that provided by the Fleet Air Arm squadrons⁽²⁾ on loan to the Command for short periods.

At the same time, other forces available within the Command which were utilised for anti-shipping patrol and

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- (1) No. 42 Squadron at Bircham Newton was employed on A/S patrols and convoy escort until 9-4-40 when the squadron became non-operational prior to re-equipping with Beauforts. No. 22 Squadron at Thorney Island was engaged on ferrying torpedoes to Bircham Newton for No. 42 Squadron, and doing conversion training on Elenheims with occasional A/S patrols.
- (2) At this particular period, i.e. end of June 1940, the squadrons available were:-
- No. 812 Squadron at North Coates (Swordfish) (Torpedoes);
 - No. 801 Squadron at Detling (Skuas) (Dive Bombing);
 - No. 826 Squadron at Bircham Newton (Albacores) (Dive Bombing).

strike purposes, were selected from five Hudson squadrons,⁽¹⁾ two Blenheim squadrons⁽²⁾ and one Anson squadron⁽³⁾. In view of the fact that aircraft of these squadrons were also required for other operations, the number that could be spared for anti-shipping activities was very limited. Aircraft, generally speaking, operated independently in the reconnaissance role and carried out attacks on suitable targets found; while a strike force of 4-6 aircraft, from each squadron participating, was about the maximum that could be provided, for strike purposes.

Later on, in the summer of 1940, further assistance was forthcoming from the two Blenheim squadrons⁽⁴⁾ which had been transferred from Bomber Command to assist in the anti-invasion reconnaissance commitment. However, in view of the shortage of aircraft, these two squadrons were used extensively for strike purposes against fringe targets and shipping both in harbour and at sea.

No. 16 Group
Narrative
12.9.40

No. 42 Sqdn.
O.R.B.

By early September, 1940, one of the Beaufort squadrons had become operational, and on 11th September, 1940, carried out the Command's first anti-shipping operation with torpedoes⁽⁵⁾. Later in the month the second Beaufort Squadron⁽⁶⁾ came into the front line with a series of minelaying sorties, followed on 4th October, 1940, by the first patrol⁽⁷⁾ with torpedoes between Ostend and Ijmuiden. Six days later this detachment of the squadron dropped its first torpedo in operations, but it failed to make contact with the target⁽⁸⁾.

RO/G2/26/10

So far, all these torpedo actions had taken place in the southern half of the North Sea, but on 26th October, 1940, the first offensive sortie by torpedo carrying aircraft of Coastal Command was carried out off the Norwegian Coast.⁽⁹⁾

RO/G2/12/12

One operation in December 1940 deserves mention here although not specifically anti-shipping or anti-invasion. It was designed to block the railway line between Bergen and Oslo and received the cover name of Operation Youth and Beauty. The position chosen for attack was at Finse, about 63 miles eastward of Bergen where the line passes under steep slopes and is protected from avalanches by snow barriers. This was target Beauty and the Finse hotel nearby which was occupied by German officers was target Youth. The force detailed was from No. 16 Group Hudsons and Beauforts. The first attack, on the night of 17 December was a failure in that only three of the 21 aircraft found the target. A repeat by seven aircraft on the 19th all bombed the objectives and in a final attack on the 22nd eight of the twelve attackers dropped their bombs. The results of these attacks were unknown and have not been ascertained by postwar research.

- (1) No. 206 Squadron at Birchem Newton (No. 16 Group).
No. 224 Squadron at Leuchars (No. 18 Group).
No. 233 Squadron at Leuchars (No. 18 Group).
No. 220 Squadron at Thornaby (No. 18 Group).
No. 269 Squadron at Wick (No. 18 Group).
- (2) No. 254 Squadron at Sumburgh (No. 18 Group).
No. 235 Squadron at Birchem Newton (No. 16 Group).
- (3) No. 217 Squadron at St. Eval (No. 15 Group) commenced re-arming with Beauforts from 21/9/40.
- (4) No. 59 Squadron at Thorney Island and No. 53 Squadron at Detling.
- (5) No. 22 Squadron at North Coates despatched a force of 5 Beauforts to attack a convoy of 7-14 MVs reported off Calais. The target was not found so the formation flew up the coast to Ostend where they attacked 3 MVs with torpedoes. One aircraft reported an explosion in Ostend roadstead.
- (6) No. 42 Squadron (Detachment) at Thorney Island.
- (7) This aircraft failed to return.
- (8) Dropped at the entrance to Boulogne harbour, but exploded before reaching the ship at which it was aimed.
- (9) Between the latitudes of 61 degrees and 59 degrees 30 minutes North. Three Beauforts carried out the sortie and attacked 1MV of 2,500 tons and another of 1,000 tons. The larger vessel was hit and an explosion was observed. Thereafter the Beauforts were attacked by 12 ME.109s, and two of our aircraft failed to return to base. One enemy aircraft claimed as shot down (CC/12/27/10)

(vii) A redistribution of forces - Spring, 1941

Towards the end of February, 1941, it was becoming increasingly clear that a new phase in the enemy's offensive in the war at sea was being launched.⁽¹⁾

D.S.N.I. Feb.
1941.

Daylight attacks, by single aircraft or small numbers of aircraft, against Allied shipping along the east coast convoy routes, the western end of the English Channel and the west coast; were becoming more frequent.

Moreover, these signs were accompanied by a vigorous offensive on part of enemy submarines and aircraft against Allied shipping in the Western Approaches, together with an intensification of minelaying and night attacks on ports all round the coast.

by this country/

This renewed onslaught on the part of Germany to sever the connections between Britain and her overseas suppliers, particularly the United States of America, and the consequent struggle ~~of the Allied nations~~ to keep open these lines of communications, soon became known as "The Battle of the Atlantic" and formed the subject of a directive which was issued as the result of a Chiefs of Staff Committee meeting held on 27th February, 1941, over which the Prime Minister presided in his capacity as the Minister of Defence.

C.O.S. (A1) 73
and 75.

At this meeting and another held later in the day, the Chiefs of Staff reached a number of decisions which affected the Metropolitan Air Force as a whole. Among the most important of which were:

- (a) To move a substantial number of naval escorts (sloops and A.A. destroyers) from the east coast to the North Western Approaches
- (b) To expedite work on the aerodromes under development in Northern Ireland and the Hebrides.
- (c) To strengthen the forces available to Coastal Command in those areas by various means, including the transfer of squadrons from the east coast, and the assumption by Bomber Command squadrons of some duties previously discharged by Coastal Command squadrons.

The decisions of 27th February, 1941, were confirmed and amplified on 6th March, 1941, by a directive, issued by the Minister of Defence, which dealt with the various measures to be adopted by the Government departments concerned to defeat the menace of the submarine and the Focke-Wulf. It was clearly stated that "absolute priority" was to be given to the protection of shipping in the North Western Approaches for the next four months, even to the exclusion of other tasks.

(1) The effective British attacks against the North coast of Germany during the early part of 1941, were of grave concern to the High Command. At a Fuehrer's conference on 4th February, 1941, the Naval Commander-in-Chief pointed out the striking power of the Royal Air Force remained unbroken, not only in Northern waters, but also in the Mediterranean. The night attacks on Bremen on 2nd/3rd January 1941, in which American Type aircraft took part, was an indication of the effective aid already being given to Britain by America, and demonstrated the importance of cutting-off as much as possible the supplies of war material to Britain. As a possible result of this conference, Hitler issued a directive on 6th February, 1941, on the prosecution of the war against England in which he made it clear that the object of Germany's future war effort must be to concentrate every means of waging war by sea and air on enemy supplies from "overseas".. (Ref: "The Fuehrer Conferences - 1941").

C.C./S 7010
Encl. 98A

In consequence of this directive the Director of Naval Co-operation wrote formally to the A.O.C.-in-C., Coastal Command on 9th March, 1941, informing him of the measures to be adopted.

H.Q.C.C.
Location
Statement No. 21
3/3141

Accordingly, a number of changes in the deployment of Coastal Command's squadrons (already completed)(1) had the desired effect of strengthening the forces available for operations in the North Western area but this was only achieved by the depletion of the aircraft already employed on the anti-invasion and anti-shipping commitments, particularly on the east coast.

To compensate for this loss of aircraft on the east coast, Bomber Command, on instructions from Air Ministry, transferred two Blenheim squadrons to Coastal Command for North Sea Patrols, (2) and although they were originally intended for anti-invasion reconnaissance, the demands of all other commitments in this area, made it necessary to employ them on anti-shipping reconnaissance and attacks, as well as convoy escort.

C.C./S 7010
Encl. 97A

Two further contributions by Bomber Command, towards defeating this attempt by the enemy to strangle our supplies and connection with the United States, were in the form of, increased bombing operations against objectives concerned with submarines and long range aircraft, and the diversion of a proportion of the operational effort of No. 2 Group to the destruction of enemy shipping to be found within a few miles of the enemy coast and occupied territory in the North Sea, the Channel and the Bay of Biscay. (3)

H.Q.F.C.
Narrative
Part Two

The transfer of naval escorts from the east coast for the protection of shipping in the North Western approaches, made it necessary for Fighter Command to devote a higher proportion of their effort than hitherto to the protection of shipping in the former area, and at the same time increased protection of shipping was also called for in the area affected by this increase in

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- (1) 8 aircraft of No. 236 Squadron from St. Eval to Aldergrove.
8 aircraft of No. 217 Squadron from St. Eval to Aldergrove.
8 aircraft of No. 206 Squadron from Bircham Newton to Aldergrove.
8 aircraft of No. 224 Squadron from Leuchars to Aldergrove.
8 aircraft of No. 248 Squadron from Dyce to Wick.
16 aircraft of No. 612 Squadron from Dyce to Wick.
Detachment of No. 10 Squadron (R.A.A.F) from Mount Batten to Lough Erne.
 - (2) No. 107 Squadron based at Leuchars and No. 114 Squadron based at Thornaby.
 - (3) The most profitable shipping lanes for attack in these three areas were divided into six beats, to each of which an allotment of aircraft was made. According to the weather, the available aircraft would either be spread out over the beat, or fly in pairs, threes or more to ensure that when a sighting was made it could be attacked by the maximum number of aircraft. On certain beats the operation was arranged at a time when it was considered that the enemy's standing Fighter patrols could be avoided. The type of attack recommended at the start of operations was the level attack from 1,000 feet until more experience in hitting hard had been obtained. An alternative attack was the shallow dive with release at 1,000 feet. The choice of bombs for the first attacks were 4 x 250 lbs.
No. 21, 82 and 139 Squadrons were allocated for this task, with detachments at Lossiemouth and Portreath.
Commencing their daylight operations on 12th March, 1941, the aircraft of No. 2 Group carried out 431 attacks against enemy shipping of all kinds up to end of June, 1941, and it was assessed by the Admiralty Assessment Committee that 31 ships of 73,348 tons were sunk during this period. This was the overall figure including minor naval units. However, according to detailed German records, only five ships of 10,573 gross tons were sunk in No. 2 Group's area of operations during this period. Casualties to their aircraft amounted to 35.

enemy activity. Escort was given more generously than hitherto in the more vulnerable areas⁽¹⁾.

Special attention was also directed to the night defences of the major ports such as Bristol, Liverpool, Manchester, the Clyde, Hull and the Port of London.

Additional protection for the bombing forces, of both No. 2 Group (Bomber Command) and No. 16 Group (Coastal Command) engaged in attacks against enemy shipping (operations "Roadstead and Blot") was also provided during the period February - June, 1941⁽²⁾.

(viii) Anti-Shipping Patrols

During the intensified period of reconnaissance for anti-invasion purposes from early June to late September, 1940, all other routine shipping patrols were cancelled. Attention, at this time, was concentrated on the reporting of enemy invasion shipping rather than on enemy shipping movements generally.

Shortage of aircraft and the urgency of other commitments were the particular reasons for the neglect of more wide-spread anti-shipping reconnaissance and attacks. It is however, true to state that the aircraft engaged on anti-invasion patrols did attack opportunity targets including shipping at sea which were presented to them⁽³⁾. By mid-September, 1940, with the strike aircraft becoming operational once more, and enemy shipping using the continental coastline in increasing numbers, the opportunity was at hand to switch over to the long awaited offensive.

Never before had Coastal Command had the chance to send out torpedo carrying aircraft for strike purposes; on previous occasions, a few Hudsons or Blenheims armed with bombs was the best that could be provided, ⁽⁴⁾.

CH/G6/15/9

No. 16 Group
Narrative
15.9.40.

It was, therefore, decided to institute a roving commission for the Beauforts - sending them out to seek the enemy along the shipping routes. The first "Rover" patrol was carried out on 15th September, 1940, by two Beauforts of No. 22 Squadron; their task was to fly coastwise from Texel to Calais to reconnoitre and attack enemy surface craft. On this particular operation, a target consisting of a merchant vessel of 3-5,000 tons was found and attacked, and it was believed, at the time, that a hit had been secured by one torpedo. The second aircraft returned to base without releasing its armament.

H.Q.F.C. Narrative
Appendix IIA

H.Q.F.C. Narrative
Appendix (IV) (F)

- (1) Monthly totals of daylight defensive sorties provided by Fighter Command for the protection of Coastwise shipping were:-

Feb. 1941.	443 sorties = 9% of the total defensive sorties
	Flown by Fighter Command.
Mar. "	2103 " = 18%
April "	7876 " = 49%
May "	8287 " = 52%
June "	7331 " = 58%
- (2) During the period 5th February to 13th June, 1941, Fighter Command provided escort on 16 operations with bombers against shipping targets, involving some 52 Squadrons of fighter aircraft.
- (3) From June to September, 1940, 75 attacks on enemy merchant shipping at sea were carried out by the aircraft engaged on anti-invasion reconnaissance.
- (4) Even though the Beauforts were becoming operational the practice of using the Hudsons and Blenheims for strike purposes had to be continued, in view of the fact that there were not sufficient Beauforts to warrant the release of any of the bomb carrying aircraft.

C.C.O.1. No. 75
18.9.40.

Three days after this operation, a bombing and torpedo attack on shipping in Den Helder was laid on, and, independently of this action, torpedo carrying Beauforts of No. 22 Squadron were detailed to attack any merchant vessels found outside Den Helder. If no suitable targets were discovered then aircraft were to attack any shipping located anywhere along the Dutch coast.

H.Q. No. 16
Group Narrative
15.9.40.

Of the five aircraft despatched on this sortie, one was unable to locate a suitable target, three carried out separate attacks on two merchant vessels of 3-4,000 tons and 5,000 tons respectively, and a tanker of 3,000 tons. The fifth aircraft released a torpedo which was aimed at an oil tanker, but missed. No results were observed.

C.C. A.P.429
19.9.40.

On 19th September, 1940, the operation against shipping in Den Helder was repeated, but as no suitable targets were found, fifty per cent of the aircraft were briefed to reconnoitre along the coast towards Cuxhaven; while the other fifty per cent were to proceed southwards along the Dutch coast to Flushing.⁽¹⁾

Thereafter this offensive patrol was laid on periodically when information indicated the presence of suitable targets.

Form Green
CC/G2/2/10

With the immediate invasion threat over by the beginning of October, two of the anti-invasion patrols were cancelled and a routine offensive patrol each morning by a formation of three Hudsons against shipping off the Danish and Norwegian coast from Horns Reef to Stavanger, was substituted. Occasional sorties were to be made into the Skagerrak when conditions were suitable.

In the south, anti-invasion patrols maintained by No. 15 Group were gradually assuming other purposes. The reconnaissance of Brest and Lorient for instance was a precaution against an attack on our convoys by the enemy destroyers based at Brest, as well as a safeguard against invasion.

In No. 16 Group, anti-invasion patrols in the North Sea were also varied to suit the changing requirements.

C.C./G1/30/11.

These minor steps were followed eventually by a complete reallocation of anti-shipping reconnaissance patrols for all three Groups of the Command. The new scheme which came into force on 1st December, 1940, replaced to a large extent the anti-invasion plan which during the past two months had gradually given way to a more general anti-shipping reconnaissance.

C.C./G1/25/12.

Throughout the month minor variations were made and on 25th December, 1940, it was deemed necessary to restate the scheme. It is this second version which will now be considered, as it remained practically unchanged for the next six months. Former patrols for the protection of the Shetlands against invasion were abandoned, although the area of the remaining North Sea coverage by No. 18 Group continued

(1) Two tankers and five merchant vessels were found and attacked by 4 Beauforts with torpedoes, but no damage was estimated.

unchanged except in the frequency of the sorties flown. Four new patrols(1) were introduced to cover the Norwegian and Danish coastlines from Stadlandet to Horns Reef with the object of observing the movements of enemy shipping, and its attack. The coast was, however, only to be approached when cloud cover permitted, as enemy aircraft were in evidence, superior both in numbers and performance.

For the same purpose, patrols were to be flown, when conditions were favourable, between Trondheim to Stadlandet-Stadlandet(2) and occasionally into the Skagerrak.

To complete the coverage of German coastal shipping traffic by No. 16 Group, a new patrol(3) was introduced from Horns Reef into the Heligoland Bight, which was to be carried out every other day when conditions were favourable. Patrols Emro, Hooks, Dundee and Hatch, (4) all former anti-invasion patrols, were the remaining part of the scheme for covering the coastline between Emden and Cherbourg. In the narrow waters between East Anglia and Holland, two patrols Pat and Roll, (5) were to be maintained for 5 hours, one before noon and the other after noon.

In the English Channel, No. 15 Group aircraft were responsible for carrying out a reconnaissance(6) during the period of moonlight and finally, a patrol(7) which provided cover for Brest and Lorient once every twenty-four hours, cloud cover permitting, when the photographic reconnaissance sortie had been ineffective.

G.H./G6/6/4/41.

To discover whether enemy shipping was proceeding "Up Channel" by night, a patrol(8) was introduced early in April, 1941, to be carried out by one aircraft between 2100 and 0100 hours. Sightings of enemy surface vessels were to be reported by W/T. This patrol was also carried out during the moonlight period and in addition(9) two aircraft were to cover the Channel as far as 03 degrees west. Towards the end of the period under review, another moonlight patrol(10) was introduced, covering the area from Cape Gris Nez to Dieppe, for the purpose of locating and attacking enemy shipping. The last three patrols were flown by Blenheim bombers.

To summarise, by June, 1941, the whole of the enemy coastline from Stadlandet to Lorient was reconnoitred at fairly regular intervals by single aircraft with offensive intentions, and in addition three lance patrols by small numbers of strike aircraft armed with torpedoes and

- (1) Patrol STAB. Stadlandet - Bergen.
- (2) Patrol BART. Bergen - Stavanger.
- (3) Patrol STAND. Stavanger - Kristiansund and South (See Map 10)
- (4) Patrol HORNL. Horns Reef - Lister.
- (5) Patrol TROST. Trondheim - Stadlandet. (See Map 10)
- (6) Patrol SLEVE. Skagerrak.
- (7) Patrol SWEEP. Horns Reef - Heligoland Bight. Every other day when conditions were favourable. (See Map 10)
- (8) Patrol EMRO. Emden to Rotterdam.
- (9) Patrol HOOKS. Ostend and IJmuiden.
- (10) Patrol DUNDEE. Dunkirk to Dieppe.
- (11) Patrol HATCH. Cherbourg to Le Havre.
- (12) Patrol PAT. Area bounded by:- 53.20N-02.00E., 54.00N-05.00E., 51.25N-02.00E., 51.25N-01.45E., (See Map 10).
- (13) Patrol ROLL. Area bounded by:- 53.15N-03.00E., 53.15N-04.15E., 51.25N-01.45E., (See Map 10).
- (14) Patrol NOON 3. Between 49.30N-05.00W and 49.50N-03.00W. (See Map 10)
- (15) Patrol BREST. Brest and Lorient.
- (16) Patrol CARP.
- (17) Patrol ROAM.
- (18) Patrol WANDER.

bombs, were carried out at irregular intervals, but usually when an attractive target was believed to be in the offing. If an attack was carried out by aircraft on the routine patrols, and the target was still available a follow-up attack was pressed home by a small strike force. Regular reconnaissance by the Photographic Reconnaissance Unit also provided targets for the strike force.

(ix) Methods of Attack

C.C.T.I. No. 8
d/a 9.5.40.

The methods of attack with bombs and torpedoes adopted by Coastal Command against enemy shipping at sea or at anchor, changed very little during the period under review, but varied according to the type of target.

In the case of destroyers, minesweepers, small naval units, transports and merchant ships, either the shallow dive or level bombing attack at medium or low altitudes was used, whereas against cruisers and capital ships a high level technique was employed.

All the enemy warships of 10,000 tons and over were fitted with at least $2\frac{1}{2}$ inch protective armour plate to cover vital points, and the 6,000 tons cruisers with correspondingly less armour. In order to obtain the desired penetrative effect with the weapons available, it was necessary for the height of release to be at the lowest altitude compatible with this requirement and the accuracy of bombing i.e. 8,000 feet if using the 250 lb. S.A.P., or 5,000 feet if the 500 lb. S.A.P. was carried.

C.C.T.I. No. 8
14.1.41

However, as the average bombing error from 8,000 feet was well over 100 yards, the chance of obtaining a direct hit with a single bomb was almost negligible. Since the bomb distribution of high level salvo bombing was roughly circular, it was advantageous to employ stick bombing and it was recommended that the stick be laid across the target at right angles.

In regard to the shallow dive or level attack, the choice of either of these types was left to the discretion of the pilot. A statistical survey of low altitude bombing carried out before the war, showed that the range error was usually double the line error; it followed, therefore, that when long narrow targets, such as ships or submarines were bombed from low altitudes with single bombs, the best chance of hitting was obtained if the attack was made along the length of the target.

If stick bombing was employed, it was recommended that the angle of approach to the fore and aft line of the target should be 30 degrees. If two aircraft were involved in the attack, the sticks should be laid from opposite sides of the target so that they crossed. It had been proved mathematically that the optimum spacing between the bombs in the stick was $1\frac{1}{2}$ to twice the width of the target.

Shallow dive and level bombing from medium and low altitudes did achieve greater accuracy than the high level technique. Average errors of five yards from 500 feet were produced by crews who had flown together for a long time and possessed a definite drill for each attack.

It is of interest to note that when the enemy had success against our ships, it was always with dive bombing attacks.

This type of attack had the advantage over medium and low level bombing of greater accuracy coupled with additional penetration.

It will be seen from the analysis of results to follow that the transition from medium level to low level took place soon after the "all in" offensive commenced in June, 1940, and throughout the remainder of the period under review the tendency was to come down lower in order to gain greater accuracy.

C.C./S.7001/6
Encl. 21A.

In regard to the methods of attack employed by the torpedo carrying aircraft, the tactics adopted were obtained as the result of technical trials carried out at the Torpedo Development Unit at Gosport, and from the operational experience of the two squadrons in the Command.

Not only had the squadrons to work out for themselves how best to drop torpedoes from a twin-engined aircraft like the Beaufort, but there was no practical experience whatever of dropping this weapon under active service conditions, on which to base the tactics to be employed.

The fitting of the Mark XIV torpedo with the war head to the Beaufort offered no difficulty, and it seemed capable of being dropped satisfactorily, but training with this type of torpedo presented a serious difficulty as both collision and practice heads had caused the torpedo to run badly.

However, in spite of these difficulties, trials and practices continued and eventually a method of attack was evolved. It was recommended that a low flying approach at an angle to the intended dropping course should be pursued, turning-in sufficiently far away from the target to permit a steady aim, releasing the torpedo from between 70 and 100 feet.

After releasing the torpedo, the aircraft either flew directly over the vessel, or turned gently away, preferably in the opposite direction to the ships course, thus opening the range as quickly as possible.

For moonlight attacks, the tactics recommended were for the aircraft to fly away "down moon" of the target for a few miles, turn and fly across the moon until a position for attack had been reached, then approach with the target silhouetted against the moon and deliver the attack.

It was very difficult, and indeed dangerous to attempt to fly a Beaufort near the water at night, except when an indication of height above the horizon and the target was readily obtainable by flying into the moon. Consequently, the run "down moon" was made at 200 to 500 feet, descending to 70 - 100 feet after turning "up moon".

These torpedo tactics were later embodied in a paper - "Notes on tactical employment - Bristol Beaufort I" which was prepared by the Air Ministry, primarily for the use of Overseas Commands.

(x) Weapons of Attack

C.C/S.15063
Encl. 3A

Among the variety of weapons with which Coastal Command aircraft were armed for attacks against enemy shipping, the

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250 lb. bomb was used in the majority of encounters during the period under review.

The destructive qualities of the variety of bombs available were by no means certain, and the fact that a ship of 4,000 tons or less received a direct hit by a 250 lb. bomb (or two hits in the case of larger vessels) did not necessarily mean that the ship would sink. Furthermore, it was considered by Coastal Command that no claim was justified in cases of a near miss⁽¹⁾. For example, if a 250 lb. bomb with an 11 second delay was used, and did not register a direct hit, it would probably do no harm at all, since it was about an even chance whether in deep water the bomb exploded at all, and even if it did, the explosion would not take place until it had reached a depth of some three hundred feet. In the depth of water in which enemy shipping was found around the Channel and Dutch coasts i.e. an average of 10 fathoms, the bomb, should it miss 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 applied equally well to S.A.P. bombs where the explosive charge was even less and the blast effect comparatively small.

C.C/S.7743/1
Encl. 1A

During the first seven months (i.e. June to December, 1940) of the period, a quarter of the bombs dropped in attacks against enemy shipping were of the 250 lb. G.P. type. A limited number of 250 lb. (10.5%) and 100 lb. (16.5%) A/S bombs were also used, and in addition a number of smaller types, such as the 20 lb. fragmentation and the 25 lb. incendiary were also included in the bomb loads, particularly those of the Fighter Blenheims.

C.C/S.7743/1
Encl. 4A

Increasing use was made of the 250 lb. G.P. bomb during the first and second quarters of 1941; during the latter period some 68 per cent of all bombs dropped against surface vessels were of this type, whereas only 12 per cent were of the 250 lb. A/S variety.

Although 500 lb. S.A.P. and A/S bombs had been used to a limited extent against enemy shipping during the latter part of 1940, it was not until the first quarter of 1941, that the 500 lb. G.P. featured in such attacks, and then only to the extent of some 3½% of the total dropped. This figure was doubled, however, during the second quarter of the year.

With the introduction of the low level attacks in August, 1940, a change had to be made in the fusing of the bombs in order that the aircraft would be well clear of the target at the time of the explosion. In the case of the 250 lb. G.P., for instance, the fusing was changed from instantaneous to that of an 11 seconds delay.

The tactics of swift approach and swift "get away" were carefully worked out and studied in order to reduce to a minimum the number of casualties almost inevitably sustained in attacks of so hazardous a nature.

(1) A near miss is a burst within 30 yards of the vessel.

(xi) An analysis of results

The statistics used in this section indicate the main trends throughout the period, i.e. June, 1940 to June, 1941, and their effect on the future anti-shipping policy. During the early days of the offensive, full data regarding the results of anti-shipping operations were not always obtainable. Consequently the majority of the reports did not give any indication of the ultimate fate of the vessel attacked beyond claiming a hit or a near miss. It was, therefore, impossible to calculate with any accuracy the amount of merchant shipping sunk and damaged by air attack. This state of affairs continued until July 1941 when the Air Ministry in consultation with the Admiralty and the Ministry of Economic Warfare decided to remedy the long felt want. Thereafter assessment figures for enemy shipping sunk and damaged became available through an Assessment Committee⁽¹⁾ set up within the Air Ministry to collect and collate reports and any other related evidence on the results of anti-shipping operations, and to make an assessment in the light of all the information available. The figures produced by this Committee were used by the Admiralty and other Government departments concerned for inclusion in the statistics required for planning.

C.C./S.15063
Encl. 4A

Lloyds Shipping
Records and
Admiralty N.I.D/
X.107/47 T.235.
T.235. A/46 and
German ship
owners Association records.

Since the end of hostilities, records concerning the enemy's merchant shipping casualties by war causes have become available through the Corporation of Lloyd's Shipping and the German records. From the examination of this material, it is apparent that the Assessment Committee figures were over estimated. This tendency is most pronounced in the "damaged" category. It can be largely accounted for by the fact that only tonnage which required the attention of a dockyard or any form of shore labour has been recorded by Lloyds as damaged. Any other degree of damage, repairable by the ships own crew and which did not entail withdrawal from service or delay in port, had not been classified under this heading.⁽²⁾

C.C./S.7743/1
Encl. 1A.

Appendices
A & B

For the first four months of the period under review the majority of bombing attacks carried out against enemy shipping at sea were made at medium level, but by October, 1940, the low level type of attack had become stabilised and continued as the most favourable form of attack for the remainder of the year.

Out of a total of 141 bombing attacks delivered during the period June to December, 1940, against enemy merchant tonnage, 106 were made in level flight and 35 in shallow dives.

Of the 106 level-flight attacks, hits or near misses were observed in 63 cases, and out of this total, nearly 50 per cent were carried out from between 500-1,000 feet, 19 percent from between 1,000 - 2,000 feet and 11 percent from below 500 feet. The remainder were delivered between 2,000 and 10,000 feet.

(1) At the first meeting of the Anti-shipping Operations Assessment Committee held on 31st July, 1941 it was arranged that the claims for sunk and damaged shipping by the operational commands concerned should be examined and assessed in accordance with certain standards and methods agreed to beforehand. Subsequent meetings considered the operations which had taken place during the preceding period.

(2) For enemy losses and damaged due to air attack, see Appendix XV

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Of the total number of bombing attacks carried out i.e. 141, there were 31 claims for hits and 47 as near misses.

It was outstandingly clear from these results that the lowest level attacks, i.e. those below 1,000 feet, were productive of the majority of the successes claimed, and that as soon as the height of release rose above 1,000 feet there was a pronounced falling-off in the hits obtained.

Although the results of the shallow dive attacks did not compare so favourably from the point of view of percentage of bombs obtaining hits, a far greater percentage of near misses was obtained by this method of attack. Having numbered some 25% of the total of attacks delivered, they were responsible for about $33\frac{1}{3}\%$ of the successes obtained.

C.C./S.7014
Encl. 30A

After examining the results of bombing attacks on enemy merchant shipping at the end of 1940, the A.O.C.-in-C., Coastal Command was not satisfied that the aircraft were coming down low enough. The Germans, more especially the Focke-Wulf, were attacking our merchant ships from about 500 - 700 feet, and obtaining a successful percentage of between 20 and 30 percent.

It was advanced in some quarters that to come down so low was taking grave risks, but the A.O.C.-in-C., did not agree; on the contrary, he considered that aircraft attacking low down altered their angle of flight so rapidly that very often they were much safer at these low altitudes than at 2,000 - 3,000 feet.

With the object, therefore, of increasing our hitting power against enemy merchant shipping the A.O.C.-in-C. directed the Group Commanders concerned with Anti-Shipping operations to examine the question of the height of bomb release, and to effect any improvements which might result in a greater percentage of success.

During the subsequent periods of this review a definite lowering of the height of release became evident.

C.C./S.7743/1
Encl. 4A.

Appendices
A & B

In some respects the results of bombing attacks against enemy merchant shipping at sea for the first quarter of 1941, were rather disappointing when compared with those of the previous period, and seemed to show a slight setback. In the first three months of this year, 70 attacks were made and 13 hits were claimed which gave a percentage of about 18. It was possible that the short days and poor weather may have accounted for this lower percentage of success.

The tendency that was noted at the end of 1940, for attacks to be made at lower levels was maintained; 51 of the 70 attacks were carried out at heights of 2,000 feet and below, and of this total, 32 were made at 1,000 feet or less.

During the second quarter of the year, the sharp increase in successes attained at low altitudes was not so clearly defined, although hits at the higher levels i.e. 2,000 feet and over were again conspicuous by their absence. Throughout this period 83 bombing attacks were made against enemy merchant shipping at sea and of this total no less than 31 were carried out at heights below 500 feet, 21 took place from between 500 - 1,000 feet and 12 from between 1,000 - 2,000 feet. The remainder were made at heights from 2,000 feet upwards.

C.C./S.7743/1
Encl. 1A
Appendix C.

In regard to torpedo attacks by the Beauforts, which did not commence until 11th September, 1940, some 55 attacks against enemy shipping were carried out up to the end of the year. The average range and height release of the torpedoes were 670 yards and 68 feet respectively. The percentage of success attained, expressed in terms of the number of torpedoes expended (67) and the number of hits claimed (10) was of the order of 14 per cent.

In the first quarter of the new year (1941), a marked improvement in the accuracy of attacks was shown over previous period, for during the three months, 19 torpedoes were expended and six hits claimed, giving a percentage of 31.5. This figure was not maintained during the second quarterly period however, in fact a slight setback was experienced with a percentage success of 28.5 obtained as the result of dropping 28 torpedoes and claiming only 8 hits.

C.C./S.15063
Encl. 14A.

For the first time in this war, assessment figures for enemy shipping losses became available as from March, 1941. In the light of the information before the examining committee, however, it was not possible on every occasion to confirm the claims which were made at the time of the attack; in consequence, the figures produced by the Assessment Committee proved rather disappointing *and these were themselves a gross overestimation. See footnotes (1) and (2).*

As already mentioned, the first month for which complete figures were available regarding tonnage lost was March, 1941, and they showed that for an expenditure of 11.5 tons of bombs and 11 torpedoes, five merchant ships of 16,000 tons and two minor naval units (tonnage unknown) were assessed as sunk(1). Of this tonnage, the torpedoes were credited with three merchant ships of 14,000 tons.

The assessment figures for the first complete quarter i.e. April-June, 1941, were even less encouraging. Out of a total expenditure of 41.9 tons of bombs and 28 torpedoes, only six merchant ships of 15,929 tons were assessed as sunk(2). There were no sinkings to record among the 17 minor naval units attacked. One merchant vessel of 2,100 tons was the full score for the torpedoes.

In regard to our own losses during this first period of the anti-shipping offensive, a total of 214 aircraft(3) of Coastal Command were lost during operations.

(xii) Conclusion

The anti-shipping offensive of Coastal Command which, by the time the change in Command was effected in June, 1941, had developed into a planned and co-ordinated attack on the enemy's sea communications, could not, by any stretch of the imagination, be said to have stopped the enemy's coastal traffic. Through the lack of a suitable striking force

*two ships totalling
8,581 tons were*

- (1) Of the 55 attacks made against enemy merchant shipping and minor naval units in harbour and at sea during March, 18 were carried out off the North German and Dutch coasts, 20 off the Danish and Norwegian coasts, 9 in the English Channel area and 6 in the Bay of Biscay. Two attacks against E-boats found off the East Coast convoy route were also made. From Post war casualty records, ~~only one ship of 5,072 tons was sunk by air attack in these areas. (S.S. Widal, and Wirma).~~
- (2) The total number of attacks made during this quarter was 120. Of these, 17 were carried out off the North German and Dutch coasts, 40 off the Norwegian and Danish coasts, 28 in the English channel area, 33 in the Bay of Biscay and two against E-boats off the East Coast. From Post war records only two ships of 2,221 tons can be credited as sunk by Coastal Command aircraft. (S.S. Hans Broge and f.v. Buffle).
- (3) For further details of aircraft casualties see Appendix XIV.

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the Germans were still running their convoys up and down the very extensive continental coastline with but little interference; on the other hand, our limited attacks, which had at this stage only attained a nuisance value, had compelled the enemy to provide not only increased escorts for his convoys but also a Fighter umbrella along certain sections of the route.

Although the attacks against enemy shipping did not produce any striking results in the way of tonnage sunk, it was considered that the damage inflicted by hits must have rendered a proportion of the enemy's merchant tonnage inoperative for some time while repairs were being effected, and this indirectly delayed the passage of materials so urgently required for increasing the enemy's war potential, (1)

Low level bombing tactics, first developed by Bomber Command, had proved to be the most profitable of any that had so far been tried throughout the period. From the results it was obvious that from the point of view of our own successes it would appear that the best chance lay in continued concentration on attacks, wherever possible, at heights of 1,000 feet or less. How long this would remain so was entirely dependant upon the development of the enemy's counter measures.

Thus it may be said, that during this first period the foundations of the anti-shipping offensive were well laid, and if sufficient aircraft were forthcoming to permit an extension of the existing plans, there was no doubt that irreparable damage could be inflicted on the enemy's sea communications in the long run.

(1) From Lloyds records, only three ^{merchant} ships of 2,948 tons were damaged from March to June 1941. ~~See Appendix XV. by Coastal Command.~~

CHAPTER VII

MOVEMENTS OF GERMAN MAJOR NAVAL UNITSOctober, 1940 - June, 1941(i) Admiral ~~xxx~~ Scheer, Admiral Hipper, Scharnhorst and Gneisenau(a) Introduction

It can be seen from the latter part of section (iii) Chapter V that the Anti-Invasion patrols carried out by Coastal Command in the North Sea gradually reverted to the general coverage maintained before the Norwegian and French campaigns had commenced.

As the shortening days and winter weather conditions made invasion less and less likely, the standard reconnaissance aimed at obtaining information of any movements of enemy shipping and naval units along their coastlines. This of course included the possible break out of commerce raiders. Conditions were, however, much less favourable for such reconnaissance. The institution of enemy fighter patrols along the Norwegian coast made daily routine searches impracticable, indeed it was only when cloud cover conditions were suitable that any reconnaissance sweeps could be undertaken within 50 miles of the coast. Foul weather and long nights made this watch still less effective.

It is not surprising, therefore, when the enemy decided to employ his surface major naval units in commerce raiding in the Atlantic, that he was able to pass them out and back with impunity, from air location. During the period October, 1940 to March, 1941, two battle cruisers, one pocket battleship, and a heavy cruiser proceeded out of the North Sea and returned or entered Brest without being observed. The individual cruises are described together with the account of the failure to intercept.

(b) "Admiral ~~xxx~~ Scheer", Break out 27th Oct. - 1st Nov. 1940

The first of the major naval units to break out during the period was the pocket battleship Admiral ~~xxx~~ Scheer. Leaving her base in the Baltic in October, 1940, the ~~xxx~~ Scheer passed through the North Sea into the Atlantic entirely unobserved, the first information of her break out coming when she attacked the east-bound convoy HX84 on 5th November. During this action the principal escort vessel, the armed merchant cruiser Jervis Bay, was sunk. Between 5th November and 23rd February, when she commenced her homeward voyage, the ~~xxx~~ Scheer sank 19 merchant ships, and sent a further two as prizes into French ports; the aggregate tonnage of these vessels was 160,000 tons.

HQCC.
Naval Staff
Log

Admty.
NID24/X95/46

Admty.
NID24/X95/46

The ~~xxx~~ Scheer left Gotenhafen for Kiel on 23rd October, whence she passed through the Kiel canal and anchored at Brunsbittel, the Elbe terminus of the canal, early on 26th October. It was originally intended that she should leave on the same day for Stavanger, but her sailing was delayed for 24 hours, as the Germans suspected that the enemy had received information of her departure. In point of fact the movement of a major unit out of the North Sea was not suspected, though it is possible that this delay in sailing

enabled the ~~W/T~~ Scheer to escape detection. The usual Admiralty Operational Intelligence sources of information on shipping movements on the Norwegian coast, gave no indication of the intended passage of the ~~W/T~~ Scheer. On 20th October, it was reported that W/T traffic was consistent with a movement of shipping from the Skagerrak to Stavanger and/or Bergen, and a request was made for a reconnaissance of the area Elbe - Horns Reef - Lister Light. On 23rd October it was reported that there were indications of a considerable movement of shipping from Norway to the Skagerrak, and it was further considered possible that there might be a major naval unit at Trondheim. Two Hudsons from Wick did a reconnaissance flight of the coast from Stavanger to Trondheim including Trondheim harbour, but only merchant shipping was seen. On 24th October, the Admiralty Operational Intelligence Division reported that W/T traffic which had died down on 23rd October had sprung up again, and requested a further reconnaissance of Trondheim and, if possible, of the coast down to Bergen. A Blenheim of No. 248 squadron was sent from Sumburgh, but could not complete the reconnaissance owing to the lack of cloud cover. On 26th October, Intelligence reported that a merchant vessel full of important stores had left Oslo for Narvik the previous afternoon; an anti-shipping sweep was flown accordingly by aircraft of No. 42 Squadron between Sogne Fiord and Stavanger, but apart from these instances the Admiralty had no indications of any major movement of shipping.

The only possible indications that some unusual movement was to take place were the bombing of Wick aerodrome, where aircraft flying the S.A.1.(A) patrols were based - on the night of 26/27th Oct., and the expected passage of a German meteorological aircraft through the Fair Isle Channel on the morning of 27th October. Enemy meteorological aircraft flew out into the Atlantic fairly regularly to report on weather conditions, but were usually on a more northerly course, the implication being that they intended to observe any movements of the Fleet at Scapa while on passage. As neither event in itself was particularly significant, and as this was the first occasion of a breakout, the full inferences were not drawn from these incidents.

At this time the daily patrols flown over the North Sea were still primarily intended as anti-invasion rather than as anti-shipping measures, although some alterations had been made at the beginning of October to widen the functions of some of the patrols. The parallel track patrols S.A.1(A) S.A.2, S.A.3 and S.A.4.(a) were flown with the intention of observing any mass movement of shipping towards the English coast, rather than as a check on the movement of single ships. (Details of these patrols are given in subsection (q) of Chapter V section (i) and in Map IX). On 2nd October, two patrols, one from 59°N, that is parallel with Stavanger, to Lister Light, and the second from Lister Light to Horns Reef, were instituted; these were to be flown on alternate mornings in place of the southern tracks of S.A.2, and patrol S.A.3 respectively. Aircraft based at Leuchars were to fly the Stavanger - Lister Light patrol on odd dates in the month, and aircraft based at Thornaby were to fly Lister Light - Horns Reef Patrol on even dates. The tracks of patrol S.A.1.(e) were at the same time extended to the Norwegian coast to give some reconnaissance cover of the area between Romsdals Fjord and Stavanger. This cover was not, however, in any measure complete or adequate as aircraft had instructions not to approach the coast unless there was ample cloud cover.

HQCC.
Naval Staff
Log

Ibid

No.18
Grp. ORB Oct.
Appendices

HQCC.
Naval Staff
Log

No.18
Grp. ORB.

No.18
Grp. ORB Oct.
Appendices

Form Green
CG/G2/2/10

No.18 Grp.
ORB Oct.
Appendices

Ibid
RO/G9/2/10

Between the time the ~~U-30~~ Scheer arrived at Kiel for her passage through the canal, and during the time she was at Brunsbittel, until her departure on 27th October, there was no reconnaissance of the Kiel or Elbe areas; no attacks were made by Bomber or Coastal Command aircraft, except for the laying of two mines off the Elbe and one in Kiel harbour on the night 25/26th October, by Hampdens of Bomber Command, and in consequence the fact that she had left the Baltic escaped detection.

27th October

Nos. 16 and 18
Grp. O.R.B.
Oct. Appen-
dices

The ~~U-30~~ Scheer put out into the North Sea at 1110 hours on 27th October, and headed northwards for Stavanger. Being an odd date the morning patrols flown were S.A.1(e), the northern tracks of S.A.2, the patrol from Stavanger to Lister Light and S.A.4. In addition to this a photographic reconnaissance was flown over Sogne Fjord and Stavanger harbour. Had the ~~U-30~~ Scheer adhered to her original sailing time it is conceivable that this aircraft would have seen her in Stavanger Fjord.

Map. XII Track
Chart of
~~U-30~~ Scheer

On gaining the North Sea the ~~U-30~~ Scheer steered a course of 280° until crossing the meridian of 7°E where she altered course to 315°, reaching the meridian of 5°E on a level with Horns Reef at approximately 2030 hours. From there she steered due north. Of the afternoon patrols covering the southern part of the North Sea, S.A.4(a) only extended as far as the meridian of 5°E which was not sufficiently far to the east to come within sighting distance of the ~~U-30~~ Scheer. (There was no patrol covering the Danish and North German coasts south of Horns Reef the extent of the S.A.4 patrols being sufficient for anti-invasion purposes). Her course did, however, come within sighting distance of all four tracks of patrol S.A.3 but she did not reach these patrol areas until after sunset, being within sighting distance of track Z of S.A.3 at approximately 1700 hours. Hudson T/220, flying tracks Y and Z on that afternoon, had taken off at 1147 hours making sightings up to 6°E in excellent visibility. The aircraft landed at 1520 having turned for base at approximately 1350 hours, some three hours before the ~~U-30~~ Scheer reached the area. There were no night patrols so the ~~U-30~~ Scheer was able to proceed safely up the North Sea under cover of darkness.

28th October

By 0700 hours the ~~U-30~~ Scheer had passed Jaederens Point and had altered course in a north easterly direction heading for the entrance to Stavanger Fjord. She anchored at Stavanger at 0930 hours.

NID24/95/46

No. 18 Grp.
ORB Oct.
Appendices

Being an even date, the morning offensive patrol was flown from Thornaby covering the area Lister Light to Horns Reef. The Northern tracks of S.A.2 and patrol S.A.1(e) were flown as usual during the morning. Five Blenheims of No. 21 Squadron, flew patrol S.A.2 reaching the extremity of the patrol approximately between 0930 and 0950 hours, too late for even the aircraft on track J (the most northerly) to see the ~~U-30~~ Scheer. Of the aircraft on patrol S.A.1(e), the only one within possible sighting distance of the ~~U-30~~ Scheer's track was Q/248 on the most southerly of the tracks. This aircraft took off from Sumburgh at 0912 hours and completed the patrol reporting visibility of from 15 to 20 miles.

No. 248 Squadron
ORB Form 541

The extremity of the patrol would have been reached between 1025 and 1040 hours, again too late to have seen the ~~USS~~ Scheer.

The ~~USS~~ Scheer weighed anchor at 1135 hours, and on re-entering the North Sea steered a course of 318°, and then due north on the meridian of 4°20'E. At 1600 hours her approximate position was 60°N x 4°20'E. By the time she left Stavanger the morning patrols were over. Patrol S.A.1(a) was flown from Wick during the afternoon as the ~~USS~~ Scheer sailed northwards, but the aircraft flew the normal patrol turning on the meridian of 3°E, too far to the west to see her in spite of the good visibility. The previous day the patrol had been extended to the east to look for a lost aircraft, but had reverted to normal procedure again. The take off of the aircraft was arranged so that they reached the extremity of the patrol together between 1700 and 1715 hours. E/269 on tracks A and B was well to the north of the ~~USS~~ Scheer and A/269 on tracks G and H well to the south; of the two aircraft on the middle tracks C/269 on tracks C and D did not complete the patrol owing to a faulty W/T receiver, and Z/269 on tracks E and F gave a nil report, the ~~USS~~ Scheer being some 40 miles to the east of these tracks was beyond sighting distance. The only sighting made during the patrol was of an enemy aircraft by A/269. There were no further patrols.

29th and 30th October

By 0930 hours on 29th October the ~~USS~~ Scheer was parallel with Trondheim proceeding northwards in good weather and visibility, and beyond the range of standard patrols. No particular reconnaissance of Trondheim or further north on the Norwegian coast was flown as there had been no indication of shipping movements. At noon she altered course to 310° and continued on this course until noon of 30th October by which time she was midway between Jan Mayen Island and Langønes (N.E. Iceland), she then altered course to 250° heading for the Denmark Straits. The weather deteriorated throughout the day and the wind reached hurricane force by 2040 hours.

31st October

The hurricane continued throughout 31st October with only slight improvement. The ~~USS~~ Scheer continued on a course of 250° until approaching the Denmark Straits where at noon, when approximately 67°N she altered course to 225°, keeping midway between Greenland and Iceland.⁽¹⁾ The only aircraft based in Iceland at the time were part of No.98 Squadron stationed at Kaldadarnes and a flight of Fleet Air Arm Walrus aircraft at Reykjavik. The winter complement of No.98 Squadron was six aircrews, nine Battle aircraft, and maintenance staff, based in Iceland for Army co-operation duties in case of an attempted German invasion of the island. There was no system of patrols over the Denmark Straits, flying having been confined to the south and east coasts, up to and including the time of the passage of the ~~USS~~ Scheer.⁽²⁾

(1) This course was possible in October as during this month the pack-ice off the East coast of Greenland had normally receded to the furthest extent that it reached during the year.

(2) No.98 Squadron was under the administration of Coastal Command but under the operational control of the G.O.C. Iceland. Their duties as defined in the Air Ministry Instruction to the Squadron, dated 16th July, 1940 were:-

- (a) Coastal reconnaissance to give timely warning of the approach of invading forces;
- (b) Bombing of invading forces; and
- (c) Reconnaissance for the land forces.

It was further stated that the Squadron should "co-operate in reconnaissance with No.701 Squadron but that they "should not undertake seaward reconnaissance beyond the general perimeter of the island, including bays and inlets in the coast (IHK/36/40 Encl.22)

No.18 Grp.
ORB Oct.
Appendices

No.269 Squad-
ron ORB
Form 541

Admty.
NID24/295/46

Admty.
NID24/X95/46

No.98 Squadron
ORB

1st November

The ~~USS~~ Scheer passed through the southern part of the Denmark Straits, opposite Reykjavik, in darkness. She continued on her south westerly course reporting heavy seas and overcast sky. At noon she was in the North Atlantic east of Greenland, and altered course to 175°, heading south for the convoy routes having accomplished her outward voyage unobserved.

(c) Attempts to locate the ~~USS~~ Scheer
6th - 14th November, 1940

See also
Chap. VIII (xi)
Footnote (1)
(Page 289)

Form Green
CC/G.1/6/11

No.98 Squadron O.R.B.
Form 540

Following the attack on HX84 on 5th November, it was thought that the ~~USS~~ Scheer might attempt to return to her base through the North Sea, or that she might, alternatively, make for a French port; patrols to try to intercept her were planned accordingly. On 6th November four Hudson aircraft with A.S.V. equipment were sent from Thornaby to St. Eval for operations to cover the approaches to the French ports. On the same day a signal was sent to No.98 Squadron in Iceland requesting that patrols should be flown over the Denmark Straits commencing the following day.

No.18 Grp. O.R.B.
Nov. Appendices

On 7th November, two Battle aircraft flew patrols over the Denmark Straits(1), one Sunderland flew a patrol covering the area north of the Faeroes(2), a second Sunderland a patrol covering the area between the Faeroes and the Shetlands(3), and a third Sunderland a patrol in the Bay of Biscay covering the approaches to the French ports(4).

No.15 Grp. O.R.B.
Nov. Appendices

No.98 Squadron O.R.B.

On 8th November, the Battle aircraft again patrolled the Denmark Straits. A Sunderland crossover patrol between the Faeroes and Iceland was flown, and a parallel track search was flown by Hudsons from the Butt of Lewis north westerly(5) to cover the area between the Faeroes and north Scotland. The Bay of Biscay patrol was flown by a Hudson from St. Eval. Patrol S.A.1(a) was extended to the Norwegian coast to observe any shipping movements in these waters.

No.18 Grp. O.R.B.
Nov. Appendices

No.15 Grp. O.R.B.
Nov. Appendices

No.18 Grp. O.R.B.
Nov. Appendices

Nos.15 and 18 Grp.
O.R.B. Nov.
Appendices

On 9th November, all patrols were cancelled because of bad weather with the exception of the Sunderland patrol between the Faeroes and Iceland. On 10th November, the parallel track searches were continued, also the patrols in the Bay of Biscay and over the Denmark Straits. The same patrols were flown on 11th November, after which No.98 Squadron and No.18 Group aircraft discontinued special patrols. The Bay of Biscay patrol was flown on 12th, 13th and 14th November, and then discontinued.

-
- (1) The patrols were carried out in accordance with Coastal Command signal "carry out sweep at dawn 7th November in area between 63° and 66° N. 24° and 30° west sweeping from north to south". (No.98 Squadron O.R.B.)
 - (2) Crossover patrol from 62° 50' N x 7° W. to 64° 40' N x 9° W.
 - (3) Patrol between points 63° 00' N 7° 00' W (Form Green
62° 42' N 4° 00' W CC/G3/6/11)
61° 52' N 4° 00' W
62° 50' N 7° 00' W
 - (4) Crossover patrol between points:-
48° 00' N 10° 30' W (Form Green
45° 00' N 9° 30' W CC/G5/6/11)
45° 00' N 10° 30' W
48° 00' N 9° 30' W
 - (5) "Parallel track search to be carried out by three Hudsons leaving following datums at earliest daylight. 210° Butt of Lewis 30' - Butt of Lewis - 030° Butt of Lewis 30' to depth of 360 miles on tracks 300°. Thence by track of 85° to 10°W thence to base". (Form Green CC/G3/6/11).

No.15 Grp.
O.R.B.
Nov.
Appendices

A. H. B.
File IIK/36/40
Encl. 46

In view of the urgency of the situation the request for patrols over the Denmark Straits had been sent direct to No.98 Squadron by Coastal Command and not through the G.O.C. Iceland. A protest about this action was made by the G.O.C. Iceland to the War Office, and as a result the instructions to No.98 Squadron were reviewed. The position of the squadron was discussed at an Admiralty Staff Meeting on 8th November, and the Vice Chief of Naval Staff stated that if aircraft were available in Iceland they must be used for overseas reconnaissance, and gave instructions for the matter to be brought up with the Air Ministry. On 11th November the Deputy Chief of Air Staff agreed to an addition to the Air Ministry instruction to No.98 Squadron authorising overseas reconnaissance(1) on special request, thus ensuring some future measure of cover for the Denmark Straits.

(d) Admiral ~~Wm~~ Scheer Break back, 25th March - 1st April, 1941

The break back into the North Sea of the ~~Wm~~ Scheer was as successful as had been her break out in October, 1940. Advantage was taken of bad weather, and of the cover of darkness for the passage of areas where daily patrols were flown, so that she was able to return to Kiel unobserved. Her passage was immediately preceded by that of the Hipper, which had accomplished the journey with equal success, and without arousing any suspicion or causing additional watchfulness that might have prejudiced the safety of the ~~Wm~~ Scheer.

There had been no particular indications from Intelligence of the passage of any major naval units down the Norwegian Coast or into the Skagerrak, and considerable attention was focussed on the attempt to discover the whereabouts of the battle cruisers Scharnhorst and Gneisenau, which had been seen heading for the French coast on 21st March, but which were not finally located in Brest until 28th March. Furthermore, on 25th March a large merchant vessel in position 5° N.25°W signalled that she had been shelled by a raider, and it was considered possible that this might be the ~~Wm~~ Scheer; she had vanished into the South Atlantic after the attack on HX84 and thence to the Indian Ocean, and there had been no recent intimation of her movements. In point of fact on 25th March, she was off Southern Greenland heading for home, and on 1st April, she anchored at Kiel. Her route back was similar to that on her outward journey except that she passed through the Skagerrak and Kattegat instead of the Kiel Canal.

25th-26th March

At the time of the return journey Battles of No.98 Squadron were still the only aircraft based in Iceland. It had been planned to replace them by Coastal Command Squadrons, but No.204 Squadron (Sunderlands) and No.269 Squadron (Hudsons) did not arrive until April. Nevertheless the Germans considered that a passage through the Denmark Straits in clear weather was hazardous, as pack ice would force them fairly

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(1) Air Ministry Signal X675 of 11th November gave the following addition to No.98 Squadrons Instructions:-

"In exceptional circumstances, however, it may be necessary to call on 98 Squadron to undertake overseas reconnaissance for enemy surface forces. Requests for such reconnaissance will invariably be made through G.O.C. Iceland".

close to the coast of Iceland thus increasing the risk of detection. On 25th March, the ~~USS~~ Scheer was east of southern tip of Greenland. During the day and night she cruised slowly northwards parallel with the east coast on a course of 020°, in fine weather and good visibility. By noon on 26th March she was approximately 64°N with clear weather persisting, and in consequence adopted a zigzag course to wait for a change in the weather before attempting passage through the Straits; she finally steered a north easterly course of 045°. The only operation undertaken by No.98 Squadron on 26th March, was a flight to take photographs of the area between Selfoss and Kaldadarnes.

27th March

No.98
Squadron O.R.B.
Form 540

The ~~USS~~ Scheer continued on a course of 045° during the morning. The weather had deteriorated in the night and snow blizzards and bad visibility were reported in her log. At noon she was in the approximate position 65°20'N x 32°30'W crossing the entrance of the Straits on a course of 090°. By this time the weather was clearing giving a visibility of 13½ n.m. At 1800 hours she altered course to 050° skirting the pack ice; she did not encounter any floating ice in the Straits. No.98 Squadron reported the weather in Iceland as being overcast with snow showers in the afternoon; there was no flying.

28th and 29th March

At 0200 hours on 28th March, the ~~USS~~ Scheer passed North Cape and out of the Denmark Straits. In the forenoon the wind freshened to gale force, the sky becoming overcast and hazy. At noon she altered course to 090° and at 1800 hours to 110° keeping well to the north of patrolled areas. She crossed the Greenwich Meridian at 0630 hours on 29th March, and altered course to 160°; the wind had abated but the weather was cloudy. At noon she was in position 65° 55'N. 01° 50'E, the weather was overcast and snow was falling; she continued on the same course throughout the day.

30th March

At 0001 hours on 30th March the ~~USS~~ Scheer altered course to 155° heading south east towards the Norwegian coast. She continued on the same course until noon by which time she was in position 61°N and 4°E.

The standard patrols at the time of the break back into the North Sea had been altered considerably from those flown at the time of the outward journey of the ~~USS~~ Scheer. In addition to the North Sea patrols the "R" and "Fugle" patrols were flown in the area Iceland - Faeroes - Shetlands, as it was considered that any raiders breaking back into the North Sea would come south of Iceland, rather than risk the ice in a passage through the Denmark Straits. All these patrols were well to the west of the Greenwich Meridian, and, as the ~~USS~~ Scheer took the route north of Iceland and came south to the east of the meridian, did not constitute any danger to her.

In the case of the North Sea patrols, SA1(a) and SA1(e) had been replaced by patrols flown down the Norwegian coast, (1) as near to the coast as cloud cover permitted; these patrols were designed to observe shipping movements rather than as anti-invasion measures. It had originally been laid down that of these patrols Trost and Sleeve were to be flown when weather conditions permitted, Bert, Stab, Stand, Hornli, SA2 and SA3 three times in six days. By March the number of times each patrol was flown had become more elastic, and in the first three weeks of the month some of the Norwegian coast patrols were flown more frequently, and SA2 and SA3 were flown less frequently. (2) The times at which patrols were flown varied from day to day, and were arranged in the light of intelligence on possible shipping movements. On one occasion during March, "Bert" was flown in moonlight but normally patrols were by day only.

CC/G1/30/11

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ORB March
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ORB March
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At 0230 hours on 30th March, a request was received at Coastal Command from the C.-in-C. Home Fleet that patrol Fugle II should be flown, as Admiralty Intelligence had had a D/F of a surface vessel which it was considered might be the ~~the~~ Scheer breaking through south of Iceland. This was however not the case as the position was too far to the west to have been the ~~the~~ Scheer. Sunderland II/204 took off from Sullom Voe at 0600 hours on patrol and No. 18 Group had requested that a second aircraft should be held in readiness to take over, or to shadow the raider is located. The aircraft was, however, forced to turn for base at 0802 hours owing to weather conditions, and no further patrol was sent out. No Norwegian coast patrols were scheduled for the day on account of the weather, and patrol Hornli ordered for the morning was cancelled. The weather in the log of the ~~the~~ Scheer was recorded as overcast with snow squalls. When crossing the parallel of 60°N. at approximately 1530 hours she altered course to 180° and headed due south until midnight.

31st March

At midnight she altered course to 100° going straight up the Skagerrak, and by noon she was in the Kattegat on a level with Goteberg. During the day the weather improved and the Norwegian coast patrols and Hornli were flown during the afternoon, too late to see the ~~the~~ Scheer. She anchored at Kiel at 0758 hours on 1st April, having accomplished her return voyage successfully owing to highly accurate weather forecasting, and with the added advantage that a passage north of Iceland was not considered likely as a return route.

- (1) See Subsections (r) and (s) of Section (i) Chapter V.
(2) Up to 23rd March when weather conditions were such that most of the patrols could not be flown

Stab	was flown	17	times
Trost	"	10	"
Bert	"	8	"
Stand	"	6	"
Hornli	"	4	"
Sleeve	"	1	"

Patrol SA3 was flown 8 times, and SA2 7 times, though weather conditions at Leuchars had made it necessary to cancel SA2 on four other occasions.

(e) Admiral Hipper, Voyage Kiel - Brest,
27th November - 27th December, 1940

The second of the major naval units to break out into the Atlantic was the 8" cruiser Admiral Hipper, whose passage was accomplished as successfully as that of the Admiral ~~Wern~~ Scheer five weeks earlier. The Hipper left the Elbe on 30th November, and passed out of the North Sea, through the Denmark Straits into the western Atlantic, entirely unobserved. No knowledge of her breakout came until as late as 25th December, when she had a short engagement with the cruiser Berwick; following this encounter the Hipper made for Brest arriving there on 27th December. Her presence in Brest was not confirmed until 4th January.

Admty.
NID/24/1128/47

The Hipper left Kiel at 1030 hours on 27th November, and proceeded through the Kiel Canal, arriving at Brunsbützel at 1730 hours on the same day. Instead of leaving the following day, as had been planned, her sailing was delayed until 30th November, because of adverse weather reports, and a hitch in re-fuelling arrangements.

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War Diary

Although she escaped detection, the circumstances of the passage of the Hipper were not so fortunate as those of the ~~Wern~~ Scheer; whereas no shipping movements northwards were suspected at the time of the passage of the ~~Wern~~ Scheer, on the day that the Hipper sailed Admiralty Intelligence reported that an enemy surface craft was expected to move northwards along the Norwegian coast. There had been no indications on previous days of any particular movements of shipping in this area, and none was suspected. The aircraft on photographic reconnaissance over Kiel on 28th November had encountered 10/10 cloud, and the absence of the Hipper from Kiel harbour was, therefore not noted. On 29th November a photographic reconnaissance sortie was flown over Bremerhaven, Wilhelmshaven, Brunsbützel and the Kiel canal, photographs were taken but nothing unusual was observed visually. On 30th November the Admiralty Intelligence report was sent to Coastal Command, with the request that appropriate patrols should be flown the following day. There was no information, however, as to what enemy unit or units were to move northwards, nor whence they would sail. On the same day the interpretation of the photographs, taken over Brunsbützel the previous day, were sent to Coastal Command; it was reported that a Scharnhorst type battle cruiser had newly arrived, and was moored alongside the north-west bank of the Kaiser Wilhelm canal. The significance of this report was over-looked at the time, and no connection was drawn between this and the Admiralty Intelligence report. Even when on the following day a second signal was sent by the Photographic Interpretation Unit, reporting that a closer examination of the photographs showed the enemy naval unit in Brunsbützel to be a Hipper class cruiser, the importance of the information was not appreciated and no special action or reconnaissance was made.

Signal
G1/528/1/12

Form Green
CC/G1/30/11

At the time of the passage of the Hipper the changeover in the standard North Sea patrols, from those in force on the outward journey of the ~~Wern~~ Scheer, to those in force at the time of her return journey, was being effected. From 1st December the Norwegian coast patrols Trost, Stab, Bert, Stand and Sleeve, were substituted for the SA.1 and S.16 patrols; patrols SA.2 and SA.3 were no longer flown daily.⁽¹⁾

(1) See Chapter V Section (i) Subsection (r) and Map X

SECRET

204

30th November

No. 18 Grp.
ORB Nov.
Appendices
and Admty.
NID24/
x128/47

No. 18 Group reported that the weather was cloudy with rain in the north and west but fine in the south and east. The Hipper left Brunsbützel at 1030 hours, her ultimate course on gaining the open sea being north north west. During the morning the Horns Reef - Lister Light patrol was flown, but aircraft on an offensive reconnaissance of the Norwegian coast returned early owing to lack of cloud cover. The other patrols scheduled for the morning, SA.1(e), SA.2 and SA.3 were cancelled. All patrols would have been too early to see the Hipper in passage. No sorties over the Heligoland Bight or Elbe Estuary were scheduled and the only patrol flown during the afternoon was SA.1(a).

1st December

Map XIII Track
Chart of Hipper

Admty.
NID/24/
x128/47

At 0001 hours the Hipper was in position 56°30' N. x 6°10'E. on a course of 333°. At 0630 hours, when in position 59°05' N. x 3°45' E, she altered course to 003°, and later to 073° to enter the Inner Leads of Norway. She passed Marstein at the entrance to Kors Fjord at 0844 hours, proceeded through the Vattlestrom to the Hjelte Fjord where she anchored south of Kalvanaes at 1120 hours.

Form Green
RO/G5/30/11

No. 18 Grp.
ORB. Dec. ~~3~~
Appendices

In view of the Admiralty Intelligence Report all the Norwegian coast patrols, with the exception of patrol Trost, were scheduled to take off at first light. Patrols Stand and Sleeve which crossed the track of the Hipper were both too late to see her; the aircraft on patrol Stand made a landfall at Tananger, (at the approaches to Stavanger Fjord) at 1029 hours. Two aircraft carried out patrol Bert; Q/236 Squadron made a landfall at 50°04' N. x 5°24' E at 1016 hours and turned northwards in bad visibility, too late to see the Hipper. The second aircraft J/269 Squadron made a landfall at 60°30' N x 4°48' E at 1020 hours, and turned southwards leaving the Norwegian coast at 1038 hours. The aircraft flew on the sea side of the islands at the time the Hipper was passing through the Vattlestrom and therefore did not see her. Patrol Stab was cancelled. In addition to these patrols, Hornli was flown, and a photographic reconnaissance made of Kristiansand and Stavanger. No further patrols were flown during the day.

Admty.
NID24/x128/47

The Hipper weighed anchor at 1700 hours leaving the Inner Leads through Hellisoy Fjord at 1825 hours. On gaining the open sea she set course on 291°, altering later to 330° and finally to 354°.

2nd December

Map XIII
Track chart
of Hipper

At 0001 hours the Hipper was in position 62°40' N x 2°30' E maintaining her course of 354°. At noon she was in position 67°50' N x 1°40' E continuing northwards to meet the tanker Adria.

Patrols to intercept the northbound surface craft were again flown; Stab and Stand were flown during the morning, and SA.2 and SA.3 at noon. In addition to these patrols, a reconnaissance of the Norwegian coast from Stadtlandet to 63°N, was flown by Blenheim X/248 Squadron. The aircraft took off at 0815 hours but was too late to see the Hipper.

Form Green
RO/G7/
1/12

Patrol Coldsnap⁽¹⁾ was also flown during the morning by a Sunderland P/201 Squadron; this patrol did not, however, come within sighting distance of the Hipper's track, being west of the Greenwich meridian.

Admty.
NID. 24/
X95/46

The Hipper continued northwards reporting the weather to be overcast with moderate visibility.

3rd - 4th December

Map XIII
Track chart
of Hipper

The Hipper met the tanker Adria and took on oil; she then cruised about the area awaiting a signal that the weather was suitable for a break out. At 0001 hours on 3rd December, she was in position 68°35'N x 20°25'W and at 0001 hours on 4th December in position 69°50'N x 4°E.

No. 18 Grp.
ORB. Dec.
Appendices

All patrols had been cancelled on 3rd December on account of the weather, the only flying undertaken over the Norwegian coast being a photographic reconnaissance of Bergen. Another photographic reconnaissance sortie from Bergen to Stadtlandet was made on 4th December, in addition to the standard Norwegian coast patrols. At 2030 hours on the same day the Admiralty informed Coastal Command that on 1st December "certain observers not conversant with naval matters" saw the largest warship they had ever seen, and several smaller warships, passing northwards through the Vattlestrom at 1100 hours. It was considered probable that since the ship was in the Inner Leads she intended to continue up the Norwegian coast to a more northerly port; patrols and reconnaissance were planned accordingly for the following day.

HQCC. Naval
Staff Log

5th December

Track chart
of Hipper
Map XIII

At 0001 hours the Hipper was in position 69°20'N x 2°15'W heading westwards slowly. At noon she was in position 69°20'N x 5°55'W, and at 1500 hours in position 69°12'N x 6°50'W. Having received the "all-clear" signal she proceeded westwards on a course of 269° for the rest of the day, reporting a moderate wind and slight sea.

Admty.
NID. 24/X95/46

No. 18 Grp.
ORB Dec.
Appendices

In the light of the information from the Admiralty the previous day Sunderland Y/201 Squadron was ordered to take off at 0300 hours to carry out a reconnaissance of Narvik waters, but at 0631 hours when in position 65°N x 6°E the aircraft was forced by bad weather to turn for base. This reconnaissance was undertaken in place of patrol Trost which had been scheduled for the morning. Patrols Stab and Bert were flown.

6th December

Track chart
of Hipper
Map XIII

At 0001 hours the Hipper was in position 69°10'N x 14°45'W maintaining her course of 269°. At 1000 hours, when in position 69°07'N x 20°30'W, she altered course to 226° heading for the Denmark Straits, and at noon, in position 68°35'N x 22°00'W adopted a zig-zag course skirting the

- (1) Patrol Coldsnap was a crossover patrol between the following points:-

66°N x 6°W
66°N x 3°W
64°N x 1°W
64°N x 4°W

This Patrol was designed to observe shipping in passage; it was to be flown in daylight, and extended to night time during the moonlit period.

No. 98 Squadron
ORB Form 540

No. 18 Grp. ORB
Dec. Appendices

pack ice. Continuous ice mist was reported in her log. At 2000 hours when in the Denmark Straits she set course on 234°, and at 2230 hours on 263°, in good visibility and bright moonlight. No flying had been undertaken by No. 98 Squadron in Iceland during the day, the weather had been reported as being fine with cloud increasing during the afternoon. All attempts to search for the Hipper in Norwegian waters had been cancelled because of rain.

7th December

Admty. NID. 24/
X95/46

At 0001 hours when in position 66°35'N x 28°25'W the Hipper altered course to 227°, and continued south westerly until 1145 hours when, having completed her passage of the Denmark Straits, she turned southwards on a course of 180°. The ice mist was clearing and at noon she reported signs of the approach of a westerly storm; she continued southwards.

No. 98 Squadron
ORB Form 540

No. 18 Grp. ORB.
Dec. Appendices

The weather in Iceland was fair with unlimited visibility, but as the enemy naval unit was believed to be in Norwegian waters no patrols over the Denmark Straits had been scheduled; no operational flights were made by No. 98 Squadron during the day. A Sunderland from Sullom Voe was ordered to make a reconnaissance of Narvik waters, and a second Sunderland a patrol to the east coast of Iceland in case the enemy vessel should attempt to break through the Faeroes - Iceland channel: neither aircraft was able to take off as a gale had blown the flare path dinghies ashore. The lower half of patrol Trost was flown from Sumburgh.

The Hipper continued southwards reporting a rising wind.

8th December

Admty. NID. 24/
X95/46

In the early hours of 8th December, the Hipper reported that the wind had reached hurricane force. The hurricane continued throughout the day with the peak at noon. In Iceland the weather was overcast, the wind reaching gale force: only local flying was undertaken by No. 98 Squadron. Owing to storms, no reconnaissance of the Narvik area could be flown.

9th December

No. 18 Grp. ORB
Dec. Appendices

The hurricane blew itself out after 38 hours, but the Hipper still encountered bad squalls and heavy snow. At 0001 hours, when in position 58°25'N x 36°00'W, she altered course to 207° and again later to 186°. At 1900 hours she was in position 55°00'N x 36°30'W approaching what the Germans estimated to be the HX convoy route. No operational flying had been carried out by No. 98 Squadron owing to cloud and wintry showers, and only the standard North Sea patrols could be flown; the reconnaissance of Narvik was again cancelled.

10th - 24th December

No. 18 Grp. ORB
Dec. Appendices

On 10th December a reconnaissance of Narvik waters was successfully flown by a Sunderland from Sullom Voe, no major naval units were observed. The Hipper at 0001 hours was in position 53°40'N x 36°50'W, cruising thence in a south easterly direction until reaching position 47°30'N x 28°45'W at 0001 hours on 12th December. From there she cruised to and fro searching for the H.X. convoy route; the German estimate of the location of the H.X. shipping lane was slightly to the south of route in use, but the Hipper's search took her even

Map. XIII Track
Chart of Hipper

HQCC Naval Staff
Log

further southwards, to the area between the H.X. and S.L. convoy routes, where no shipping was encountered. On 22nd December she went as far east as the meridian of 19°40'W, and then turned westwards again. At 0001 hours on 24th December, when in position 45°30'N x 29°40'W, she altered course easterly. At that time the C-in-C., Home Fleet was of the opinion that some raider movement was to be expected in the North; a German reconnaissance to the east of Jan Mayen Island on 24th December tended to confirm the opinion.

25th December

Admty. NID24/
X128/47

At 0622 hours the Hipper was sighted in position 44°06'N x 25°20'W (close to the S.L. convoy route) by the cruiser Berwick, and two destroyers. A short engagement followed, but, the Berwick having scored one hit by the funnel, the Hipper broke away and was out of sight to westwards by 0956 hours. Shortly after this encounter the Hipper sighted the British merchant ship Jumna of 6,078 tons, and opened fire, sinking her at 1049 hours. At noon, when in position 46°30'N x 24°45'W, she altered course to 081°, and continued on the same course throughout the rest of the day, heading for Brest.

HQCC Naval Staff
Log

Form Green
PL/G3/25/12

No.15 Grp. ORB
Dec. Appendices

Two theories were put forward in the Admiralty when the report of the engagement was received from the Berwick; either that there had been a leak of information about convoy routes, or that the Germans were about to attack the Azores or feared a British attack. In case additional forces left French ports to join the raider, a Blenheim sweep, to be flown within sight of the coast, from Brest to St. Nazaire was ordered. Two aircraft H/236 Squadron and S/235 Squadron carried out the sweep during the afternoon, no shipping movements were observed. In addition to this, two patrols were ordered to shadow and report on enemy warships. A Hudson M/220 Squadron carried out a sweep to the west of Brest covering the approaches to the harbour(1) and a V-shaped Sunderland patrol(2) in the Bay of Biscay was scheduled to cover the approaches to the more southerly ports. As the weather was closing down at base K/10 Squadron was unable to complete the second patrol. The Hipper continued eastwards.

26th December

Track Chart of
Hipper Map XIII

The Hipper was in position 47°10'N x 19°20'W at 0001 hours and set course on 085°. At 0930 hours she altered course south easterly to 113°, and at noon, when in position 46°55'N x 15°45'W, to 144° heading southwards in order to approach the French coast in the south of the Bay of Biscay. At 1545 hours she adopted a course of 090° which she maintained for the rest of the day.

From the position and course of the Hipper at the time of the encounter with the Berwick, it was considered equally possible that she might either attempt to break back into the North Sea, or head for the French coast, patrols being planned accordingly. A Sunderland search covering(3) the

- (1) The aircraft was to carry out patrol from St. Eval to 47°00'N x 8°40'W to 46°30'N x 6°40'W to base. (Form Green PL/G2/25/12)
- (2) The Sunderland was to patrol from base
 - to 47°25'N x 8°30'W
 - to 45°20'N x 5°50'W
 - to 47°10'N x 9°05'W
 - to base
- (3) The aircraft was to fly from base to 64°35'N x 13°00'W and back on approach track.

No. 15 Grp. ORB
Dec. Appendices

channels between the Shetlands, Faeroes and Iceland was flown from Sullom Voe, and a Hudson Patrol, similar to that flown on the previous day to cover the approaches to Brest, from St. Eval. Hudson G/220 Squadron took off from St. Eval at 1316 hours. At 1545 hours No. 15 Group signalled that H.M.S. Kenya had reported an enemy battleship in position $47^{\circ}13' \times 11^{\circ}13'W$. The signal was repeated to the Hudson but the aircraft had not sufficient endurance to reach the position. A second Hudson M/220 Squadron was diverted from "Moon 3" patrol at 1646 hours to search for the enemy unit; the aircraft was recalled to base at 1819 hours when it was discovered that the message from the Kenya should have read "enemy aircraft sighted". A photographic reconnaissance sortie over Brest during the afternoon had found 10/10 cloud.

27th December

Track Chart of
Hipper Map XIII

The Hipper changed course from 090° to 097° at 0001 hours when in position $45^{\circ}35'N \times 10^{\circ}30'W$. At 0645 hours, when in the Bay of Biscay on a level with Bordeaux, she altered course to 065° , and, when crossing the meridian of $4^{\circ}30'W$ at 0945 hours, to 007° . By 1230 hours she was on a level with La Rochelle, and altered course again to 342° .

No. 18 Grp. ORB
Dec. Appendices

No. 15 Grp. ORB
Dec. Appendices

Track Chart of
Hipper Map XIII

No. 15 Grp. ORB
Dec. Appendices

Admty. NID24/
X128/47

Patrols were again flown in the north to intercept the Hipper if she attempted passage between the Shetlands and Iceland. Sunderlands Y/201 Squadron and E/204 Squadron took off at 0740 hours on a creeping line search⁽¹⁾. In the south two photographic reconnaissance sorties over Brest, and the Hudson patrol covering the approaches to the harbour, were flown in the afternoon. The Spitfire on the first reconnaissance sortie found 10/10 cloud over the area at 1300 hours. The aircraft on the second sortie reported clear sky over the harbour at 1530 hours, but hazy visibility and 10/10 cloud to the south. The Hipper at that time was heading for the entrance to the Goulet de Brest, having changed to a north easterly course at 1500 hours, when in position $47^{\circ}50'N \times 5^{\circ}00'W$, on a level with Raz Point, but was not within sighting distance of the aircraft. Hudson G/220 Squadron took off at 1300 hours on the same approaches patrol as had been flown on the previous two days. This patrol was designed to intercept shipping approaching Brest from the west or south west, but was too far out from the coast to be within sighting distance of the Hipper's track up from the south. No further patrols were flown.

The Hipper made fast to a buoy in Brest harbour at 1800 hours having completed her break-in unobserved in spite of patrols. By virtue of the fact that it was not possible to maintain a patrol near the French coast in daylight because of fighter opposition, and that it was not anticipated that she would approach Brest from such an angle the Hipper was able to use the route up from the south with impunity on this occasion, as subsequently after her commerce raid.

(1) Creeping Line Search was to be flown by two Sunderlands covering the area between the parallels $64^{\circ}00'N \times 65^{\circ}40'N$ and the meridians of $3^{\circ}W$ and $4^{\circ}E$. One aircraft was to cover the area to the north of the parallel $65^{\circ}N$ and the second the area to the south.

(f) Attempts to locate the Admiral Hipper
28th December, 1940 - 4th January, 1941No.15 Grp. ORB
Dec. Appendices

Although the Hipper docked on 27th December no information as to her possible whereabouts came until 3rd January, and it was not finally established that she was in Brest until 4th January. On 28th December it was still considered possible that she might attempt to break back into the North Sea, or head for the French coast, patrols to cover noted areas being planned. In the north the Crossover and Line patrols were cancelled in favour of a new search patrol(1) which was flown by a Sunderland, E/204 Squadron. Bad weather prevailed over south-west England; only one photographic reconnaissance sortie could be attempted, but the aircraft found 10/10 cloud over Brest. A strike by No. 217 Squadron on the power station in the Port Militaire, Brest, and all other flying was cancelled.

No. 18 Grp. ORB
Dec. Appendices

On 29th December the weather in the southwest was again unsuitable for reconnaissance sorties, or the attack on the Brest harbour scheduled for No. 217 squadron. As it had been reported that W/T traffic was unusually heavy between Le Havre, Cherbourg and Brest, a Blenheim coastal sweep had been flown but no shipping had been observed, and the aircraft did not go in over the ports. In the north two patrols were flown; the search patrol was flown as on the previous day by E/204 Squadron, and a line patrol(2) was flown by R/201 Squadron.

No.15 Grp. ORB
Jan. Appendices

Weather precluded all patrols both in the north and south on 30th and 31st December; following this no further patrols were planned to cover the Iceland-Shetlands channels. On 1st January all operations over the Brest area were cancelled because of bad weather, but in the early hours of 2nd January an attack was made on shipping in the Port Militaire, Brest by aircraft of No. 217 Squadron: three aircraft estimated that their bombs fell in the target area,(3) but had no indication that the Hipper was present. A photographic reconnaissance was made during the morning but a preliminary interpretation of the photographs obtained did not reveal the presence of any major naval units. No further photographs could be taken on 3rd January owing to 10/10 cloud over the area, but a report was sent to Coastal Command at 2230 hours by the Photographic Interpretation Unit stating that the previous days photographs showed a vessel, similar to a Hipper class cruiser in the westernmost dry docks. A strike was ordered but postponed until further reconnaissance could be made.

On 4th January visual reconnaissance was made shortly after noon, the pilot reporting that although certain identification was not possible, the vessel in question resembled a Hipper cruiser. 18 Blenheims of Nos. 53 and 59 Squadrons were accordingly ordered to make a daylight attack; of these, two aircraft claimed to have bombed the target area but could not observe results, and a further six dropped

-
- (1) The aircraft leaving Sullom Voe was to proceed to Vidaro and thence to 62°22'N x 6°30'W. From this position the aircraft was to fly on a course of 011° until reaching the parallel of 67°N, or as far north as time permitted, and thence to base, landing before dark. (Form Green RO/G11/27/12)
- (2) The line patrol was between the following points:-
62°07'N x 7°40'W
64°14'N x 14°58'W
(Form Green RO/G7/27/12)
- (3) The bomb load of each aircraft was 6 x 250 lb. S.A.P. bombs.

their bombs on shipping in the dry docks. (1) One aircraft failed to return.

(g) Air attacks on the Admiral Hipper and her
Admiral Hipper Commerce Raid 1st - 14th February
1941

From the time that the Hipper was located in Brest by reconnaissance aircraft on 4th January, until her departure on a commerce raid on the night of 1/2nd February, considerable effort was expended by Coastal Command on attacking her, and on daily reconnaissance to keep watch on her movements. A total of 83 bombing sorties were flown during January, of which 57 found the target, approximately 30 tons of high explosive being dropped as well as incendiaries. In addition to this, Bomber Command aircraft carried out three attacks in the first fortnight of the month flying 92 sorties of which 69 found the target, a total of 55.3 tons of bombs being dropped. (2) A further two attacks, in which 11 tons of bombs were dropped, were made on the nights of 2/3rd February and 3/4 February, before reconnaissance had shown that the Hipper had left Brest. No serious damage was inflicted on the Hipper in any one of these attacks.

Bomber Command
ORB Jan. Operational
Appendices

At the beginning of January the Coastal Command attacks were made primarily by aircraft of Nos. 53 and 59 Squadrons, operating under No. 16 Group from Thorney Island, reconnaissance by Spitfires and Blenheims, and some attacks by Beauforts, were flown by aircraft of No. 15 Group from St. Eval. After 20th January there was no flying from Thorney Island owing to bad weather. The weather also hampered reconnaissance; of the 37 sorties flown between 5th January and 4th February only 13 were successful; many other sorties were cancelled prior to take off.

No. 16 Grp. ORB
Jan. Appendices

No. 15 Grp. ORB
Jan. Appendices

On 5th January nine aircraft of No. 59 Squadron made a daylight raid on Brest; four aircraft claimed to have dropped their bombs in the target area, (3) but were unable to observe the results owing to heavy flak. On the following three days, "Operation Hipper" had to be cancelled because of the weather. When photographic reconnaissance had established on 9th January that the Hipper was still in dry dock, seven aircraft of No. 217 Squadron were detailed to attack Brest shortly after dark, followed later by nine aircraft of No. 53 Squadron and

No. 16 Grp. ORB
Jan. Appendices

Nos. 15 and 16
Grp. ORB's Jan.
Appendices

- (1) The aircraft of No. 53 Squadron were carrying 4 x 250 lb. S.A.P. bombs and 4 x 29 lb. fragmentation bombs. 6 aircraft dropped their bombs in the target area making the total weight of bombs dropped 2.89 tons. Aircraft of No. 59 Squadron carried 4 x 250 lb. S.A.P. bombs; total weight of bombs dropped in target area was 0.89 tons.
- (2) The following table shows the type of aircraft and the bomb loads carried by Bomber Command aircraft in attacks on the Hipper during January.

Date	Group	No. and Type Aircraft attacking Target	Total Bomb Loads			Tonnage Dropped
			1,000 lb.	500 lb.	250 lb.	
January 5/4	3	6 Wellingtons	5 GP	19 GP	2 GP	6.7
	4	4 Whitleys		8 GP	16 GP	3.5
	5	23 Hampdens		48 GP	44 GP	15.6
January 10/11	4	10 Whitleys		20 GP	6 GP	5.1
January 12/13	4	11 Whitleys	3 GP	21 GP	43 GP	9.5
	5	15 Hampdens		48 GP	26 GP	14.9

- (3) Each aircraft was carrying 4 x 250 lb. S.A.P. bombs. 14 bombs were dropped in all as a hit by flak jammed one bomb door of one of the aircraft.

Admty. NID/1.5/
X.202/47

Ibid

No. 15 Grp. ORB
Jan. Appendices

No. 15 GRP. ORB
Jan. Appendices

A.P./764/16/1

No. 15 Grp. ORB
Jan. Appendices

twelve of No. 59 Squadron. Six of the Beauforts, (1) and all the aircraft of No. 53 Squadron (2) claimed to have dropped their bombs in the target areas, aircraft O/53 Squadron claiming a direct hit. One aircraft of No. 59 Squadron failed to return, the others claimed that their bombs were in the target area. (3) Another attack was made by Nos. 53 and 59 Squadrons shortly after dark on 10th January: of the nine aircraft that reached the target area three claimed direct hits. (4) On this occasion the Germans reported that three or four bombs fell around the dock causing slight damage to shore installations but no hits were scored on the Hipper herself. On the night of 12/13th January, Bomber Command aircraft attacked Brest, three bombs falling very near the Hipper, one exploding in the dock; the only damage however, was a number of small holes in the ship's side. This attack was followed up in the early hours of 13th January by an attack by three aircraft of No. 53 Squadron (5); owing to bad weather the other 15 aircraft scheduled for the operation were unable to take off.

Reconnaissance was flown daily when weather permitted. On 15th January the weather precluded reconnaissance, and the attack scheduled for all available aircraft of No. 217 Squadron, and 18 aircraft of Nos. 53 and 59 Squadrons was cancelled. Six aircraft of No. 217 Squadron attacked Brest before dawn on 16th January. (6) During the day photographic reconnaissance showed that the Hipper was still in dry dock, and that three additional M-class minesweepers had arrived in the harbour, but a strike by six aircraft of No. 217 Squadron planned for the night of 16/17th January with Brest as the alternative target to Lorient had to be cancelled. On 17th January it was again arranged that No. 217 Squadron should attack Lorient while No. 16 Group aircraft should attack Brest, but it was ultimately decided that all aircraft should go to Brest, the Beauforts attacking immediately before No. 53 Squadron. Owing to weather conditions none of the aircraft of No. 217 Squadron were able to reach Brest, and only one aircraft of No. 53 Squadron was able to locate the primary target (7)

Bad weather made reconnaissance impossible on 20th January, and a strike by 18 aircraft of Nos. 53 and 59 Squadrons was cancelled. On 22nd January, photographs showed that the Hipper was still in dry dock, but on the ensuing three days cloud conditions over Brest made all

- (1) 4 of the aircraft were carrying one magnum (2,000 lb.) each, one aircraft carrying 4 x 250 lb. S.A.P. bombs and 2 canisters of incendiaries, and one aircraft incendiaries only.
- (2) Each aircraft carried 4 x 250 lb. S.A.P. bombs; all bombs were dropped.
- (3) Each aircraft carried 4 x 250 lb. S.A.P. bombs; a total of 44 bombs being dropped.
- (4) Each aircraft carried 4 x 250 lb. S.A.P. bombs, a total of 36 bombs being dropped.
- (5) Each aircraft carried 4 x 250 lb. S.A.P. bombs; all bombs were released.
- (6) 5 aircraft carried Magnums (2,000 lb.), the other aircraft 4 x 250 lb. S.A.P. bombs, and two 250 lb. containers of incendiaries.
- (7) The aircraft carried 3 x 250 lb. S.A.P. bombs, all of which were released.

reconnaissance ineffective. On the morning of 26th January a sortie by a low level Spitfire was made over Brest; photographs were obtained, and from a visual reconnaissance it was reported that the Hipper was still in dry dock. In view of these results a Blenheim sortie scheduled for later in the morning was cancelled. No. 217 Squadron were detailed to carry out a daylight strike, but owing to clear weather only one aircraft took off, returning because of lack of cloud cover. At 1800 hours Coastal Command was informed by No. 15 Group that a preliminary interpretation, by St. Eval, of the photographs taken in the morning showed water leaking into the Hipper's dock; it was later confirmed by the C-in-C Western Approaches that the dock was being flooded. A strike by all available aircraft of No. 217 Squadron, and a patrol covering the approaches to Brest by a Hudson with A.S.V. equipment, were accordingly ordered. As, however, there was an obstruction on the main runway at St. Eval, and as a front was expected shortly after midnight, both operations were cancelled. No. 22 Squadron at Thorney Island were warned to stand by on 27th January, in case the Hipper attempted to break up the Channel.

Bad weather precluded all flying on the morning of 27th January; the first reconnaissance sortie was unable to take off until 1429 hours, when it was found that 10/10 cloud over Brest prevented visual or photographic reconnaissance. As it was then too late to send a second aircraft over in daylight, a Beaufort carrying flares and TMS(1) was despatched. J/217 Squadron found cloud and rain over Brest, and though able to locate the Port Militaire was unable to distinguish whether or not the Hipper was still in dock.

On 28th January repeated reconnaissance flights were made without success. Two Spitfire sorties were flown in the morning, and three Spitfire and two Blenheim sorties in the afternoon, failing at first because of cloud, and later because of lack of cloud cover. As it was considered of high importance to determine whether the Hipper was in Brest, free use of No. 236 Squadron, and of P.R.U. was ordered for 29th January; the first Blenheim sortie was to be over the Brest area at dawn if weather permitted. On 29th January, the first Blenheim reconnaissance sortie took off at 0715 hours, but crashed; a second Blenheim landed immediately after take off with engine trouble, and the third taking off at 0905 hours found 10/10 cloud over Brest. A Spitfire sortie flown shortly afterwards reported similar cloud conditions; no further sorties were flown during the morning. In the afternoon two sorties were flown by Blenheims and one by a Spitfire without result.

On 30th January weather precluded all operations over Brest. On 31st January no reconnaissance aircraft could take off from St. Eval until 1545 hours, when a Blenheim was sent to Brest but found the cloud down to sea level.

1st February

A low level Spitfire carried at a visual reconnaissance of Brest in the morning, and reported that the Hipper was still

(1) TMS were standard Mk. I Mines fitted with a percussion and time fuze. Detonation was instantaneous on hitting a solid surface and delayed for six seconds if landing in water.

HQCC Naval Staff
Log

No.15 Grp. ORB
Jan. Appendices

No.15 Grp. ORB
Jan. Appendices

Form Green PL/
G21/28/1

No.15 Grp. ORB
Feb. Appendices

in dry dock. A Beaufort strike with fighter Blenheim protection was planned for the afternoon. Seven aircraft took off but S/217 Squadron, the first aircraft over the Brest area, reported 1/10 cloud only, and the other aircraft were recalled. W/217 Squadron failed to return. A second strike was carried out by five aircraft of No. 217 Squadron after dark. The aircraft found 10/10 cloud over Brest but three estimated that they had dropped their bombs in the target area. In point of fact the Hipper left dock shortly after dusk to commence her commerce raiding voyage, gaining the open sea about midnight.

2nd February

Track Chart of
Hipper Map XIV

From midnight the Hipper headed south westerly on a course of 248° until 0430 hours, when, in position 46°45'N x 7°00'W she altered course to 245°. The weather at 0900 hours, as reported in her log, was over-cast with moderate visibility deteriorating. At 1130 hours she altered course to 270° heading westwards. The weather in south-west England was also deteriorating. A strike on Brest by aircraft of No. 217 Squadron was at first postponed and then, owing to snow, was cancelled. There was no flying from St. Eval during the day. The Hipper continued westwards.

3rd February

Track Chart of
Hipper Map XIV

HQCC Naval Staff
Log

No.15 Gp. ORB
Feb. Appendices

At 0001 hours the Hipper was in position 45°10'N x 19°20'W continuing westwards on a course of 265° to meet the oil and supply ships Hertha and Gerda. The first reconnaissance sortie of the day was made by a high level Spitfire, taking off at 0945 hours; the aircraft found 9/10 cloud over Brest, and was therefore unable to make either visual or photographic reconnaissance. A low level Spitfire going over Brest shortly afterwards obtained oblique photographs, but was unable to carry out visual reconnaissance because of heavy flak. As the weather deteriorated no further reconnaissance could be carried out. It was reported during the afternoon that Focke-Wulfe aircraft were operating to the west of Brest, and it was considered possible that this was an indication that the Hipper was about to leave. A strike by aircraft of No. 217 Squadron was accordingly planned for the night of 3/4th February, and undertaken by six aircraft, although St. Eval had reported at 1845 hours, that a preliminary interpretation of the photographs taken in the morning suggested that the Hipper might have moved. Three of the aircraft on the strike bombed the Port Militaire through gaps in the cloud, the other aircraft being unable to locate the target.

4th February

No.16 Group ORB
Feb. Appendices

No. 15 Group ORB
Feb. Appendices

By 0001 hours the Hipper was in position 44°15'N x 32°45'W. At 1400 hours she was in position 45°05'N x 34°45'W; she cruised about in the vicinity of this position awaiting the arrival of the supply ships. During the early hours of 4th February an attack on Brest was carried out by seven aircraft of No. 53 Squadron from Thorney Island. Owing to darkness and cloud the aircraft were unable to locate the estimated whereabouts of the Hipper, but two aircraft claimed that their bombs fell within the target area. One aircraft failed to return. The first reconnaissance aircraft was unable to go in over Brest, owing to lack of cloud cover and the presence of enemy fighters, but a second

HQCC Naval Staff
Log

Spitfire taking off at 1145 hours obtained photographs. At 1250 a report was received from the Photographic Interpretation Unit, Wembloy, stating that the photographs of the previous day showed that the Hipper was no longer in dry dock. Another Spitfire was accordingly sent over Brest to make a visual reconnaissance, and to obtain photographs of Lorient and St. Nazaire in case the Hipper had moved to either of these ports. The photographs showed that she was not present in either. Two Blenheims of No. 236 Squadron were then sent to Cherbourg but owing to lack of cloud cover were unable to go in over the harbour.

5th - 9th February

HQCC Naval Staff
Log

During this period the Hipper was taking in oil fuel and supplies, meeting the supply ship Gerda in the vicinity of position 44°00'N x 35°30'W, and on 7th February the tanker Hertha in the vicinity of position 42°00'N x 37°30'W. On 5th February, almost all Coastal Command stations were weather bound. On 6th February, one reconnaissance sortie was flown over Brest without results, and on 7th February, there was again no flying. On 8th February, a reconnaissance sortie was flown over Brest as the Air Ministry had had information from a secret source that a Pocket Battleship had docked there; this report was incorrect. A sweep over the Bay of Biscay⁽¹⁾ to look for shipping was scheduled for the morning; "S" and "E"/217 Squadron took off at 1135 hours, but returned to base early owing to insufficient cloud cover over the French coast.

No.19 Grp. ORB
Feb. Appendices

HQCC Naval Staff
Log

At 1415 hours on 8th February, the Admiralty informed Coastal Command that H.M.S. Ramillies had sighted the mast and top of an enemy warship, possibly a Hipper Class Cruiser. The sighting was made at 1100 hours G.M.T. when the Ramillies was in position 52°55'N x 34°00'W, the enemy was 20 miles distant on a bearing of 330°, on an estimated course of 030°. Patrols were ordered for 9th February, accordingly, on the assumption that the Hipper was going back to Norway. In point of fact the sighting made by the Ramillies was of the Scharnhorst or Gneisenau heading for the convoy routes after their passage through the Denmark Straits.

No.18 Grp. ORB
Feb. Appendices

50820 Cipher
M.O.8 8/2

No.89 Squadron
ORB

On 9th February, patrol R 2,⁽²⁾ as amended by the C-in-C Home Fleet, was flown by two Sunderlands, E/204 Squadron taking off at 0900 hours, and U/201 Squadron taking off at 1100 hours. It had been requested that Patrol R 1 should also be flown, but owing to the shortage of aircraft this was not possible. In addition to R 2, No. 98 Squadron at Kaldadarnes carried out a patrol to the South East of Iceland.⁽³⁾ Two Battle aircraft took off on patrol at 1045 hours, and a second sortie of two aircraft took off at 1540 hours. The aircraft situation did not permit an additional patrol over the Denmark Straits as had been requested.

-
- (1) Aircraft on the sweeps were to fly St. Eval - Scillies - 48°N x 6°W - 46°N x 3°W - 46°N x 6°W - Scillies-Base (Form Green PL/G3/8/2)
 - (2) The aircraft on patrol were to proceed to 60°30'W x 16°00'W, thence to datum for patrol. 61°28'N x 18°20'W. The aircraft were to complete one circuit of crossover from this point to 62°20'N x 20°30'W. The first aircraft was to commence patrol at 1400 hours and the second at 1600 hours. (Form Green RO/G5/8/2).
 - (3) Battle aircraft to carry out crossover patrol between points.
 63°25'N x 20°18'W
 60°25'N x 19°30'W
 60°25'N x 20°10'W
 63°25'N x 19°30'W
 thence to base. The first patrol was to leave base at 0730 hours. Patrol was to be continuous until further notice throughout daylight hours at intervals of 3 hours 15 minutes.

10th February

Track Chart of
Hipper Map XIV

No.98 Squadron
ORB Form 540

No.18 Grp. ORB
Feb. Appendices

The Hipper finished taking in oil on 9th February, and at 0001 hours on 10th February was in position $44^{\circ}20'N$ x $35^{\circ}10'W$ heading eastwards on a course of 088° . At 1100 hours, when in position $44^{\circ}30'N$ x $29^{\circ}15'W$, she altered course to 132° heading for the convoy routes from the south. As it was still assumed that the sighting by the Ramillies was of the Hipper, patrols to intercept her were again flown. Two Battle aircraft flew the North Atlantic crossover patrol, and Sunderland B/204 Squadron carried out two circuits of a new Fugle⁽¹⁾ patrol. Patrol R 2 had to be cancelled because of lack of aircraft. At 2230 hours the Hipper altered course to 138° .

11th February

Track Chart of
Hipper Map XIV

Admty. NID/24/
X128/47

At 0001 hours the Hipper was in position $41^{\circ}00'N$ x $24^{\circ}20'W$; she continued on a course of 138° until 1000 hours when she was in position $37^{\circ}50'N$ x $20^{\circ}40'W$, a fairly accurate estimate by the Germans of the middle of our convoy route from the south; she there altered course to 123° and at 1230 hours to 215° . At 1400 hours she sighted and sank the 1236 ton merchant ship Iceland, independently routed from the Cape. This ship, the ex German vessel Delia, had been confiscated, and was sailing under the British flag. The Hipper altered course to 182° and at 1806 hours to 314° , cruising within the estimated convoy route area.

Form Green
RO/G7/10/2

No.18 Group ORB
Feb. Appendices

The patrols were still being flown in the north to intercept the Hipper on passage to Norway. Bad weather precluded any flying from Iceland, but aircraft of No. 18 Group were ordered to carry out three patrols. A crossover patrol⁽²⁾ by a Whitley with A.S.V. equipment, between the Faeroes and Iceland was flown by E/612 Squadron, which commenced the patrol at 0845 hours. A second crossover patrol⁽³⁾ was flown in the morning by Sunderland L/204 Squadron over the more northerly part of the Faeroes - Iceland Channel, close to the coast of Iceland. Sunderland B/204 Squadron was scheduled to take off at 1230 hours on a Fugle patrol,⁽⁴⁾ but as the weather was deteriorating this was cancelled.

12th February

HQCC Naval Staff
Log

No.18 Group ORB
Feb. Appendices

The patrols in the North were again scheduled for 12th February, with the exception of the patrols from Iceland which were cancelled following complaints from the G.O.C. Iceland that the patrols were leaving Reykjavik open to attack (a German Dornier aircraft had flown over the area on 10th February). The Whitley crossover patrol was scheduled to take off at 0660 hours but was cancelled because of bad weather as was the Fugle patrol ordered to take off at 1230 hours.

(1) The new Fugle patrol was a crossover in similar pattern to the usual Fugle patrol but through points:-

$63^{\circ}20'N$ x $8^{\circ}00'W$
 $64^{\circ}50'N$ x $12^{\circ}20'W$

(2) Crossover patrol through the following points:-

$63^{\circ}13'N$ x $8^{\circ}15'W$
 $64^{\circ}15'N$ x $10^{\circ}02'W$
 $64^{\circ}00'N$ x $10^{\circ}30'W$
 $63^{\circ}20'N$ x $7^{\circ}45'W$

(3) A Sunderland was to fly a crossover patrol over the top half of Fugle commencing patrol in position $64^{\circ}42'N$ x $12^{\circ}32'W$ at 0910 hours and returning to base through position $63^{\circ}20'N$ x $8^{\circ}00'W$.

(4) A Sunderland was to fly a complete Fugle patrol commencing in position $63^{\circ}13'N$ x $8^{\circ}15'W$ at 1500 hours.

SECRET

216

At 0200 hours the Hipper was in position 36°35'N x 21°40'W cruising northerly on the convoy route. At 0615 hours she attacked the convoy SLS.64 sinking seven ships and damaging a further two. (1) She claimed to have sunk 13 ships out of a convoy of 18, with an estimated tonnage of 75,000 - 80,000 tons. This claim was broadcast over the German radio the same evening and it was later claimed that 17 ships had been sunk. The actual tonnage lost was 32,806 tons; the tonnage of the damaged ships was 9,899 tons.

Admty. NID24/
X128/47 BR.1337

HQCC Naval Staff
Log

No.19 Group ORB
Feb. Appendices

The first news of raider activity reached the Admiralty at 1200 hours when a signal was received from an unknown ship that she was being shelled. The ship, later identified as the Potard, was independently routed. H.M. Ships Ark Royal, Renown and Sheffield were ordered from Gibraltar to protect the convoys, and other naval forces were ordered to the area. It was further suggested that two Sunderlands on passage to Freetown via Gibraltar should do a sweep out into the Atlantic, (2) but this was considered impracticable unless the aircraft had fighter protection, and was accordingly postponed until the following day.

Track Chart of
Hipper Map XIV

Meanwhile the Hipper had commenced her journey back to Brest. At noon she was in position 38°40'N x 19°30'W on a course of 048°. At 1430 hours she altered course to 055° and at 1800 hours to 062° continuing on this course throughout the remainder of the day.

13th February

Admty. NID/24/
X128/47

At 0001 hours the Hipper was in position 42°05'N x 13°30'W on a course of 065° and by 0300 hours she was off north-west Spain in position 43°40'N x 8°40'W. It was recorded in the log at that time that there was a heavy swell, but that visibility was very good. At 0900 hours, when north of Corunna, she altered course to 092°, at noon to 055° and at 1255 hours to 091°; by 1400 hours G.M.T. she was in position 44°00'N x 5°40'W continuing on the same course.

HQCC Naval Staff
Log

Meanwhile fog persisted in southwest England. The Atlantic sweep by two Sunderlands, en route for Gibraltar, with twelve fighter Blenheims as escort for the earlier part of the sweep, was delayed and then postponed until 2300 hours. No aircraft could take off from St. Eval. During the morning radio interception reported that a Focke-Wulf aircraft was going out on the usual sortie. At 1130 hours it was reported to Coastal Command that a second enemy aircraft had gone out due west of Brest to position 47°10'N x 15°10'W. At 1210 hours it was reported that a third aircraft was in position 44°50'N x 15°15'W, and later that the second and third aircraft were sending back signals that there were no naval forces in sight. At

(1) The ships sunk by the Hipper from SLS.64 were:-

British	<u>Worlab</u>	-	4,876 tons
"	<u>Westbury</u>	-	4,712 "
"	<u>Oswestry Grange</u>	-	4,684 "
"	<u>Shrewsbury</u>	-	4,542 "
"	<u>Derryane</u>	-	4,896 "
Norwegian	<u>Borgstadt</u>	-	3,924 "
Greek	<u>Perseus</u>	-	5,172 "

The damaged ships were:-

British	<u>Lornaston</u>	-	4,934 tons
Greek	<u>Kalliope</u>	-	4,965 "

The ships named in the German claims were the Borgstadt, Shrewsbury, Oswestry Grange and Perseus. The tonnage of the latter was inaccurately estimated as being 10,000 tons.

(2) It was suggested that one Sunderland should fly from Mount Batten to 46°N x 12°W to 39°N x 12°W to Gibraltar. The second Sunderland was to fly from Mount Batten to 46°N x 11°W to 39°N x 11°W, to Gibraltar.

SECRET

217

1230 hours a fourth Focke-Wulfe in position 46°50'N x 14°25'W was reported to be sending the same signal.

Form Green PL/
G14/13/2

Form Green PL/
G15/13/2

No.19 Grp. ORB
Feb. Appendices

As the evidence pointed to the fact that the enemy surface raider was approaching Brest, two Hudsons were ordered to carry out a parallel track search, (1) and a Sunderland a crossover patrol (2) covering the approaches to the Port. The two Hudsons X and J/220 Squadron took off from St. Eval at 1515 hours. At 1630 hours aircraft "X" turned for base with faulty W/T equipment. Aircraft "J" continued and commenced the search at 1649 hours, but at 1715 hours, when in position 47°02'N x 7°05'W, encountered bad weather and returned to base. The Sunderland crossover patrol was cancelled as the weather was deteriorating. The Sunderlands on the sweep to Gibraltar were also unable to take off, and all further flying was cancelled, including Bomber Command mine laying sorties to Brest, St. Nazaire, La Rochelle and La Pallice.

Track Chart of
Hipper Map XIV

The Hipper continued eastwards on a course of 092° until 2330 hours, when, in position 44°00'N x 2°30'W, she altered course to 340°.

14th February

Track Chart of
Hipper Map XIV

At 0200 hours the Hipper was in position 44°45'N x 2°50'W maintaining the course of 340°. At 0642 hours in position 46°00'N x 3°25'W she altered course to 313°. The weather recorded in the log at 0800 hours reported a moderate swell, and moderate to good visibility. By 1125 hours the Hipper had reached position 47°45'N x 6°00'W and altered course to 062° heading for the Goulet de Brest, reaching the entrance to the Goulet at approximately 1500 hours.

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The Admiralty had estimated that if the Hipper was making for Brest she would arrive there about noon; it was not expected that her course would go so far to the east in the Bay of Biscay as was in fact the case, and a Hudson crossover patrol (3) from dawn was planned accordingly to cover the approaches to Brest from a south westerly direction. The first aircraft with A.S.V. equipment had been ordered to be on patrol at dawn, but owing to bad weather Hudson J/220, the first on the patrol, was unable to take off until 1157 hours. The aircraft reached the patrol area at 1315 hours and left at 1637 hours, being replaced by a second Hudson at 1709 hours. Even if the patrol had been commenced at the scheduled time, the aircraft could not have seen the Hipper, as her track was well to the east of the patrolled area.

Form Green PL/
G29/13/2

In addition to this patrol it was arranged that a reconnaissance of Brest should be made by a section of Blenheims, (4) and if the cruiser was not in the harbour the aircraft should carry out a sweep to the south-west to search for her. Blenheim F/236 Squadron took off at 1155 hours;

Form Green
PL/G4/14/2

(1) The Hudson parallel track search was to be 10 miles either side of a line from 47°29'N x 6°00'W to 45°45'N x 9°00'W.

(2) Sunderland on crossover patrol through following points.

47°45'N x 6°45'W
46°39'N x 6°15'W
46°30'N x 6°45'W
47°45'N x 6°15'W

The aircraft was to be on patrol at 2000 hours.

(3) The Hudson crossover patrol was to be flown between the following points:-

48°10'N x 6°45'W
46°30'N x 6°15'W
46°30'N x 6°45'W
48°10'N x 6°15'W } Coloured green on Map XIV

(4) The Blenheims were to carry out reconnaissance of Brest, and then to sweep down 232°T to position 46°32'N x 7°30'W, thence to base. Coloured mauve on Map XIV.

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Feb. Appendices

No. 236 Squadron
ORB Form 541

at 1255 hours the aircraft was in position 48°28'N x 5°32'W, finding 2/10 cloud at 3000 feet. At 1303 the aircraft was in position 48°00'N x 5°20'". At 7000 feet the cloud was 7-8/10 thus making both low and high level reconnaissance impracticable. The aircraft therefore headed south westerly but at 1350 hours in position 46°40'N x 7°15'W encountering rain, turned back to attempt another reconnaissance of Brest. At 1430 hours when in position 48°10'N x 4°55'W the aircraft, finding that the cloud conditions were similar to those experienced earlier, headed for base. This aircraft must have seen the Hipper had it not encountered cloud ~~when heading~~ south westerly because its track was approximately 15-20 miles from that of the Hipper. However, owing to cloud it neither saw the cruiser nor was observed by her. On its return towards Brest, had it been possible to go in slightly nearer to the coast, the Hipper must have been observed as she was then approaching the Goulet de Brest.

No. 19 Grp. ORB
Feb. Appendices

Aircraft of No. 217 Squadron were held in readiness to carry out a strike if the Hipper was located in Brest. At 1600 hours the C-in-C Western Approaches reported that, from signals D/Fed the Hipper might be in the Bay of Biscay. No. 801 Fleet Air Arm squadron had therefore been ordered from Hatston to St. Merryn to act as a strike force if the Hipper was located at sea. As the Hipper was not located, night sorties were cancelled so that all Squadrons should be ready to make an attack on the following day.

Admty. NID24/
X128/47

The Hipper docked in Brest at 1845 hours having accomplished both outward and inward journeys unobserved, owing to successful weather forecasting, and, on the outward journey particularly, to the lack of adequate patrols covering the approaches to Brest.

15th February

During the night of 14/15th February, aircraft of No. 217 Squadron carried out a strike against St. Nazaire, in spite of previous arrangements cancelling night sorties. The aircraft were ordered to be rearmed on landing in readiness for a strike if the Hipper was located.

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Feb. Appendices

A high level Spitfire took off on reconnaissance of Brest at 0945 hours, obtaining photographs but being unable to carry out a visual reconnaissance owing to cloud. A second Spitfire was sent to Lorient and St. Nazaire in case the Hipper had not docked at Brest. At 1410 hours it was reported that a preliminary interpretation of the Brest photographs showed the Hipper to be in dry dock in the Grande Bassin du Nord. A strike by all available aircraft of No. 217 Squadron to destroy the cruiser was ordered. Because of the earlier strike only three fresh crews were available; the aircraft took off at 1630 hours carrying S.A.P. bombs; all failed to return. No further sorties were flown over Brest during that day.

Form Green PL/
G6/15/2

More air attacks and
(h) Admiral Hipper's return from Brest to Kiel
15th - 28th March, 1941

When the Hipper had returned to Brest after her commerce raiding expedition, and had been located there by reconnaissance aircraft on 15th February, the scale of effort against her was intensified in the attempt to prevent a second undetected breakout. Constant watch, in as far as weather permitted, was kept on her movements, special patrols were

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flown when it was thought that she might be about to sail, and attacks were made both by Coastal and Bomber Commands. Five attacks were made by Coastal Command, and of the 48 sorties flown 35 were effective, 18.75 tons of bombs being dropped. Bomber Command carried out four attacks, flying 142 sorties of which 109 were effective, and dropping 153.3 tons of bombs. Nevertheless the Hipper managed to leave Brest on 15th March and complete the whole of her return journey to Kiel unobserved; the fact of her departure from Brest was not finally established until 20th March, principally on account of the weather.

No. 19 Grp. ORB
Feb and March
Appendices

Between 16th February and 20th March, low cloud or lack of cloud cover resulted in only 19 successful reconnaissance, or photographic reconnaissance, sorties out of the 68 flown over the Brest area; further sorties were cancelled prior to take off owing to bad weather conditions. These reconnaissance sorties were carried out by Spitfire and Blenheim aircraft of No. 19 Group, the practice being established of flying a Blenheim sortie at dawn and a Spitfire sortie at first and last photographic light.

Form Green
PL/G15/24/2

No. 19 Grp. ORB
Feb. Appendices

A bombing attack on the Hipper was made by aircraft of No. 59 Squadron⁽¹⁾ on the night of 19/20th February; of the six aircraft taking part, three saw their bombs burst in the target area, and two dropped their bombs over the target but were unable to observe the results. A second attack was made on the night of 20/21st February by six aircraft of No. 59 Squadron⁽²⁾, five of which were successful, and six of No. 217 Squadron⁽³⁾, all of which claimed that their bombs fell within the target area.

R.A.F. St. Eval
Forms Blue
Feb. 1941

HQCC Log Naval
Staff

On 22nd February, in view of a report that there were an unusual number of German naval aircraft over Brest, it was considered possible that the Hipper might be sailing again that evening, probably at dusk, and patrols were planned accordingly. A crossover patrol⁽⁴⁾ covering the approaches to Brest was flown throughout the night by Sunderland D/10 Squadron, and an attack was made by Wellingtons of Bomber Command⁽⁵⁾ at dusk. The following morning, 23rd February, the Sunderland was relieved on patrol by a Hudson, J/220 Squadron, while a second Sunderland, K/10 Squadron, was detailed to carry out a parallel track search⁽⁶⁾ in the Bay of Biscay, in case the Hipper had managed to leave Brest unobserved. Both aircraft were recalled when a photographic reconnaissance sortie established that the Hipper was still in dry dock. A strike was planned for the same night, but owing to the bad weather conditions prevailing on No. 19 Group Stations, the only aircraft that took part in the attack were a detachment of No. 59 Squadron operating from Manston. As visibility was bad only three of the aircraft taking part estimated that their bombs⁽⁷⁾ fell within the target area.

No. 59 Squadron
ORB Form 541

- (1) Each aircraft carried 2 x 500 lb. S.A.P. bombs.
- (2) Each aircraft carried 2 x 500 lb. S.A.P. bombs.
- (3) Each aircraft carried 2 x 500 lb. and 2 x 250 lb. S.A.P. bombs.
- (4) The patrol was to be flown by a Sunderland taking off at 1830 hours through the following positions:-

48°44'N x 6°52'W
46°36'N x 5°58'W Form Green
46°52'N x 5°19'W PL/G14/22/2
48°29'N x 7°31'W

- (5) 29 Wellingtons of No. 3 Group were despatched 11 of which claimed to have bombed the target area with a total of 1 x 2000 lb. G.P. bomb, 69 x 500 lb. G.P. bombs and 2 x 250 lb. G.P. bombs, 16.5 tons in all.
- (6) Parallel track search from position 48°00'N x 10°23'W
to 45°15'N x 9°00'W
and back from position 45°23'N x 8°32'W
to 48°10'N x 9°56'W
- (7) Each aircraft was carrying 2 x 500 lb. S.A.P. bombs, all bombs were released.

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Two attacks, one by Coastal Command and one by Bomber Command aircraft, were carried out on 24th February. Coastal Command attacked between 1945 and 2045 hours with 7 aircraft of No. 53 Squadron (1) and four of No. 217 Squadron(2), a fifth had been despatched but returned early with engine trouble. 6.9 tons of bombs were dropped. This was followed at 2100 hours by a low level attack by Hampdens of Bomber Command followed by Wellingtons, Manchesters and Stirlings(3). No damage was inflicted on the Hipper though the Germans reported that at 2118 hours (during the Hampden attack) there were several near misses. In the course of both attacks, 15 bombs fell within a distance of 200 metres of the Hipper the nearest being about 30 feet from the ship on the edge of the dock, but this did not explode.

HQCC Naval Staff
Log

Admty. NID/15/
X202/47

No.19 Grp. ORB
Feb. Appendices

Form Green PL/
G6/28/2

No.19 Grp ORB
March Appendices

Because of the cloud conditions neither the Blenheim nor the Spitfire reconnaissance sorties over Brest were successful on 28th February. It was appreciated that the Hipper could leave Brest within four hours whatever the state of the tide, though there had been no indication of when she would be ready to sail. It was further considered that when she did sail it would be shortly after dark, and in a direction that would take her out of range of reconnaissance as soon as possible. A night patrol to be flown by a Hudson with A.S.V. equipment was therefore planned to cover the immediate approaches to Brest(4). One circuit of this patrol was flown in deteriorating weather conditions on the night of 28th February. The patrol was again flown on the night of 4th March, and was requested for the night of 6th March, as there had been no effective reconnaissance during the day, but had to be cancelled because of weather conditions.

Two attacks were made by aircraft of Bomber Command at the beginning of March, one on the night of 2/3rd March by Wellingtons, Witleys and Hampdens which dropped 22.6 tons of bombs(5), and one on the night of 3/4th March by 2 Stirlings(6) only one of which located the target area. There was no effective reconnaissance by aircraft of No. 19 Group from 5th March until 11th March. On 10th March a Spitfire from Benson established that the Hipper was still in Brest, but that she had left the dry dock and was alongside the Torpedo pier protected by anti-torpedo netting. An attack was made by five aircraft of No. 53 Squadron in

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- (1) Six of the aircraft were 2 x 500 lb. S.A.P. bombs, the other aircraft carried 4 x 250 lb. S.A.P. bombs, all bombs were released.
- (2) Each aircraft dropped 4 x 500 lb. S.A.P. bombs.
- (3) The 16 Hampdens of No. 5 Group dropped 4 x 500 lb. G.P., 3 x 250 lb. G.P. 40 x 500 lb. S.A.P., 29 x 250 lb. S.A.P. & 5 x 2000 lb. G.P. bombs. The 29 Wellingtons of No. 3 Group dropped 16 x 500 lb. and 1 x 250 lb. G.P. bombs and 175 x 500 lb. and 15 x 250 lb. S.A.P. bombs. The 6 Manchesters of No. 5 Group dropped 60 x 500 lb. G.P. bombs and 12 x 250 lb. S.A.P. bombs. The 2 Stirlings of No. 3 Group dropped 32 x 500 lb. S.A.P. bombs.
- (4) The crossover patrol detailed in Form Green PL/G6/28/2 was to be carried out between the following positions:-
48°32'N x 5°52'W
47°14'N x 5°15'W
47°25'N x 4°50'W
48°21'N x 6°18'W

The aircraft was to be in the first position at 2045 hours and was to continue the patrol to the prudent limit of endurance.

- (5) 54 sorties were despatched of which 44 were effective. Of the aircraft attacking the 10 Wellingtons of No. 1 Group dropped 47 x 500 lb. GP. bombs. The 21 Wellingtons of No. 3 Group dropped 93 x 500 lb. GP., 23 x 250 lb. GP., 22 x 500 lb. S.A.P. and 2 x 250 lb. S.A.P. bombs. 5 Witleys of No. 4 Group dropped 8 x 500 lb. GP. 20 x 250 lb. GP., 2 x 500 lb. S.A.P. and 6 x 250 lb. S.A.P. bombs. 8 Hampdens of No. 5 Group dropped 48 x 500 lb. S.A.P. bombs.
- (6) The attacking Stirling dropped 6 x 500 lb. G.P., bombs.

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the early hours of 11th March, out of a force of eight Blenheims and one Beaufort despatched(1); one Blenheim failed to return.

HQCC Naval Staff
Log

The first photographic reconnaissance sortie on the morning of 11th March was negative and, in case the Hipper had left Brest, patrols were ordered. Hudson S/220 Squadron took off at noon on a coastal search(2), and a Sunderland J/10 Squadron took off at 1237 hours on a patrol in the Bay of Biscay(3) covering possible westward routes. Photographs taken by a second reconnaissance sortie, a high level Spitfire, showed the Hipper exercising in Douarnenez Bay. It was feared at first that this might be a second Hipper class cruiser, but photographs of Brest Harbour, taken by a Spitfire from Benson, showed that this was not the case. Two Blenheims, E and Q/236 Squadron, were sent to the west of Douarnenez Bay(4) to locate and shadow the Hipper should she sail westwards, and three Blenheims of No. 53 Squadron were sent to attack her in Douarnenez Bay. Only one aircraft M/53 Squadron reached the target area but failed to locate the Hipper. The Hudson crossover patrol at the approaches to Brest was flown after dark.

No.19 Grp. ORB
March Appendices

Form Green
PL/G17/11/3

In the early hours of 12th March, Blenheim A/53 Squadron, was sent to locate the Hipper in Douarnenez Bay. The aircraft took off shortly after midnight and made a thorough reconnaissance of the coast from the Pointe du Dinan to the Pointe de Souche, including Douarnenez Bay, but failed to locate the Hipper. A Sunderland patrol in the Bay of Biscay was arranged for first light, estimating that the Hipper would leave Brest at dusk and make 20 - 22½ knots. The patrol was roughly V-shaped and covered the Bay between 10°W. and 12°20'W(5), with the point of the V over north-west Spain, to the north of Corunna.

No.19 Grp. ORB
March Appendices

In addition to these precautionary patrols two aircraft of No. 236 Squadron were ordered to make a reconnaissance of Brest and Douarnenez at first light, but were unable to join over the target area because of lack of cloud cover. A third Blenheim was again unsuccessful during the morning, as were both high and low photographic sorties by Spitfire both morning and afternoon. A further reconnaissance by two Blenheims of No. 53 Squadron took off at 1933 hours, but owing to cloud and haze were not even able to identify Brest.

As it was possible that the Hipper was still in Brest and preparing to sail that evening, a Hudson R/220 Squadron, flew

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- (1) Aircraft of No. 53 Squadron each carried 2 x 500 lb. S.A.P. bombs, the Beaufort of No. 217 Squadron was armed with 4 x 250 lb. S.A.P. bombs and 2 racks of incendiaries, but failed to locate the target area.
 - (2) The search was to be carried out from St. Eval through the following points, and back to base (PL/G8/11/3):-

48°30'N x 5°20'W	46°00'N x 2°20'W
47°40'N x 4°50'W	45°50'N x 3°00'W
47°10'N x 3°20'W	48°00'N x 6°10'W
46°40'N x 2°40'W	
 - (3) The Sunderland was to patrol through the following positions (Form Green PL/G9/11/3):-

48°18'N x 8°25'W	45°10'N x 6°05'W
46°28'N x 7°58'W	44°46'N x 3°37'W

 and thence to base.
 - (4) The aircraft flew from St. Eval to 48°25'N x 5°26'W
to 48°25'N x 5°57'W
to St. Eval
 - (5) The Sunderland was to patrol through the following positions leaving the first at 0730 hours:-

48°20'N x 10°00'W	
43°55'N x 9°50'W	(1000 hrs. approx.)
44°10'N x 8°35'W	(1015 hrs. ")
47°00'N x 12°15'W	(1215 hrs. ")

a coastal search from Brest to La Rochelle⁽¹⁾ and back on the reciprocal track finishing the patrol at last light. A second Hudson was ordered to carry out the crossover patrol at the approaches to Brest, but as the weather was deteriorating, the patrol was cancelled. The Sunderland patrol in the Bay of Biscay was, however, flown on the morning of 13th March, though bad weather delayed the take off of the aircraft for four hours.

No.19 Grp.

March Appendices

Cloud and rain over the target area prevented the Blenheims from making a dawn reconnaissance of Brest at Douarnenez, but a low level photographic reconnaissance later in the morning showed the Hipper to be back at the torpedo pier in Brest with anti-torpedo netting round her, and with a tug at her bows as though she were either docking, or preparing to leave. As she had been located, the Sunderland was recalled from the Bay of Biscay patrol.

Owing to 10/10 cloud the afternoon reconnaissance sorties by Spitfires were ineffective, as was a later reconnaissance by Blenheim A/236 Squadron. Precautions were again taken in case the Hipper sailed and the coastal search, as on the previous day, was flown by S/220 Squadron. After dark a second Hudson, Y/220 Squadron, commenced a patrol covering the approaches to Brest, but was recalled in the early hours of 14th March, owing to bad weather at base. A strike by Blenheims of No. 53 Squadron was cancelled when reconnaissance showed 10/10 cloud over Brest.

No.19 Grp. ORB

March Appendices

Bad weather persisted throughout 14th March: the Blenheim A/236 Squadron, on dawn reconnaissance, reported that Brest was covered with ground mist, and the only Spitfire sortie flown during the rest of the day reported fog over the area. Hudson X/220 scheduled to carry out a coastal search returned shortly after take off owing to faulty I.F.F. equipment, and was not replaced. During the night of 14/15th March, a strike force of nine aircraft of No. 53 Squadron was sent to Brest, of which six aircraft located the target area, and only two of these located a large naval vessel in the last known position of the Hipper; no hits were claimed by either, the remaining aircraft bombed port installations.

15th March

The Bay of Biscay patrol was flown by Sunderland L/10 Squadron at first light in case the Hipper had left Brest during the night. Smoke from fires started during the night's bombing made visual reconnaissance of Brest impossible for the first morning sortie by a Spitfire, but photographs showed that the Hipper was in the same position, still surrounded by anti-torpedo nets. The afternoon photographic reconnaissance gave a similar report except that the small vessels that had previously been alongside the Hipper had left.

Precautionary patrols were again scheduled in case the Hipper sailed at dusk. The coastal search was flown by

(1) Patrol through the following positions:

48°27'N x 5°24'W

48°03'N x 5°00'W

47°47'N x 4°38'W

47°17'N x 3°30'W

46°43'N x 2°38'W

45°40'N x 1°40'W

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No. 19 Grp. ORB
March Appendices

Admty. NID24/
X.202/47

Hudson X/220 squadron, which took off at 1720 hours; at 1903 hours No. 19 Group signalled to the aircraft to return to base leaving Brest at dusk. In view of this the aircraft did not complete the full patrol, turning for base at 2005 hours when in position $46^{\circ}30'N$ x $2^{\circ}26'W$, and leaving the patrol at Ushant at 2107 hours. The Hipper had commenced her journey but as she had not yet passed by the Pointe St. Mathieu and Cap de la Chevre she was not within sighting distance of X/220 squadron. A second Hudson Y/220 squadron took off at 1953 hours to carry out the crossover patrol covering the approaches to Brest. The aircraft, however, landed at 2050 hours without having commenced the patrol as the W/T equipment became unserviceable. Had the aircraft been able to carry out this patrol to prudent limit of endurance as ordered, it must almost certainly have detected the Hipper with its A.S.V. equipment, as the patrol area was not large and a number of circuits could be flown in the time. The track of the Hipper crossed the designed line of patrol in two places.

16th March

Track Chart of
Hipper Map XIII

No.10 (R.A.F.)
Squadron ORB
Form 540

When the Hipper had gained the open sea she steered a course 220° and by 0200 hours was in position $47^{\circ}00'N$ x $6^{\circ}30'W$ where she altered course to 271° . At 0445 she again altered course to 256° heading south westerly. At 0800 hours she was in position $46^{\circ}30'N$ x $10^{\circ}30'W$, heading westwards on a course of 271° . Fortune again favoured the Hipper; the Sunderland Bay of Biscay patrol was flown on that morning as previously. J/10 squadron took off at 0517 hours but lost time in reaching the patrol area, and did not commence patrol until 0736 hours instead of 0700 hours as scheduled. The track of the Hipper crossed the line of patrol but by the time the aircraft crossed her track it was too late to see her as she was already safely between the legs of the patrol and thus again escaped detection. An unidentified aircraft was observed at 1038 hours when J/10 was on the second leg of the patrol which remained in sight of the Sunderland until 1113 hours after which it disappeared on the starboard beam.

No. 19 Grp. ORB
March Appendices

The first reconnaissance sortie by a high level Spitfire, taking off at 1015 hours, found 10/10 cloud over Brest. A second high level Spitfire was sent out and found conditions at Brest suitable for photography, but owing to the presence of two M.E. 109's over the harbour the aircraft did not go over the target area. A third sortie was flown at 1530 hours, and photographs were taken which showed that the Hipper was not in dock, but as no photographs had been obtained of the Douarnenez Bay area it was not certain whether the Hipper had left or whether she was exercising again. The coastal search was flown by a Hudson, Y/220 squadron, but no further flying was possible as all coastal command stations became fog bound.

17th - 20th March

Track Chart of
Hipper Map XIII

Fog prevented all flying on 17th March. The Hipper continued westwards as on the previous day. At 0800 hours when in position $46^{\circ}35'N$ x $26^{\circ}40'W$, she altered course to 298° , and at noon to 288° . By 0001 hours on 18th March she was in position $48^{\circ}40'N$ x $34^{\circ}30'W$. Bad weather continued over the Channel area. The only reconnaissance sortie flown over Brest during the day by a low level Spitfire found cloud and fog to ground level, so that the whereabouts of the Hipper remained unknown. The Hipper continued north westerly and by 0800 hours on 19th March, was in position $56^{\circ}00'N$ x $46^{\circ}20'W$.

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heading for her appointed meeting place with refuelling ships in the vicinity of 56°30'N x 47°30'W, remaining in that area until 21st March. On 19th March both morning and afternoon reconnaissance sorties found 10/10 cloud over Brest, but the following day, 20th March, the morning sortie by a high level Spitfire obtained photographs of Brest harbour and town, and carried out a visual reconnaissance of Douarnenez Bay and the waters to the south and south-east of Brest. The photographs confirmed that the Hipper had left Brest, the protective netting that had been round her having been placed round the westernmost dry dock.

21st - 22nd March

HQCC Naval Staff
Log

During the greater part of 21st March the Hipper was engaged in oiling, but in the evening she set course in a north easterly direction. Although her departure had been discovered no special patrols were organised to locate her as her whereabouts and intentions were unknown. There was no particular reason to suppose that she was not engaged on another commerce raiding expedition and until she was located by surface craft, or within sighting distance of shore based aircraft no action could be taken. In addition to this the battle cruisers Scharnhorst and Gneisenau had been sighted on 20th March, and then lost, but were relocated for a short time on the evening of 21st March heading for the French coast. Effort was therefore concentrated on the attempt to discover their ultimate destination. By 0001 hours on 22nd March the Hipper was in position 57°20'N x 45°00'W., sailing on an easterly course of 092°. At noon she altered course to 050° and continued on this course throughout the day heading for the Denmark Straits.

23rd March

Admty. NID. 24/
X128/47

No. 98 Squadron
ORB Form 540

At 0430 hours the Hipper altered course to 315° and at 0745 hours to 010° heading in a northerly direction for the entrance to the Denmark Straits in fine weather and very good visibility. At noon she was in position 64°15'N x 31°10'W midway between Greenland and Iceland, and on a level with Reykjavik. The weather over Iceland was reported by No. 98 Squadron as being fine with visibility of over 30 miles. The only flying by the squadron during the day was a search for a U-boat to the south-east of Iceland carried out by one aircraft in the afternoon. As there had been no warning of the impending passage of the Hipper, patrols over the Denmark Straits had not been scheduled. Patrols over the Straits had been flown from 18th - 21st March, when it was thought that the Scharnhorst and Gneisenau might attempt a passage back to Kiel, but when the battle cruisers were seen heading for France on 21st March, the patrols had ceased. Thus in spite of the clear weather the Hipper entered the Denmark Straits unobserved.

Admty. NID24/
X28/47

Track Chart of
Hipper Map XIII

The Hipper continued on her course of 010° until 1700 hours, when, nearing the limit of the pack-ice, she altered course to 068°. At 2025 hours she sighted a cruiser in position 65°43'N x 28°20'W, and at 2030 hours sighted a second cruiser. She took evading action turning northwards and was out of sight of both cruisers by 2040 hours, and had not been observed by them. At 2110 hours she was again forced to adopt an easterly course on encountering pack-ice which intended to the south of the average March ice level. At 2220 hours she set course on 053°, and by midnight had passed North Cape.

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24th March

No.98 Squadron
ORB Form 540

At 0220 hours the Hipper again encountered pack-ice and also some floating ice and adopted a more southerly course until she was clear of it. At 0515 when in position 67°28'N x 19°35'W, she set course on 082°, and continued eastwards on that course until noon, by which time she was clear of Iceland. She continued eastwards on a course of 091° in good visibility but with an overcast sky. In Iceland the weather was cloudy at first becoming fine; there was no flying to the north of the island.

25th March

By 0045 hours the Hipper was crossing the meridian of 4°W, maintaining her course of 091°. At 0800 hours in position 67°45'N x 0°40'E, she turned southwards. The wind had freshened but visibility remained good. At noon she took evading action having observed an unidentified vessel, and then continued southwards on a course of 175°, crossing the parallel of 65°N about 2000 hours.

No.18 Grp. ORB
March Appendices

The standard North Sea patrols were the same as those at the time of the passage of the ~~Worm~~ Scheer a few days later (see subsection (d)) and on the morning of 25th March, Trost, Stab and Bert were flown. The aircraft on patrol Trost, the most northerly of the patrols, returned early owing to the extreme visibility and lack of cloud cover over the Norwegian coast. The Hipper was too far to the north at that time to be in any danger of being observed.

26th March

Admty. NID24/
X28/47

No.18 Grp. ORB
March Appendices

At 0001 hours the Hipper was on a level with Trondheim continuing south on the same course. She entered the Inner Leads of Norway at 0510 hours through Helligsøy Fjord, entering Hjelte Fjord at 0630 hours. She passed through the Vattlestrom and anchored in Grimstadt Fjord at 0830 hours. In Scotland the weather was bad; No. 18 Group reported a depression centred over the Hebrides with frontal rain, sleet and snow spreading across Scotland from the south west; north of the Shetlands although on the Norwegian coast the weather was mainly fair with broken clouds. One patrol to the west of the Greenwich meridian was flown by aircraft from Sullom Voe, but patrols from Leuchars and Wick were cancelled because of the weather at base. The Hipper weighed anchor at 1930 hours and left the Inner Leads through Kors Fjord, passing Marstein at the entrance to the Fjord at 2127 hours, in good visibility. At 2300 hours in position 59°50'N x 4°E., she set course on 170°.

27th March

At 0200 hours the Hipper altered course to 130°, and at 0530 hours she was south of Lister Light entering the Skagerrak, thus accomplishing the voyage round southern Norway, where she ran the greater risk of detection, in darkness. By 0800 hours she was crossing the meridian of 9°E. Sleet and snow persisted over Scotland; the only patrol flown during the day was Hornli by an aircraft from Thornaby, which took off at 1130 hours too late to see the Hipper which had by that time rounded the Skaw.

The Hipper berthed in Deutsches Werke, Kiel, at 1430 hours on 28th March, after a successful homeward voyage due in part

to good fortune in the early days of the voyage, and to good weather forecasting and use of the Inner Leads of Norway for the passage of the North Sea.

(j) Scharnhorst and Gneisenau Voyage Kiel-Bergen-Baltic, 28th December, 1940 - 1st January, 1941

HQCC Naval Staff
Log

On 28th December the battle cruisers Scharnhorst and Gneisenau left Kiel, sailed north into Norwegian waters in the vicinity of Bergen, and thence south again, entering the Baltic on 1st January. On 21st December, photographic reconnaissance had shown them to be in the floating dock in Kiel; the next successful reconnaissance of the area, on 10th January, showed that they were no longer in Kiel harbour, but, until the capture of the relevant German documents, nothing was known of their voyage northwards.

HQCC Naval Staff
Log

Immediately prior to this voyage attention was focussed on the attempt to discover the whereabouts of the raider - the cruiser Admiral Hipper - that had had a short engagement with H.M.S. Berwick on 25th December. The Admiralty had requested that patrols covering the channels between Iceland, the Faeroes and the Shetlands, should be flown, as well as the patrols covering the Norwegian coast, in case the raider attempted to break back into the North Sea (see sub-section (e), the outward voyage of the Hipper). On 27th December it was requested that patrols between the Shetlands and Iceland should be continued, and it was reported that W/T traffic suggested a movement south along the Norwegian coast in the near future. On that day patrols S.A.1(e) and the northern tracks of S.A.2 were flown during the morning, and a Spitfire carried out a photographic reconnaissance sortie over the Sogne Fjord and Stavanger. Three Blenheims of No. 248 Squadron were detailed to intercept the German meteorological aircraft expected to pass between Fair Isle and Ronaldshay, but although the area was patrolled no enemy aircraft was sighted. In the afternoon, patrols S.A.1(a), S.A.2, S.A.3 and S.16(B) were flown.

Ibid

No.18 Grp. ORB
Dec. Appendices

28th December

No.18 Grp. ORB
Dec. Appendices

Form Green
RO/G/28/12

The Line and Crossover patrols were flown throughout the day in case of an attempted break back into the North Sea by the enemy raider. In view of other commitments the S.A. patrols were not flown, but patrols Stab and Sleeve were flown during the morning, and two Beauforts of No. 42 Squadron were detailed to carry out a search off the Norwegian coast in the vicinity of 62°06'N x 5°10'E. The aircraft were recalled before reaching the Norwegian coast as the weather was closing down at base. No. 18 Group reported that the weather deteriorated slowly throughout the day.

The Scharnhorst and Gneisenau left Kiel during the afternoon and headed northwards through the Belts.

29th December

Map XV Track
Chart of
Scharnhorst and
Gneisenau

No.18 Grp. Dec.
Appendices

At noon the Scharnhorst and Gneisenau were in the Kattegat on a level with Frederikshavn; they rounded the Skaw and by 1720 hours were in the Skagerrak in the approximate position 58°N x 9°E, heading westwards. No. 18 Group reported the weather as being cloudy with occasional rain and some sea fog. Patrol Bert, the only Norwegian coast patrol scheduled for the day, was cancelled because of the weather. The Line patrol for the raider, and patrols

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S.A.1(a), S.A.2 and S.A.3 were flown during the afternoon, though the aircraft on patrol S.A.3 was forced to return early on account of bad weather. The only patrol area within sighting distance of the track of the Scharnhorst and Gneisenau was S.A.2.; however, the aircraft completed the patrol and landed between 1515 and 1611 hours, at which time the battle cruisers were still in the Skagerrak. They passed Lindenes at approximately 2030 hours and altered course to 292° and at 2300 hours to 316°.

30th December

Map XV Track
Chart

Admty. NID24/
X127/47

At 0157 hours when the Scharnhorst and Gneisenau were on a level with Stavanger, in position 58°55'N x 4°25'E, they altered course due north; they continued on this course until 0640 hours when, in position 60°20'N x 4°25'E, they altered course again to 090°. At 0740 hours they changed course to 155° and at 0830 hours, when crossing the meridian of 5°E, to 050°. They entered the Inner Leads of Norway through Kors Fjord, passing Marstein, at the entrance of the Fjord, at 0930 hours. Continuing through the Vattlestrom and into the Hjelte Fjord they anchored off Kalvanaes at 1255 hours.

No.18 Grp. ORB
Dec. Appendices

No. 18 Grp. reported frequent wintry showers in the north and much rain in the south. The search and Line patrols to intercept the enemy raider were cancelled on account of the weather. Patrols Stab and Hornli, detailed to take off at 0930 hours, were also cancelled, as was patrol Stand scheduled for the afternoon. Even had it been possible to fly, the aircraft on patrol Stab would have been unlikely to see the battle-cruisers as they would have been south of Bergen at the time the patrol reached the Norwegian coast.

Map XV Track
Chart

The Scharnhorst and Gneisenau weighed anchor at 1800 hours gaining the open sea through Hellisoy Fjord, and steering a course of 290° altering later to due north. At 2030 hours they altered course to 270°, and at 2130 hours when in position 61°00'N x 3°50'E they headed due south.

31st December

Map XV Track
Chart

At 0330 hours the battle-cruisers altered course to 128° and later to 104°, passing Lindenes at approximately 0830 hours. At 1134 hours they were in the Skagerrak in position 57°50'N x 9°20'E; they rounded the Skaw and continued southwards.

No.18 Grp. ORB
Dec. Appendices

Wintry showers continued throughout 31st December, and, owing to the weather, the photographic reconnaissance sortie over Kiel and the Norwegian coast had to be cancelled. The aircraft on patrol Bert had been ordered to take off at 0630 hours, those on patrols Trost, Stab and Hornli at 0930 hours, and the three aircraft on patrol Stand between 1030 and 1105 hours; these patrols were at first postponed for an hour and then cancelled. Had there been any flying the patrols Bert, Stab and Hornli would have crossed the track of the Scharnhorst and Gneisenau, though all the aircraft would have arrived too late to see them.

Thus with the aid of bad weather and darkness the battle cruisers were able to complete their whole voyage undetected, and by noon of 1st January, 1941, were passing Rugen Island, heading eastwards up the Baltic.

(k) Scharnhorst and Gneisenau. Actual break out between 22nd January and 5th February, 1941

Although the battle cruisers Scharnhorst and Gneisenau, having left Kiel on 22nd January, eventually managed to break out into the Atlantic unobserved, their voyage, (1) the third break out of the winter, was not as fortunate as those of the Admiral ~~Scheer~~ Scheer, or the Admiral Hipper. Unlike those two ships the battle cruisers at first attempted passage into the Atlantic between the Faeroes and Iceland. Having encountered British naval forces they returned northward and finally entered the western Atlantic through the Denmark Straits. They were not observed by aircraft on their voyage, and the fact that they had ultimately broken into the Atlantic was not known with certainty until they were observed by aircraft from H.M.S. Malaya on 8th March, though the presence of a raider, or raiders, in the Atlantic was known from their attacks on shipping on 22nd February.

There had been no indication of the movement of major naval units northward when the Scharnhorst and Gneisenau commenced their voyage, but watch was being kept for merchant shipping movements. On 19th January, Admiralty Intelligence reported that some movement of shipping on the Norwegian coast was expected. On 21st January they reported that units of an unknown type were due to leave Heligoland for Bergen that day, and on 22nd January that a convoy of merchant vessels had been seen off Lister Light, which, they estimated, would be in Stavanger the following day. Patrols S.A.1(a) and S.A.2, extended to the Norwegian coast, and patrol Bert (from Bergen to Stavanger) were accordingly flown on 24th January. On the evening of 25th January however, Intelligence informed Coastal Command that observers in Denmark had seen two heavy ships, believed to be the Scharnhorst and Gneisenau, passing Nyborg, northward bound, at 1100 hours on 23rd January; patrols were planned accordingly.

HQCC Naval Staff
Log

No. 18 Grp. ORB
Jan. Appendices

HQCC Naval Staff
Log

22nd-24th January

The Scharnhorst and Gneisenau put out of Kiel on 22nd January and headed northwards through the Baltic. At 1100 hours on 23rd January they were seen to pass Nyborg. Continuing northwards they anchored in the Kattegat within Skagen Boom in the evening, remaining there throughout the following day as the weather was considered unfit for a break out; although the weather was bad over Scotland, it was clear with unlimited visibility over west Norway.

Admty. NID24/
X95/46

25th January

The battle cruisers weighed anchor at 1116 hours, and, rounding the Skaw, headed westwards through the Skagerrak, passing Lindenes at approximately 1930 hours on a course of 292°. At 2314 hours, when in position 58°15'N x 5°05'E, they altered course to 320°.

Map XV Track
Chart

No. 18 Grp. ORB
Jan. Appendices

Owing to bad weather the only standard patrol flown during the day was patrol Bert. In addition to this a photographic reconnaissance was made of Bergen, Haugesund and Stavanger to search for merchant shipping. There was no flying over the Skagerrak. The battle cruisers rounded southern Norway under cover of darkness.

(1) The track chart of the voyage is given at Map XV.

HQCC Naval Staff
Log

The Admiralty Intelligence report on the passage of the Scharnhorst and Gneisenau was received at Coastal Command at 1845 hours; no steps could be taken immediately. The C-in-C Home Fleet requested that patrols should be flown over both the Norwegian coast and the Shetlands - Iceland channels the following day to intercept the ships in passage, and No. 98 squadron in Iceland were ordered to fly a patrol over the Denmark Straits.

26th January

The Scharnhorst and Gneisenau altered course to due north at 0001 hours when in position 58°45'N x 4°00'E. At 0700 hours, when in position 61°10'N x 4°00'E they altered course to 300°, but at 0745 again went due north until noon, by which time they were on a level with Kristiansund; course was then set on 345° changing later to 330°, but ultimately to 345° again.

No.18 Grp. ORB
Jan. Appendices

No.254 Squadron
ORB Form 541

The Norwegian coast patrols Trost, Stab and Bert were flown but all were too late to see the battle cruisers. The aircraft on patrol Bert, the first patrol of the day, took off at 0645 hours, N/269 Squadron making a landfall on the Norwegian coast at 60°19'N x 5°00'E, at 0845 hours, and M/269 Squadron making a landfall at 59°08'N x 4°48'E at 0850 hours. The aircraft were about two and a half hours too late to see the battle cruisers, which had been on a level with Bergen at approximately 0600 hours. Four Blenheims flew patrol Stab; H and G/254 Squadron on the southern half of the patrol turned for base when in position 60°38'N x 3°11'E, because of lack of cloud cover. F and J/254 Squadron, on the northern half of the patrol made a landfall at Stadtlandet at 1043 hours and turning south completed the patrol. The Scharnhorst and Gneisenau had been level with Stadtlandet at approximately 0900 hours and were therefore beyond sighting distance. Blenheim D/254 Squadron on patrol Trost, the most northerly of the patrols, flew almost within sighting distance of the battle cruisers. The aircraft took off from Sumburgh at 0845 hours making a landfall on the Norwegian coast at 62°20'N x 5°20'E at 1044 hours. On encountering an M.E. 109 and two M.E.110's the aircraft took cover in cloud heading northwards. At 1135 hours landfall was made at 62°45'N x 6°05'E, but owing to lack of cloud cover the aircraft turned westwards. At 1149 hours, when in position 62°50'N x 4°45'E, some 35 miles to the south-east of the Scharnhorst and Gneisenau, and beyond sighting distance, the aircraft turned for base.

No.98 Squadron
ORB Form 540

No. 18 Grp. ORB
Jan. Appendices

In addition to the Norwegian coast patrols, the Denmark Straits and the channel between the Faeroes and Iceland were patrolled. Two aircraft of No. 98 squadron flew a patrol over the Denmark Straits⁽¹⁾ during daylight hours, the first aircraft taking off at 1100 hours and the second at 1204 hours. Patrols R1⁽²⁾ and R2⁽³⁾ covering the south of the Faeroes - Iceland channel were flown by Y and R/201 Squadron

- (1) The patrol over the Denmark Straits was from Kaldadarnes to 65°34'N x 24°30'W (Staalbjerg Huk Lighthouse)
66°26'N x 23°08'W (Straumnes)
67°10'N x 23°10'W (if endurance permits)
to base (No. 98 squadron ORB Form 540)
- (2) Patrol R1 crossover between following points:-
61°00'N x 12°00'W
61°38'N x 14°30'W (Form Green CC/G1/26/1)
- (3) Patrol R2 crossover between following points:-
61°43'N x 14°42'W
62°21'N x 17°02'W (Form Green CC/G1/26/1)

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respectively. The amended Fugle⁽¹⁾ patrol covering the northern approaches to the Faeroes - Iceland Channel was flown by Sunderland E/204 Squadron. Air cover was also given to the Home Fleet leaving Scapa for the north-west.

The battle cruisers continued north-north-west undetected.

27th January

Admty. NID24/
X95/46

At 0410 hours, when in position 68°00'N x 0°25'E., the Scharnhorst and Gneisenau altered course to 220° to attempt a passage between the Faeroes and Iceland. By 1223 hours they were in position 65°55'N x 6°20'W; they then altered course to 260°, and later, when in position 65°35'N x 6°20'W., to 230° reporting poor visibility.

The search for the battle cruisers continued; one patrol was flown over the Denmark Straits and patrols R1 and R2 were again flown. The new Fugle patrol was flown as on the previous day, Sunderland F/204 Squadron taking off at 0630 hours and landing at 1732 hours. The aircraft crossed the ultimate track of the battle cruisers, but was too early to see them as they did not reach the patrolled area until 1800 hours approximately. One Norwegian coast patrol, Trost, was scheduled to search for them, but the aircraft, F/254 Squadron, returned early owing to lack of cloud cover and extreme visibility.

28th January

Admty. NID24/
X127/47

HQCC Naval Staff
Log

At 0001 hours when the Scharnhorst and Gneisenau were south-east of Iceland in position 63°25'N x 13°05'W, they set course on 230°. By 0620 hours they were in position 62°35'N x 18°20'W in fine weather and very good visibility; their hope of an unobserved break out was diminished. Shortly afterwards they were sighted by H.M.S. Naiad, one of the cruiser patrol line, and turned on to a course of 070°, making smoke. They were lost to sight by 0715 hours. At 0730 hours when in position 63°00'N x 17°00'W they altered course to 090°, and by noon were in position 63°10'N x 13°06'W when they headed north easterly. At 1903 hours, in position 64°30'N x 6°20'W, they finally set course on 034°.

No. 98 Squadron
ORB Form 540

The report of the sighting made by H.M.S. Naiad was received at Coastal Command at 0930 hours. The aircraft on patrols R1, R2 and Fugle were already in the air, but signals were sent to alter their patrol areas as the battle cruisers had turned in an easterly direction after sighting the Naiad. One aircraft of No. 98 squadron had commenced a patrol over the Denmark Straits.

Sunderland Y/201 squadron had taken off for patrol R1 at 0700 hours. At 1205 hours having received a signal when on the patrol, the aircraft proceeded to position 62°00'N x 12°22'W, thence, crossing the track of the battle

-
- (1) The original patrol Fugle was a crossover between following points:-

63°00'N x 7°00'W
65°18'N x 9°18'W (Form Green RO/G4/8/1)
65°06'N x 10°00'W
63°10'N x 6°20'W

but was amended by Form Green CO/G3/25/1 moving all points 60 miles to the east.

Form Orange
SUL/02/28/1

Form Orange
SUL/03/28/1

Form Orange
SUL/01/28/1

cruisers just too late to see them, to 63°16'N x 11°40'W and thence returned to base. (1) Sunderland F/204 squadron on patrol R2 had also taken off at 0700 hours; the aircraft completed one circuit of the patrol before receiving a signal at 1100 hours to proceed to the new patrol area. The new patrol was actually to the north of the track of the Scharnhorst and Gneisenau, the aircraft crossing their track at noon in poor visibility; had the weather been clear the aircraft should have been within sighting distance of the battle cruisers. Having completed one circuit of the new patrol the aircraft set course for base at 1415 hours. (2) The aircraft on the new Fugle patrol, Sunderland E/204 Squadron, had taken off at 0630 hours and at 1058 hours, on receiving the signal, the aircraft left the original patrol area to commence a new patrol from a point off the east coast of Iceland. This patrol also was to the north of the track of the battle cruisers. Having reached Fugle at 1449 hours the aircraft set course for base crossing the track of the Scharnhorst and Gneisenau but not within sighting distance. (3)

As no further sightings had been made the C-in-C Home Fleet signalled that the search was being discontinued, and that the Fleet was returning to Scapa. The battle cruisers continued north - north east.

29th January

Admty. NID24/
X95/46

At 0600 hours the Scharnhorst and Gneisenau changed course to 085°, when in position 67°55'N x 0°30'W, and at 1135 hours they again altered course, heading northerly on 354° in a blizzard, with low visibility.

No.18 Grp. ORB
Jan. Appendices

As it was considered that the danger of a break out through the Denmark Straits was passed, the patrols by No. 98 squadron were cancelled. Patrols R1 and R2 were scheduled, but these were cancelled owing to shortage of aircraft. The S.A. patrols were extended to the Norwegian coast to observe any shipping movements southwards.

30th January

Map XV Track
Chart

At 0626 hours the battle cruisers were in position 72°15'N x 0°30'E heading northwards on a course of 354° for their rendezvous with the tanker Adria. They met the tanker later in the day and commenced refuelling. A special reconnaissance to observe all details of shipping in Trondheim and Stavanger was ordered, but aircraft were unable to get in over the harbours owing to lack of cloud cover. No special patrols, to attempt to locate the battle cruisers were flown.

No.18 Grp. ORB
Jan. Appendices

- (1) Sightings indicating the position of the aircraft during the patrol were:-
1015 hours sighted an armed trawler in position 61°43'N x 13°48'W
1055 hours sighted the merchant vessel Beaverdale in position 60°56'N x 12°34'W
1115 hours sighted an armed trawler in position 60°56'N x 12°20'W
The aircraft set course for new patrol at 1205 hours, no further sightings were recorded.
- (2) F/204 Squadron reached the patrol area at 0945 hours. Having completed one circuit of the patrol set course for new patrol area at 1100 hours, sighting an armed trawler in position 62°49'N x 13°00'W at 1145 hours. At 1250 hours the aircraft sighted a British battleship and three destroyers in position 64°32'N x 11°40'W.
- (3) E/204 squadron received a signal from No. 18 Group at 1058 hours when in position 66°24'N x 7°46'W. The aircraft left the patrol area and at 1221 hours commenced new patrol from position 64°47'N x 12°03'W. The aircraft reported poor visibility and frequent heavy showers.

31st January - 1st February

The Scharnhorst and Gneisenau continued to take in oil. No special patrols to locate them were flown on either day or subsequently.

2nd February

Admty. NID/24/
X95/46

At 0235 hours the battle cruisers were in position 71°45'N x 0°20'W, on a course of 190°. When in position 71°00'N x 0°40'W they altered course to 246° and later to 260°. There were frequent heavy showers in Scotland and a reconnaissance of Trondheim had to be cancelled.

3rd February

Map XV Track
Chart

Continuing south westerly the Scharnhorst and Gneisenau were in position 69°25'N x 13°20'W at 0100 hours. At 0500 hours they encountered ice and turned southwards, reaching position 68°48'N x 15°30'W by 0730 hours. They continued on a zig-zag course, skirting the pack ice, until 1850 hours, when, in position 67°15'N x 20°10'W., they set course on 255° heading across the northern part of the Denmark Straits. They altered course to 235° at 2110 hours when in position 66°45'N x 24°00'W.

No.98 Squadron
ORB Form 540

No operations had been carried out by No.98 Squadron from Kaldadarnes during the day, the weather being overcast with intermittent rain; no request was made for patrols over the Denmark Straits.

4th February

Admty. NID24/
X95/4.6

The battle cruisers were on a level with North Cape at 0001 hours, in position 66°20'N x 25°35'W. They continued to skirt along the edge of the pack ice, finally setting course at 0430 hours on 225°. By 1000 hours they were in position 64°53'N x 32°30'W passing out of the Denmark Straits on a course of 220°. It was recorded in their logs that the weather was overcast, but that the visibility was fairly good. In Iceland there was intermittent slight rain, and the weather was cloudy through the day; no flying was undertaken by No. 98 squadron.

The Scharnhorst and Gneisenau continued south westerly on a course of 220° until 1000 hours the following day when they were south of Greenland, in position 57°50'N x 43°50'W having successfully completed their break out.

(1) Scharnhorst and Gneisenau. Commerce Raiding
5th February - 16th March, 1941

Following their successful passage of the Denmark Straits the Scharnhorst and Gneisenau took in oil fuel from a supply tanker south-east of Greenland, prior to commencing their raids on the main shipping routes. As a result of attacks made between 22nd February and 16th March, 115,630 tons of British and Allied shipping was sunk or captured. The battle cruisers commenced their journey to Brest on 17th March.

On 7th February, having completed oiling, the battle cruisers headed south easterly for the HX convoy routes, proceeding on their estimate of the shipping lanes. On 8th February they sighted H.M.S. Ramillies escorting convoy HX.106, and turned north westerly to avoid action. The

Ramillies only sighted the mast and top of one of the battle cruisers which led to the mistaken impression that the ship in question was the Admiral Hipper attempting to break back into the North Sea; patrols over the Denmark Straits and between the Shetlands and Iceland were flown accordingly.

Admty. B.R.1337

The Scharnhorst and Gneisenau then refuelled south-west of Greenland and on 17th February were again on the convoy route east of Newfoundland; they cruised back and forth on the route until 22nd February when they encountered a number of unescorted British merchant ships, sinking five of them⁽¹⁾ totalling 25,784 tons. Aircraft were sent out from Halifax to search for the raiders, (owing to radio jamming their identity was not known) but were unable to locate them in poor visibility. Following this action the battle cruisers headed southwards to refuel, and then easterly to the SL. convoy routes from the south.

Admty. B.R.1337

The Scharnhorst and Gneisenau reached their estimate of the position of the SL. convoy route on 3rd March, and turned southwards. At 1600 hours on 8th March they were sighted by Swordfish aircraft from H.M.S. Malaya, which was escorting convoy SL.67, and were later sighted by the Malaya herself. The Scharnhorst and Gneisenau avoided an engagement by turning north-westerly, and were lost to sight by 1829 hours. The following day they encountered and sank the Greek ship Marathon of 7,926 tons, in the approximate position 21°N x 25°W, which had been independently routed from the Cape.

Map XV Track
Chart

Admty. B.R.1337

On 12th March, the battle cruisers, having refuelled, again sailed for the convoy route off Newfoundland, but on 15th March in the vicinity of position 43°N x 44°W, encountered a number of independently routed ships, sinking seven, and taking a further two as prizes⁽²⁾, giving a total loss of 53,488 tons. In response to distress signals an armed Merchant cruiser and a submarine, part of the escort of convoy HX.114, were detached to the area where it was believed that there were some 14 ships, including 10 tankers.

Admty. "The War
at Sea" Vol.IIAdmty. "The War
at Sea" Vol.IIHQCC Naval Staff
Log

In the early hours of 16th March another ^{independent} 7 ships⁽³⁾ aggregating 28,424 tons, were sunk. The battle cruisers, together with an Altmark class tanker proceeded northwards, and in the evening sighted H.M.S. Rodney, the principal escort vessel with HX.114. At 0010 hours on 17th March, a report was received from the Rodney of an engagement with an unknown ship of naval type; she lost touch with the enemy in darkness.

(1) Ships sunk by Scharnhorst and Gneisenau on 22nd February were:-

	Tonnage
<u>Trelawny</u>	4,689
<u>Lustrous</u>	6,156
<u>Harlesdon</u>	5,483
<u>Kantara</u>	3,237
<u>A.D. Huff</u>	6,219

(2) The ships sunk by the Scharnhorst and Gneisenau on 15th March were:-

British	<u>British Strength</u> (Tanker)	7,139 tons
"	<u>Simnia</u> (Tanker)	6,197 tons
"	<u>Athelfoam</u> (Tanker)	6,554 tons
"	<u>Royal Crown</u>	4,388 tons
"	<u>Ilyson</u>	4,564 tons
"	<u>Rio Dorado</u>	4,507 tons
Norwegian	<u>Bianca</u> (Tanker)	5,688 tons

The ships taken as prizes were:-

British	<u>San Casimiro</u>	8,046 tons
Norwegian	<u>Polycarp</u>	6,405 tons

(3) The ships sunk on 16th March were:-

British	<u>Sardinian Prince</u>	-	3,491 tons
	<u>Silverfir</u>	-	4,347 tons
	<u>Empire Industry</u>	-	3,721 tons
	<u>Demeterton</u>	-	5,251 tons
	<u>Chilean Reefer</u>	-	1,739 tons
Dutch	<u>Mangkai</u>	-	8,298 tons
Norwegian	<u>Granli</u>	-	1,577 tons

The Scharnhorst and Gneisenau turned south-easterly after this encounter and commenced their voyage to Brest.

(m) Scharnhorst and Gneisenau. Voyage into Brest
17th-22nd March, 1941

The battlecruisers commenced their voyage into Brest in the early hours of 17th March, after their encounter with H.M.S. Rodney, dropping anchor in the Goulet de Brest at 0750 hours on 22nd March, to await the tide, before finally docking in the Port Militaire. Their presence in Brest was not confirmed until 28th March.

After the Scharnhorst and Gneisenau had turned northwards on sighting the Malaya on 8th March, it was considered likely that they would make for some port, and not remain at sea. There were indications that they might attempt to break back into the North Sea. On 14th March the C.-in-C. Home Fleet requested that patrols should be flown over the Denmark Straits on the following three days; a further request was made by the Admiralty that patrols R1 and R2 should also be flown, if aircraft were available, but not at the expense of escorts for important convoys. On the following day, 15th March, the Admiralty requested that the patrols should be continued for three or four days, if necessary at the expense of convoy escorts. Patrols R1, R2 and Fugle had been flown during the day, but the Denmark Straits patrol had been cancelled on account of the weather. Late that night reports came in of the shelling of shipping by a raider in the Western Atlantic. At 0830 hours on 16th March the Admiralty informed Coastal Command that the raider in question was believed to be the Scharnhorst and Gneisenau. In the meantime patrols R1 and R2 had taken off, and a patrol was flown over the Denmark Straits. Reports of renewed raider activity continued throughout the day.

17th March

HQCC Naval Staff
Log

Map XV Track
Chart

Form Green
RO/G2/16/3

No. 98 Squadron
ORB Form 540

At 0010 hours Coastal Command received a report that the Rodney was fighting an unknown ship, and at 0040 hours that she reported that the ship was almost certainly a naval vessel, but that she had lost touch to north-east. When out of sight of the Rodney the Scharnhorst and Gneisenau headed in a south easterly direction on a course of 120° until 1345 hours, when, in position 44°35'N x 39°40'W they altered course to 113°, continuing on this course for the rest of the day. The passage of raiders into or out of the North Sea was still expected, and patrols R1, R2 and Fugle were again flown; unsuitable weather conditions prevented the take off of aircraft of No. 98 Squadron for patrols over the Denmark Straits.

18th March

The Scharnhorst and Gneisenau continued towards Brest. At 0900 hours they were in position 43°30'N x 35°5'W and at 1900 hours in position 43°00'N x 33°40'W. During the day one patrol was flown over the Denmark Straits and two sorties of patrol R3(1), one commencing at dawn and the second ending

(1) Patrol R3 was a crossover between the following points:-

62°01'N x 14°49'W
63°19'N x 15°10'W (Form Green RO/G3/17/3)
63°12'N x 15°47'W
62°08'N x 14°10'W

at dusk, were flown instead of patrols R1 and R2. The aircraft on the second sortie landed at Reykjavik.

Map XV Track
Chart

19th March

No. 18 Grp.
ORB March
Appendices

At 0300 hours the battlecruisers were in position 42°30'N x 33°30'W steering at first east north east and later northerly, finally setting course on 086° at noon, when in position 42°55'N x 32°40'W, maintaining this course throughout the rest of the day. In the north, efforts to detect any attempted break through into the North Sea were intensified. Two sorties were flown over the Denmark Straits, and patrol R1 was scheduled as well as R3. Two sorties of R1 were flown commencing at dawn and ending at dusk. Only one sortie of the three scheduled for R3 was flown, the first being cancelled because of the weather, and the second, which was to have been flown by the Sunderland at Reykjavik, because of engine failure. The possibility of the battlecruisers heading for the French coast was not at that time considered, the attention of No. 19 Group being focussed on the attempt to locate the cruiser Admiral Hipper, which it was believed might have left Brest, and had in fact left on 15th March. (See sub-section (h)).

20th March

Form Green
RO/G5/19/3

The Scharnhorst and Gneisenau were in position 43°30'N x 24°10'W at 0800 hours. Having altered course twice, at 0930 hours approximately, they finally steered north north-east on a course of 030°. In the north, patrol R3, throughout the day, was given first priority, and patrol Fugle second priority for sorties at dawn and dusk if insufficient aircraft were available for an all day patrol. Two Battle aircraft of No. 98 squadron patrolled the Denmark Straits during the morning and afternoon.

Admty.
"The War at
Sea"

Admty
B.R.1337

The battle cruisers continued on their course of 030°. At 1730 hours they were sighted by a Swordfish aircraft from the Fleet Carrier Ark Royal. The aircraft reported them as being in position 46°50'N x 21°25'W (about 600 miles west north west of Cape Finisterre) steering north at 20 knots. The Ark Royal and the battle cruiser Renown were at that time 160 miles to the south-east of the position, and were unable to send off further aircraft to shadow or attack the battle cruisers because of low visibility. The two merchant ships San Casimiro and Polycarp that had been captured by the Scharnhorst and Gneisenau on 15th March were sighted later, the San Casimiro being scuttled by the prize crew to avoid capture, and the Polycarp escaping under cover of darkness. The report from the Ark Royal was received at Coastal Command at 2045 hours, and patrols for the following day were planned accordingly.

Map XV "Track
Chart"

At 1830 hours when in position 47°15'N x 20°40'W the battlecruisers turned northwards and at 2010 hours, in position 47°50'N x 20°25'W altered course east south east on 103°, continuing on that course until the following morning.

21st March

The Scharnhorst and Gneisenau altered course to 090° at 0800 hours when in position 47°05'N x 14°50'W, continuing due east until 1840 hours. As it was possible that the battlecruisers might either make for the French coast, or continue northwards, sweeps out into the Atlantic to locate them on either course were planned for the morning. It was, however,

considered more probable that they would make for a French port, at top speed and with maximum use of darkness for their approach to the coast, and additional patrols were planned for last light to cover the approaches to the ports. It was further arranged that 25 Bomber Command Wellingtons should stand by ready to attack if the ships were located. In case of raider activity in the north, one patrol of the Denmark Straits and patrol Fugle were flown, no further patrols in the north were scheduled subsequently.

Three sorties were planned for first light to locate the battlecruisers, a sweep by Catalinas, a Sunderland crossover patrol, and a parallel track search by Whitleys with A.S.V. equipment. Two Catalinas were scheduled to take off at first light from Lough Erne and sweep out to 24°W(1) in case an attempt was made to break north. Aircraft Y/240 Squadron took off at 0735 hours completing the north section of the sweep; aircraft A/240 Squadron took off at 0725 hours for the southern section of the sweep, but crashed in Eire on the outward journey. Sunderland F/210 Squadron took off from Pembroke Dock at 0445 hours, commencing the crossover patrol(2) in position 48°10'N x 13°00'W at 0937 hours. This patrol crossed the track of the battlecruisers, but on the second leg of the patrol the aircraft was too early to see them, on the fourth leg of the patrol when the aircraft was heading north north west, it again crossed their track; on this occasion the aircraft must have been within ten miles of the battlecruisers but owing to bad visibility was unable to see them. The weather as recorded in the log of the battlecruisers was cloudy with misty visibility. The aircraft reported that on the outward trip visibility had been up to 60 miles but had later fallen to 1500 yards in fog patches south of latitude 48°. The Whitley parallel track search(3) was scheduled to take off from Limavady at 0700 hours and was designed to locate the battlecruisers if they headed northwards. Aircraft B/502 squadron took off at 0655 hours but it was found impossible to get the other aircraft started. On instructions from Coastal Command this aircraft was recalled, and orders were

- (1) Two searches by Catalinas were through following positions:-

(a) Northern Search

Base to 54°40'N x 10°00'W
 54°40'N x 23°45'W Form Green
 54°20'N x 23°45'W CC/G1/20/3
 54°20'N x 10°00'W

(b) Southern Search

Base to 54°00'N x 10°30'W
 54°00'N x 23°45'W Form Green
 53°40'N x 23°45'W LV/G5/21/3
 53°40'N x 10°30'W

- (2) Sunderland crossover through following positions:-

48°10'N x 13°00'W
 48°10'N x 12°40'W Form Green
 46°25'N x 12°40'W CC/G2/20/3
 46°25'N x 13°00'W

- (3) The Whitleys were to carry out a parallel track search at 20 miles intervals using a line from 55°00'N x 10°00'W to 51°41'N x 21°25'W as the centre.
 Form Green LV/G1/21/3)

given that the other aircraft should be made serviceable and stand by for convoy escort duties; fog later made it impossible for the aircraft to take off.

Form Green
CH/G3/21/3

HQCC Naval
Staff Log

No. 19 Grp.
ORB.

Admty.
NID24/ X127/47

By 1840 hours the Scharnhorst and Gneisenau had reached position 47°05'N x 9°40'W and adopted a zig zag course. At 1400 hours it had been reported to Coastal Command that the search for the battlecruisers by naval forces had been abandoned, aircraft patrols were, however, continued. Two Wellington aircraft had been flown from Birchan Newton to St. Eval to patrol the Bay of Biscay covering the approaches to the southern French ports, (1) and two Hudsons based at St. Eval were to fly a patrol covering the approaches to Brest and the northern Biscay ports. (2) The Wellingtons were unable to take off on patrol as their W/T needed calibrating. The Hudsons took off at 1804 hours, but at 2030 hours as the weather was closing down the aircraft were signalled to return to base. Aircraft U/220 Squadron had arrived in the first position of the more northerly patrol at 1928 hours and had set course for the second position; at 2035 hours however, before reaching this position the aircraft received the recall signal from No. 19 Group and set course for base. Hudson X/220 Squadron had arrived at the first position of the southern patrol at 1944 hours. At 1955 hours the aircraft picked up an echo to the south-east on its A.S.V. equipment, and altering course located and identified the battlecruisers and a destroyer. The aircraft signalled No. 19 Group giving the enemy position at 2011 hours as 47°17'N x 7°13'W, with a speed of 20 knots on a course of 090° and continued shadowing the enemy until recalled to base at 2030 hours. Owing to fog both aircraft had to be directed to Tangmere. The Scharnhorst and Gneisenau reported sighting two Hudsons at 2018 hours but that the aircraft were out of sight by 2030 hours.

No immediate action could be taken but further patrols were planned for moonlight hours. (The moon rose at 0400 hours approximately). The battlecruisers finally set course on 060° heading for Brest.

22nd March

At 0100 hours the Scharnhorst and Gneisenau were in position 47°30'N x 6°40'W., continuing on their course of 060°. At 0300 hours they altered course to 045°; they dropped anchor in the Goulet de Brest at 0750 hours.

HQCC
Naval
Staff Log

No. 22
Squadron
ORB.
Form 541

The Hudsons at Tangmere were ordered to refuel and stand by, and No. 53 squadron were asked to stand by with S.A.P. bombs and flares in case the battlecruisers were located by Beaufort and Blenheim reconnaissances. At 0310 hours two Beauforts of No. 22 Squadron took off from Thorney Island, C/22 Squadron to carry out a reconnaissance of Brest and G/22 Squadron of Lorient and St. Nazaire. Neither aircraft could see anything

(1) One Wellington was to patrol from 46°44'N x 6°30'W to 46°44'N x 11°00'W arriving in the first position at 1900 hours.

The second Wellington was to patrol from 46°28'N x 6°10'W to 46°28'N x 10°40'W commencing at 1900 hours. (Form Green PL/G20/21/3)

(2) The Hudson patrol were to be flown between the following positions:-

Northern patrol 47°52'N x 7°55'W
47°52'N x 12°24'W (Form Green PL/G20/21/3)
Southern Patrol 47°12'N x 7°05'W
47°12'N x 11°34'W

No. 59
Squadron
ORB
Form 541

owing to thick ground or sea haze, 10/10 cloud and very poor visibility. Three Blenheims were also detailed to carry out a reconnaissance. A/59 Squadron took off at 0420 hours for a reconnaissance of Lorient but owing to thick cloud could not locate the French Coast and returned to base. J/59 Squadron took off at 0432 hours and was over Brest at approximately 0600 hours, the aircraft was unable to go in over the harbour as the cloud was down to 400 feet, and owing to concentrated flak and searchlight was unable to observe any shipping. F/59 Squadron took off at 0450 hours and carried out a full reconnaissance of the estuary and harbour of St. Nazaire, reporting that the battlecruisers were not present.

Admty.
NID24/
X127/47

The Scharnhorst and Gneisenau docked in Brest at 1148 hours. No daylight reconnaissance could be carried out owing to bad weather.

(n) Attempts to locate the Scharnhorst and Gneisenau 23rd-28th March.

Although the Scharnhorst and Gneisenau had docked in Brest on the morning of 22nd March, their presence there was not confirmed until 28th March. During that time, in spite of bad weather, Coastal Command had carried out numerous reconnaissance sorties over all the major Biscay ports, as, when the battlecruisers had been sighted by the Hudson on 21st March, they had not been near enough to the French coast to give any indication of which port was their ultimate destination.

Nos. 16 and 19
Groups ORB's
March Appendices

After the early morning sorties on 22nd March, no further flying could be undertaken owing to bad weather; a second Blenheim reconnaissance from Thorney Island was cancelled, and the crews of Nos. 53, 236, 217 and 801 Squadrons, which had been held in readiness at St. Eval for an attack, were released until the following day.

No. 59 Squadron
ORB Form 542

At 0700 hours on the following morning, 23rd March, three Blenheims of No. 59 Squadron took off for a reconnaissance of Brest, Lorient and St. Nazaire, C/59 Squadron was unable to get in over Brest, B/59 Squadron carried out a fleeting reconnaissance of Lorient, and reported that the battlecruisers were not observed, H/59 Squadron over St. Nazaire making a similar report. As St. Eval was weatherbound a photographic reconnaissance sortie to Bordeaux was flown from Benson. The aircraft reported that the Scharnhorst and Gneisenau were not in La Pallice or Le Verdon, nor in the Gironde as far up as Paullac, where the aircraft was forced to turn for base.

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ORB March
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As Brest had not been covered, a Spitfire from St. Eval carried out a photographic reconnaissance sortie during the afternoon, but cloud conditions made all reconnaissance impossible. In case the battlecruisers were not in port, "Bust" patrol, extended into the Bay of Biscay, was flown by two Blenheims of No. 53 Squadron, no shipping being observed. A third reconnaissance of Brest was ordered for last light; a Blenheim took off at 1925 hours, but finding 7/10 cloud over Ushant and 10/10 cloud east of the Pointe St. Mathieu, unable to get further than the entrance to the Goulet de Brest.

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ORB March
Appendices

Renewed reconnaissance of the Biscay ports was ordered for first light on 24th March, and also of Cherbourg and Le Havre. Beaufort C/22 Squadron took off from Thorney Island on a reconnaissance of the Bordeaux area but was unable to get in over the Gironde because of fog. A and H/59 Squadron also took off from Thorney Island for sorties over Cherbourg and Le Havre respectively, both aircraft found clear visibility and reported that

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ORB March
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the battlecruisers were not present in either harbour. A successful reconnaissance of St. Nazaire by G/217 Squadron showed that the Scharnhorst and Gneisenau were not present and K/236 Squadron over Brest and Lorient, reported that they were not in Lorient; the aircraft had found 10/10 cloud and rain over Brest. No further sorties could be flown during the day as the weather closed down over southern England.

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ORB March
Appendices

A first light reconnaissance of Brest, Lorient and St. Nazaire by C and F/236 Squadron, on 25th March, was cancelled because of bad weather at St. Eval, and a photographic reconnaissance of Bordeaux was also cancelled. Two Blenheims from Thorney Island carried out a reconnaissance in the afternoon but were unable to get in over Brest because of lack of cloud cover, though the pilot of one aircraft reported that there appeared to be no major naval units in the outer harbour of Brest. The aircraft flew over St. Nazaire and Lorient reporting that the battlecruisers were not present. No further sorties could be flown as the weather again closed down. It was considered that the only possible ports in which the Scharnhorst and Gneisenau could be were Bordeaux or Brest, or in Douarnenez Bay.

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ORB March
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On 26th March the Blenheim on a first light sortie of Brest and Douarnenez Bay failed to return. The reconnaissance of Lorient and St. Nazaire by F/236 from St. Eval was postponed because of bad weather at base. Later sorties by Spitfires over both ports and also over Brest found 10/10 cloud. During the afternoon a Blenheim carried out a sortie over Bordeaux flying up the Gironde as far as Bordeaux and Merignac, and thence to La Pallice, and reporting that there were no large warships present.

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Appendices

On 27th March a Blenheim took off at 0639 hours on a reconnaissance of Brest, and a second at 0935 hours, both aircraft returned early with engine trouble. A Blenheim on patrol "Bust" at first light was unable to approach the coast because of lack of cloud cover. The morning photographic reconnaissance sortie over Brest was cancelled because of bad weather, and both high and low level sorties in the afternoon found that bad visibility made photographic or visual reconnaissance impossible. At 1550 hours Admiralty Intelligence informed Coastal Command that according to information received, the Scharnhorst and Gneisenau had entered Brest with a convoy of English ships. As it was considered possible that the battlecruisers might leave again under cover of darkness, a patrol⁽¹⁾, by a Hudson with A.S.V. equipment to cover the approaches to Brest, was scheduled. Hudson V/220 Squadron took off at 2000 hours on patrol, landing at 0319 hours having seen nothing but fishing smacks.

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ORB March
Appendices

An attack on Brest by six Blenheims of No. 53 Squadron in conjunction with aircraft of No. 110 Bomber Command Squadron was made during the night of 27th - 28th March. All the aircraft claimed to have dropped their bombs⁽²⁾ in the

(1) The aircraft was to search the area:-

48°32'N x 5°53'W
47°14'N x 5°15'W
47°25'N x 4°50'W
48°21'N x 6°19'W

to be in the first position at 2100 hours and continue to limit of endurance.

(2) The aircraft each carried 2 x 500 lb. S.A.P. bombs.

dock area. Owing to adverse weather the Brest reconnaissance was unable to take off from Thorney Island during the morning of 28th March. A low level Spitfire photographic reconnaissance sortie during the early afternoon was unable to get in over Brest because of lack of cloud cover. The high level Spitfire sortie which followed was able to take photographs through a hole in the cloud, but was unable to carry out a visual reconnaissance. A second low level Spitfire was sent but was again unable to get over Brest because of the lack of adequate cloud cover. A rush interpretation of the photographs taken by the high level Spitfire showed that one of the battlecruisers was in the westernmost dry dock, and the second was alongside the oil tanks surrounded by anti-torpedo netting. As the weather again closed down neither Coastal nor Bomber Command were able to attack them during the night. An attack by 41 Bomber Command aircraft, and special reconnaissance and patrols were however planned for the next day. During the following months a network of routine patrols was built up to prevent the battlecruisers from breaking out unobserved.

(o) Scharnhorst and Gneisenau in Brest 29th March - 4th June, 1941

As the presence of the two battlecruisers in Brest constituted a grave menace to shipping, numerous reconnaissance sorties and patrols were flown daily by Coastal Command to prevent them from leaving harbour unobserved. Minelaying was carried out and a number of attacks were made during one of which a direct torpedo hit was obtained on the Gneisenau. Aircraft of Bomber Command also made numerous attacks. During this period no attempt was made by either of the battlecruisers to leave Brest; it had been intended that they should join the Bismarck and Prinz Eugen for operations in the Atlantic in May, but owing to the damage to the Gneisenau inflicted by Coastal Command on 6th April and in the Bomber Command raid of 10/11th April neither ship sailed. At the end of March and beginning of April different patrols were flown as and when the circumstances merited them, but from 10th April a schedule of routine patrols was introduced, which remained substantially the same, until, with the location of the Prinz Eugen in Brest on 4th June, precautions were intensified. The full story of measures from March 1941 onwards is given in Chapter V, Volume III.

On 29th March neither the Beaufort on a meteorological flight nor the three Spitfire reconnaissance sorties were able to get over the Brest area, to ascertain whether the two battlecruisers were still in harbour, on account of low cloud and bad visibility. If the battlecruisers were to leave Brest it was considered likely that they would either leave some time before dusk, and sail coastwise under fighter protection during daylight hours, and then head westwards under cover of darkness, or would leave harbour at night, probably at dusk, and head westwards immediately to be beyond the range of normal air activity by dawn. In case the former course should be adopted a coastal patrol⁽¹⁾ by 2 Blenheims from Ushant into the Bay

(1) Two Blenheims of No. 53 squadron were to fly following track, being in the last position at last light, and returning on reciprocal track (PL/G4/29/3):-

48°27'N x 5°20'W
48°03'N x 5°20'W
47°34'N x 4°36'W
47°13'N x 3°25'W
45°43'N x 1°30'W

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ORB March
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of Biscay was instituted; two aircraft took off at 1625 hours for this patrol but returned early as one became unserviceable. To prevent the battlecruisers leaving undetected under cover of darkness a crossover patrol⁽¹⁾ to the west of Brest, covering the approaches to the port, was flown from 1750 hours by a Wellington with A.S.V. equipment; on the completion of the patrol the aircraft was replaced by a Sunderland, which continued to patrol the area throughout the night. It was decided to maintain this patrol the following day, 30th March until the results of reconnaissance were known, a Beaufort taking over from the Sunderland in the morning, and a Hudson at noon. The Blenheim first light reconnaissance, and the first high level Spitfire sortie were unsuccessful, but photographs taken by a low level Spitfire showed that the battlecruisers were still in Brest. The patrol was resumed at dusk and continued throughout the night by Wellington aircraft.

Form Green
PL/G5/31/3

On 31st March it was decided that, until further notice, the approaches crossover patrol should be flown nightly, from two hours after dusk until dawn, by aircraft with A.S.V. equipment, and, as a precautionary measure in event of the battlecruisers eluding this patrol, a second patrol⁽²⁾ situated further to the west, should be flown daily from 0730 hours until reconnaissance had established that they were still in Brest.

Form Green
PL/G14/30/3

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One sortie of this patrol was flown during the morning by a Hudson, X/220 Squadron, but although neither of the two morning Spitfire reconnaissance sorties had been successful, no further sorties of the patrol were flown owing to bad weather. A Spitfire from Benson carried out a successful reconnaissance during the afternoon, reporting that both ships were berthed as before. As bad weather continued in S.W. England the approaches crossover patrol was not flown during the night, and the only flying over the Brest area the following day, 1st April, was four reconnaissance sorties by Spitfires during the morning, the last of which obtained photographs.

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ORB April
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Form Green
PL/G1/2/4

The approaches crossover patrol was flown in the early hours of 2nd April; as bad weather had prevented the aircraft from taking off until 0150 hours, and in case the battlecruisers had left harbour at dusk, and sailed westwards, the positions of the patrol were amended and moved further to the west;⁽³⁾ the aircraft, X/220 Squadron, on the first sortie of the patrol failed to return, the second sortie was completed. Since the first Spitfire photographic reconnaissance sortie showed that the battle cruisers were still in Brest, as did the two

- (1) One Wellington with A.S.V., or Hudson, to fly crossover through following points to prudent limit of endurance (PL/G4/29/3):-

48°32'N x 5°53'W
47°14'N x 5°15'W
47°25'N x 4°50'W
48°21'N x 6°19'W

- (2) Patrol to be between the following positions:- (PL/G22/30/3)

48°30'N x 7°10'W
47°07'N x 7°18'W
47°11'N x 6°50'W
48°26'N x 7°39'W

- (3) Amended patrol to be flown through following positions:-

48°46'N x 7°45'W
47°26'N x 8°20'W
47°26'N x 7°45'W
48°46'N x 8°20'W

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ORB April
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subsequent sorties, no further patrols were flown. On 3rd April, owing to the weather, only reconnaissance sorties could be flown. Four Spitfire sorties were made over Brest, one of which was partially successful, one battlecruiser being observed but not the other. The weather prevented aircraft from taking off for the approaches crossover patrol, and the sortie scheduled for the early hours of 4th April was also cancelled. Reconnaissance during the day showed that the battlecruisers were still in the same berths.

Admty.
NID24/X120/47

One sortie of the approaches crossover patrol was flown in the early hours of 5th April: three Spitfire reconnaissance sorties were flown in the morning, one of which was successful. The weather deteriorated during the day, the strike on Brest scheduled at last light was postponed, and the first sortie of the approaches patrol cancelled. During the day the Gneisenau had to be removed from dry dock as a 250 lb. bomb was discovered in the dock, the result of a previous attack. She was then moored to a buoy in the Rade Abri.

Form Green
PL/G1/6/4

A.H.B.
File IIk/36/5
Report on Scale
of Effort of
R.A.F. against
Scharnhorst
and Gneisenau
Admty.
NID24/X120/47

As the weather improved one sortie of the approaches patrol was flown in the early hours of 6th April, but was again amended⁽¹⁾ and situated further to the west as the aircraft could not take off until 0145 hours. The strike on Brest was made at dawn by four aircraft of No. 22 Squadron armed with torpedoes. Three aircraft failed to locate the target and returned early, the fourth, X/22 squadron, failed to return.⁽²⁾ It was subsequently believed that this aircraft made a low level attack on the Scharnhorst, scoring a direct hit, for visual reconnaissance made during the day reported that the ship was down by the stern. It was believed that the aircraft, having been hit by flak, afterwards crashed on the deck of the Scharnhorst. In point of fact the logs of the battlecruisers show that a hit was scored by a torpedo on the Gneisenau, and not on the Scharnhorst, on the 6th April. (No damage was inflicted on the Scharnhorst in any raids in early April). As a result of the attack, the Gneisenau suffered extensive damage to plating, part of the starboard shaft-tunnel, several fire-control positions and magazines. The ship could not be docked as it was thought that the strain would be too great on the bilge pumps and a Sperrbrecker and minesweepers were brought alongside to protect her from further torpedo attacks. She suffered no damage in the Bomber Command attack on the night of 6/7th April, and was moved into dry dock during daylight on 7th April.

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Normal reconnaissance was flown during 6th April, two out of the three Photographic sorties being successful. The system of patrols was again reviewed, three new patrols being introduced, and the existing approaches crossover patrol being amended. To guard against a daylight break westwards by the battlecruisers

-
- (1) Patrol was to be flown through the following positions:-

48°40'N x 8°00'W
47°20'N x 8°30'W
47°20'N x 8°00'W
48°40'N x 8°30'W

- (2) Further details of this gallant attack by Flying Officer Campbell in X/22 Squadron are given in Volume III, Chapter V, Section (ii), where the complete story of the Brest Group is given from the date of their arrival in Brest until their final escape up the English Channel.

Form Green
PL/G9/6/4

Form Green
PL/G12/6/4
Form Green
PL/G14/6/4

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ORB April
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Form Green
PL/G8/8/4

Form Green
PL/G13/9/4

a crossover patrol was planned well to west of Brest,⁽¹⁾ to be flown throughout daylight hours; one sortie of this patrol was flown during the afternoon. The positions of the usual approaches crossover⁽²⁾ were amended slightly, and the patrol continued to cover a break westwards in hours of darkness. In addition to this a Line Patrol⁽³⁾ to guard against a break up the Channel was scheduled to be flown by a Hudson; the aircraft was to be on patrol by 2030 hours and to continue patrolling the area to prudent limit of endurance. To cover the southwest a Torpedo Patrol was to be flown by two Beauforts from 2100 - 2359 hours between Pierres Noires and Basse du Lis. Sorties of both new patrols, and two of the approaches crossover patrol were flown during the night of 6/7th April.

On 7th April three sorties of the daylight crossover patrol and one of the night crossover patrol were flown, also one sortie of the Torpedo and Line patrols. Of the two morning reconnaissance sorties one was partially successful, but in the afternoon 10/10 cloud obscured the area for the high level Spitfire, while the low level Spitfire was unable to go in over Brest owing to insufficient cloud cover. Three aircraft of No. 53 Squadron, on a last light attack, also returned early because of lack of cover over the target area. An attempt was made to repeat this attack on the afternoon of 8th April, the aircraft carrying 500 lb. A.S. bombs, but it was again impossible to approach the target area because of lack of cover. Seven reconnaissance sorties had been flown during the day but none was successful. During the afternoon one sortie of a new crossover patrol⁽⁴⁾ to the west of Brest was flown. The Line and Torpedo patrols and two sorties of the night crossover patrol were flown.

On 9th April, a Blenheim on reconnaissance observed one battlecruiser but not the other owing to intense flak; none of the four Spitfire sorties were successful. Two sorties of the same crossover patrol as on the previous day were flown, and one of the night crossover. During the night of 9/10th April the new schedule of standard patrols was brought into force.

It was decided that from 10th April onwards there should be four main patrols, Line A, Crossover B, Coastal C and Patrol Z. Line A⁽⁵⁾ was similar to the previous Line patrol

-
- (1) Patrol to be flown by aircraft fitted with A.S.V., unless visibility is 10 miles or over, between following positions:-
 48°40'N x 6°35'W
 47°18'N x 6°45'W
 47°22'N x 6°16'W
 48°37'N x 7°4'W
- (2) New positions of patrol as follows:-
 48°39'N x 5°35'W
 47°23'N x 4°55'W
 47°33'N x 4°30'W
 48°28'N x 5°59'W
- (3) Line patrol between following positions:-
 48°40'N x 6°00'W
 48°40'N x 5°10'W
- (4) Patrol was to be flown through the following positions by aircraft with A.S.V. equipment:-
 49°13'N x 5°50'W
 47°48'N x 7°23'W
 47°39'N x 6°56'W
 49°21'N x 6°20'W
- (5) Patrol 'A' Line between:-
 48°30'N x 5°20'W
 48°03'N x 5°05'W

and was to be flown throughout the hours of darkness. Crossover B⁽¹⁾ was similar to the daylight crossover patrol, and was to be flown from one hour after dawn to two hours after dusk. Coastal C⁽²⁾ was a patrol from Ushant down the French coast to cover the Biscay ports, the aircraft returning on a reciprocal track and being in the last position at dusk. Patrol Z was the former Torpedo Patrol from Pierres Noires to Basse du Lis, and was to be flown by one aircraft from half an hour after dusk to prudent limit of endurance. This patrol was flown daily until 14th April after which no more sorties were flown. It was omitted from the restatement of routine patrols on 17th April. The other patrols were, however, flown consistently throughout the month when weather permitted. Line A was flown on all but three days, a total of 32 sorties being made. Crossover B was flown on all but two days (on one of which it was prevented by lack of serviceable aircraft) 45 sorties being made. Certain small alterations were made in the position of the patrol on 13th April,⁽³⁾ and again on 18th April,⁽⁴⁾ when it was laid down that the patrol should be flown from four hours after dawn to five and a half hours after last light. Coastal C was flown daily, at first by two aircraft and later by one, 22 sorties being made. In addition to these patrols nine sorties of patrol Bust were flown between 10th - 30th April, and a new patrol⁽⁵⁾ flown on 13th April in view of the lack of patrols on the night of 12/13th April on account of bad weather. This patrol was designed to detect the battlecruisers if they had left Brest at dusk and headed westwards. A similar patrol, Patrol H⁽⁶⁾ was introduced on 18th April for the same reason, and because of lack of information from reconnaissance was again flown on 19th, 20th and 22nd April.

As previously, photographic reconnaissance sorties were flown daily from 10th April onwards, by Spitfires from St. Eval. On 9 days bad visibility prevented any effective reconnaissance either visual or photographic. Of the 92 sorties flown only 9 obtained both visual and photographic results; a further

- (1) Patrol 'B' Crossover between following points:-

45°21'N x 6°19'W
47°04'N x 5°40'W
47°14'N x 5°15'W
48°10'N x 6°43'W

- (2) Patrol 'C' through following positions returning on reciprocal track:-

48°30'N x 5°20'W
48°03'N x 5°20'W
47°33'N x 4°37'W
47°14'N x 3°25'W
45°43'N x 1°30'W

- (3) Positions of amended crossover B patrol as follows:-

48°20'N x 6°55'W PL/G16/13/4
47°03'N x 6°17'W
47°14'N x 5°51'W
48°10'N x 7°20'W

- (4) Positions of patrol changed to the following:-

47°56'N x 7°29'W PL/G7/17/4
46°25'N x 6°55'W
46°41'N x 6°19'W
47°40'N x 8°06'W

- (5) Patrols to be flown by one Sunderland making every endeavour to keep to the scheduled times:-

0700 hours 49°00'N x 11°15'W
0830 " 46°15'N x 11°30'W
1000 " 43°40'N x 10°00'W
1030 " 44°30'N x 9°00'W
1230 " 47°15'N x 12°30'W

- (6) Patrol to be flown through the following positions:-

49°00'N x 11°15'W
46°12'N x 11°30'W
43°40'N x 10°00'W
44°30'N x 9°00'W
47°15'N x 12°34'W

Form Green
PL/G7/17/4

No.19 Grp.
ORB April
Appendices

Form Green
PL/G5/13/4

Form Green
PL/G1/13/4

Form Green
PL/G1/18/4

15 completed either visual or photographic reconnaissance. One sortie was partially effective, in that one battle cruiser was seen but not the other, and 65 sorties were totally ineffective; in addition two aircraft failed to return. Visual reconnaissance sorties were also flown by Blenheims from St. Eval, but of the 14 sorties flown only two were partially successful observing the Scharnhorst but not the Gneisenau in dry dock.

From 10th April to the end of the month 13 bombing operations were carried out against one or both of the battlecruisers; a further two operations were scheduled, but were cancelled on account of the weather. The attacks were made by Beaufort and Blenheim aircraft from St. Eval, 30 tons of bombs of various types, including incendiaries, were dropped, but no direct hits were claimed or obtained. An analysis of these attacks is given below(1)

- (1) The table shows the number of aircraft taking off for each operation against the battlecruisers, the number reaching the target area, and their armament. The figures given for the number of bombs seen to burst or estimated to have fallen in the target are given by bomb loads and not by individual bombs. In cases of the estimated successes marked thus *, the aircraft on finding bad visibility over the target area bombed in the vicinity of concentrations of searchlights or flak positions estimated to be in the port area, or on estimated time of arrival. The reasons for the failure of aircraft to bomb the target although reaching the area are also given. Details of attacks are taken from Nos. 53 and 217 Squadrons O.R.B.'s and No. 19 Group O.R.B., Appendices Forms Blue from R.A.F. St. Eval. (Aircraft making diversionary attacks at the same time on targets such as Lanveoc aerodrome are not shown).

Date	No. Sqdn. Type of aircraft	Armament of each aircraft	No. of A/c over area	Bombs seen on Target	Bombs Estimated on Target	Weight by lbs.	Reason for Failure
April 11th	6.816 Swordfish	1 Torpedo	4	-	-	-	Bad visibility unable to locate target
15th	6.816 Swordfish	1 Torpedo	4	-	1	1,500	2 a/c returned with load bad visibility. 1 a/c dropped by Pte. St. Mathias
17th	3.217 Beaufort	1 Magnum (1,500 lb.)	3	-	2	3,000	1 a/c failed to get over target because of intense flak
	3.53 Blenheim	2x500 lb. S.A.P.	2	-	2	2,000	-
18/19	2.217 Beaufort	1 Magnum	2	1	-	1,500	1 a/c jettisoned load on being attacked
19th	5.53 Blenheim	2x500 lb. S.A.P.	4	-	3	3,000	Bomb release failed on 1 a/c
	4.217 Beaufort	1 Magnum	3	3	-	4,500	-
20th	6.53 Blenheim	2x500 lb. S.A.P.	6	2	4	6,000	-
	4.217 Beaufort	1 Magnum	4	1	2	4,500	1 A/C jettisoned load on being hit by flak.
23rd	4.217 Beaufort	4x500 lb. S.A.P.	4	1/2	3 1/2	8,000	-
	5.53 Blenheim	2x500 lb. S.A.P.	5	-	5	5,000	-
24th	(4.53 Blenheim	2x500 lb. S.A.P.	4	-	4*	4,000	- (One a/c saw target area)
	(3.217 Beaufort	4x500 lb. S.A.P.	3	-	3*	6,000	-
25th	(4.53 Blenheim	2x500 lb. S.A.P.	4	-	4*	4,000	- (2 a/c saw target area)
	(2.217 Beaufort	4x500 lb. S.A.P.	2	-	1*	2,000	1 a/c bombed on E.T.A. subsequently believed bombed Lanveoc.
	(4.217 Beaufort	4x500 lb. S.A.P.	3	-	3*	6,000	-
	(4.53 Blenheim	2x500 lb. S.A.P.	4	-	3*	3,000	1 a/c dropped bomb believed to be on Lanveoc.
26th	2.53 Blenheim	2x500 lb. S.A.P.	2	-	2*	2,000	- (1 a/c saw target area).
28th	4.53 Blenheim	(2x500 lb. S.A.P.	3	1	1	3,000	-
	4.217 Beaufort	(2x250 lb. G.P. (20x12 lb. Inc. (180x4 lb. Inc.	2	1 1/2	1/2	2,920	-
29th	3.53 Blenheim	2x500 lb. S.A.P.	2	-	2*	2,000	-

No. 19
Group ORB
April
Appendices

From 12th - 30th April almost the entire minelaying effort of Coastal and 50 per cent. of Bomber Command was directed against the battle cruisers, the mines being laid in deep water off Brest where the passage of a ship smaller than a battle-cruiser would be unlikely to activate them. 43 mines were laid in this area by Coastal Command and 63 by Bomber Command. Two aircraft were lost, and a further two damaged so that they crashed on landing.

No. 19
Group
O.R.B.
May
Appendices

Form Green
PL/G11/2/5

Form Green
PL/G7/2/5

Routine patrols were continued throughout May. As it was considered that the more likely course that the battlecruisers would take, if they attempted a break-back to Germany, was up the Channel, patrol Bust was altered⁽¹⁾ on 2nd May to guard against this. For the same reason the position of crossover B was also amended⁽²⁾ the new patrol being called B.1; there were no further alterations in the patrols during the month. 12 sorties of Crossover B were flown during the month to keep watch for the battlecruisers, a further two sorties being flown to watch for U-boats; after the first week in May the patrol was only flown on two occasions. Line A was flown nightly, with the exception of four occasions when it was cancelled because of bad weather and on 25th and 26th May when it was cancelled at the request of the C.-in-C. Plymouth, who wanted all aircraft to be held in readiness for an attack on the Bismarck and Prinz Eugen, then heading for Brest, 31 sorties of the patrol were flown during the month, a further nine sorties having been scheduled but cancelled because of bad weather. Coastal patrol C was flown daily when weather permitted; in all 17 sorties were flown, 10 of which completed the patrol, six of the other returning early because of unfavourable weather conditions. 31 sorties of patrol Bust were flown, 23 completing the patrol, the others returning early because of weather conditions.

No. 19
Group
O.R.B.
May
Appendices

Reconnaissance was flown daily throughout the month, though on five days weather conditions precluded any successful reconnaissance from St. Eval. Of the three Blenheim sorties flown none were successful, but 18 of the 133 sorties by Spitfires on photographic reconnaissance obtained both visual and photographic results; a further 22 aircraft were able successfully to carry out either visual or photographic reconnaissance.

No. 19
Group
O.R.B.
Appendices
Forms Blue
R.A.F.
St. Eval

Only two strikes against Brest were carried out by Coastal Command aircraft during May, on both occasions by Blenheims of No. 53 Squadron. A total of 4.46 tons of bombs were dropped, but no aircraft claimed or obtained a direct hit on the battle cruisers. On 2nd May five aircraft took off for the strike, all reached the target area. Owing to cloud it was impossible to distinguish the docks; the first two aircraft dropped flares at the estimated time of arrival, and released their bombs on the concentrations of searchlights and flak that opened up. The other three aircraft all caught glimpses of the east-west coastline and released their bombs over flak positions estimated to be in the dock area of Brest.

- (1) Patrol Bust was to be flown at irregular intervals through the following positions:-

49°35'N x 2°50'W
49°15'N x 3°15'W
48°32'N x 5°07'W

- (2) Crossover B.1. to be flown through the following positions:-

48°10'N x 6°54'W
46°41'N x 6°19'W
46°55'N x 5°48'W
47°56'N x 7°29'W

Form Green
PL/G8/30/4

No. 19
Group
O.R.B. June
Appendices

All aircraft were carrying 2x500 lb. S.A.P. bombs. On the night of 3/4th May six aircraft took off for a second strike, one returning early with faulty W/T; the other five aircraft found clear visibility over the target area. The aircraft, carrying 2x500 lb. S.A.P. bombs, all located, and released their bombs over the dock area; none of the bombs were seen to burst as the aircraft had to take evasive action owing to searchlights and flak. Minelaying off Brest was scheduled for alternate nights, a total of 22 mines being laid in the area without loss of aircraft.

In the first three days of June, before the cruiser Prinz Eugen was located in Brest by a Spitfire on 4th June, patrols were continued though they were limited by the number of aircraft available, as search was being made for the cruiser. Patrols A and B, and patrol Bust were flown on 1st June and Bust on 2nd and 3rd June. On 3rd June also, three sorties of crossover B and one of Coastal C were flown. 18 Spitfire reconnaissance sorties were flown, one obtaining photographs only, and one both visual and photographic results.

After this date the system of patrols was further built up and in time became part of a more general routine of patrols covering the Bay of Biscay. See Volume III Chapter V.

Section (ix)

(ii) Operations against the Bismarck and Prinz Eugen
21st May - 4th June, 1941

Admty'
PG/20418 and
N.I.D. 24/X18/46

The strategic aim of the German Naval War Staff was to send these two ships into the Atlantic so as to operate against British shipping in conjunction with the battlecruiser group already at Brest(1). The main task on the breakout cruise was to destroy any shipping encountered but to engage British warships only so far as was necessary for the achievement of the main task and as could be done without too great risk. Having executed the task, the force was to put into a west coast French Port to replenish ammunition and consumable stores following which measures were to be initiated for continued operations in the North Atlantic. On the other hand, if long repairs or revision of plans were necessary the ships were to return to home waters if possible. The operation was given the covering name of "Rhine Exercise".(2).

19th May

Ibid

The two ships assembled off Cape Arkona in the western Baltic with their escort of destroyers and mine sweepers and at 1125 hours proceeded on the requisite courses for the Great Belt(3).

20th May

During the forenoon, when in the Kattegat near the Swedish coast, the force was observed and followed for some

-
- (1) The participation of the battle cruiser group at Brest did not take place as the defects in the Scharnhorst and the damage sustained by the Gneisenau from bombing and torpedo attacks could not be repaired within the required time. Supply ships were stationed in various positions in the Atlantic in advance of the date of sailing.
 - (2) See Appendix V for a summarised German account of this cruise.
 - (3) See Map XVI for the tracks steered by these two ships.

Ibid

distances by the Swedish cruiser Gotland. The C.-in-C. Fleet, Admiral Lutyens, in the Bismarck signalled this fact to the German Admiralty observing that his departure would probably become known to the British.

By 1600 hours the formation had passed through the German minefield off the Skaw and thereafter the two heavy ships proceeded westward escorted only by three destroyers.

21st May

C.C. Naval Staff Log.

At 0330 hours the Operations Division of the Admiralty informed H.Q. Coastal Command that a signal had been received from the Naval Attache at Stockholm reporting the passage of two large warships, types unspecified, escorted by three destroyers off Marstrand at 1500 hours on the 20th May. This force was accompanied by five smaller escort craft and ten aircraft, the whole steering in a northwesterly direction.

C.C./G1/21/5

H.Q. Coastal Command ordered No. 18 Group to carry out reconnaissance of the Norwegian coast between Trondheim and the Naze at first light⁽¹⁾ and to obtain photographic reconnaissance of Oslo, Stavanger and Bergen as soon as possible. The three patrols ordered, took off between 0710 hours and 0720 hours. Reference to Map XVI, which shows the track taken by the Bismarck and Prinz Eugen, demonstrates that the only patrol which could have located these ships was "Bert". This patrol was done by Blenheim H/254 Squadron which took off from Sumburgh at 0716 hours. It made a landfall at the southern extremity of the patrol at 0850 hours and then worked up the coast. At 0900 it was still 60 miles south of Kors Fjord into which the enemy ships were at that moment steaming.

No. 18 Group O.R.B.

At 1330 hours the P.R.U. aircraft on the Bergen area located and photographed the ships at anchor in a fjord just to the south of Bergen⁽²⁾. During the rest of the day weather deteriorated rapidly but a strike of 6 Whitleys of No. 612 Squadron, 10 Hudsons of No. 220 and 2 Hudsons of No. 269 Squadrons took off between 2150 hours and 2330 hours to attack. Owing to the bad weather conditions only two Hudsons dropped bombs and poor visibility prevented the actual target from being indentified or any results being observed⁽³⁾

Ibid

(1) The patrols ordered by No. 18 Group were "Bert", "Stab" and "Trost" - see Map XVI.

They were all carried out by aircraft of No. 254 Squadron based at Sumburgh. It is of interest to note from the German records that the signal sent by W/T from No. 18 Group H.Q. to Sumburgh ordering these patrols and giving the reason for them (RO/G1/21/5 T.O.O.0515/21) was decoded by the German Y service and confirmed the suspicions of the German C.-in-C. that his force had been observed leaving the Kattegat. Reference - Admty. PG/20418 Pages 12 and 13. See Appendix V.

(2) After passing the Skaw at about 1500 hours on 20th May the two ships, escorted now by only three destroyers, rounded the south west corner of Norway during the dark hours keeping 30 to 60 miles off the coast and by 0600/21 were standing in towards the coast in latitude 60°N., entering Kors Fjord at 0900 hours and anchoring an hour or so later in Grimstead Fjord in approximate position 6019½N x 0515E where they were discovered and photographed at 1330 hours. Reference PG/20418/Page 12.

(3) In point of fact the 2 ships with the 3 destroyers had sailed at 2000/21, passing northwards along the Hjelte Fjord and into the open sea at 2200 hours. Ref. PG/20418 Page 12. See also Appendix V.

Unaware to us, these ships had left at 2000 hours and by dawn 22nd were in the open sea far to the north in latitude 63°N.

22nd May

Appendix V

C.C. Naval
Staff Log.

No. 18
Group O.R.B.

At 0510 hours, when in the latitude of Kristiansund North, the destroyer escort was dismissed and the two heavy ships proceeded alone. The weather during the day became more and more favourable to an unseen break out and the C.-in-C. Fleet signalled his intentions to use the Denmark Straits route.

From dawn, Bomber Command had a strike of 30 Hampdens standing by and 7 Fleet Air Arm Albacores of No. 828 Squadron were in readiness with torpedoes at Hatston in the Orkneys while Coastal Command's No. 42 Squadron of Beauforts with torpedoes was similarly held at Wick. Bad weather prevented any of these strikes from taking off. At first light Coastal Command aircraft went out to patrol the Norwegian coast but weather conditions by 1000 hours had forced all of them to return⁽¹⁾. Sunderlands of No. 201 Squadron maintained a patrol N.N.E. of the Faeroes from 0930 hours but had to return at 1100 hours on account of fog with nil visibility⁽²⁾. Blenheims of No. 248 Squadron carried out meteorological sorties all day off the Norwegian coast in case the weather improved over there sufficiently for close reconnaissance. Weather conditions remained bad with 10/10 cloud down to 100 feet. Further attempts were made to view the anchorage by P.R.U. aircraft but were defeated by this low cloud.

At 1830 hours a Maryland aircraft of No. 828 F.A.A. Squadron, by flying at a very low altitude, succeeded in penetrating to the anchorage and found the billets empty and no signs of the vessels in Bergen roadstead. The following dispositions were therefore ordered for first light on 23rd May:-

C.C./G1 and
2/22/5

- (a) Norwegian Coast patrols up to Trondheim
- (b) P.R.U. reconnaissance of Bergen and Stavanger
- (c) Hudson patrols between the Shetlands and Faeroes
- (d) Sunderlands fitted with A.S.V. to patrol between the Faeroes and Iceland
- (e) Catalina patrols to the south of Iceland
- (f) The Denmark Straits to be patrolled by aircraft based in Iceland

23rd May

The Norwegian coast patrols could not take off owing to the weather conditions. Hudsons of No. 220 Squadron

- (1) "Stab" and "Trost" found conditions impossible and returned to base after 2½ hours in the air. "Bert" and "Stand" were forced to leave the Norwegian coast by 0830 hours. See Map XVI.
- (2) This patrol was on longitude 5°W between latitudes 6220 and 6500 N. It might well have intercepted the enemy ships if they had attempted to break out south of Iceland which was the original advice given to the German C.in C. By German Group Command North. Reference PG/20418 Page II.

No. 15 and
18 Group
O.R.B.

C.C.
Naval
Staff Log

Appendix V

patrolled between the Shetlands and Faeroes from 0440-1250 when they had to be recalled as their base was closing down. Sunderlands of No. 201 Squadron carried out a patrol between the Faeroes and Iceland from 0650-2000 and Catalinas of No. 210 Squadron, after a delayed start due to thick weather, patrolled to the south of Iceland from 1300-1650 when they also had to be recalled as the bases in the United Kingdom were closing down. The Iceland based aircraft which should have patrolled the Denmark Straits encountered continuous rain, cloud of 10/10 at 300 feet and visibility of 1000 yards, which forced the abandonment of all flying⁽¹⁾. The weather was now ideal for the enemy ships, being misty and raining with a slight southwesterly wind and visibility limited to 400 metres. At 1250 hours the firm ice line was reached which necessitated an alteration of course to the south-west before again attempting a westerly course. At 1811 hours icebergs were sighted between snow showers and the boundary of firm ice again encountered. Once more a southerly course had to be taken to disengage from this danger.

No.
Group O.R.B.

At 1922 hours a shape was momentarily sighted in the mist astern which proved to be a British cruiser. Soon afterwards it was realised that two British cruisers were shadowing the force. Shots were exchanged at 2044 hours, but thereafter the British ships were content to shadow at extreme visibility range using their R.D.F. equipment in snow showers. In spite of alterations of course and speed under cover of smoke screens and snow showers it was impossible to shake off this relentless watch. These weather conditions improved slightly towards the end of the day and, after the sighting of the enemy force in the Denmark Straits by H.M. cruisers Suffolk and Norfolk at 1922 and 2032 hours respectively, it was found possible to get aircraft off at 2225 and 2320 hours from Reykjavik and Kaldadarnes to locate and shadow the enemy⁽²⁾.

24th May

No. 15
Group
O.R.B.

Sunderland Z/201 Squadron, which had taken off at 2225 hours sent a first sighting report of the enemy at 0620 hours and followed this up with four subsequent amplifying signals, the last being at 0900 hours. The action between the "Bism Bismarck and H.M. ships Prince of Wales and Hood was witnessed and bearing and distance of enemy were frequently signalled visually to H.M.S. Norfolk ⁽³⁾. This Sunderland also signalled the positions of survivors of H.M.S. Hood at 1000 hours and the fact that the Bismarck was leaving a large trail of oil fuel indicating that damage had been inflicted on her.

Ibid

Hudson L/269 Squadron, which had taken off from Kaldadarnes at 2320 hours did not succeed in locating the enemy but G/269 did so and sent a first sighting report at 0550 hours. This aircraft also witnessed the action in which H.M.S. Hood was sunk and continued shadowing until 0808 hours. A third Hudson - M/269 - located and shadowed the enemy from 0925 till 1040 hours. The range from Iceland by now could only be spanned by Catalina sorties and L/240 Squadron took up the shadowing from 1432 until 1640 hours. During this time frequent bearing and distances of the enemy were given to the

- (1) See Map XVI for position of patrols.
- (2) Two Catalinas and one Sunderland were sent to re-inforce Reykjavik at dawn on the 24th.
- (3) For the German account of this action see Appendix V.

two cruisers and the Prince of Wales. Fire was opened on this aircraft by both enemy ships from time to time. Taking off at 1642 hours the final sortie by Catalina G/210 Squadron did not succeed in sighting the enemy in worsening visibility although all three of H.M. ships were located at 2127 hours and a formation of F.A.A. Swordfish was seen at 0035 hours on the 25th.

During the 24th six Beauforts of No. 22 Squadron armed with torpedoes flew from Wick to Kaldadarnes as a strike force but by the time they arrived at 1530 hours the target was out of Beaufort range. However, they remained in Iceland in case the two ships should attempt to break back into the North Sea.

Meanwhile in the Bismarck the results of the action with the Prince of Wales had necessitated a radical alteration in plans. The Bismarck had sustained two severe hits from this ship. One, in compartments XIII and XIV, put No. 4 Dynamo out of action and caused a water leak into No. 2 Port boiler room; the other, in the bow compartments XX and XXI, damaged the forward oil fuel tanks and caused a severe water leak, reducing the ships's speed to 28 knots.

Admty.
N.I.D.24/
X.18/46

At 0800 hours the C.-in-C. Fleet made a report to Germany in which he described the action and stated his intention of putting into St. Nazaire and ordering the Prinz Eugen to carry out cruiser war. During the afternoon C.-in-C. Fleet instructed C.-in-C. U/B.s to form a line of U/B.s to the south of Greenland through which he intended to draw the pursuit. As a precaution, C.-in-C. U/B.s placed another line of U/B.s in the mouth of the Bay of Biscay for similar use later in the journey. All these U/B.s were in position by the morning of the 25th May⁽¹⁾.

In the meantime collision mats had been spread over the shell holes in the bow which, although they controlled the water leakage in, could not altogether prevent the oil fuel leakage out. The worsening sea conditions at 1300 hours forced a further reduction to 24 knots to avoid displacing these collision mats and at 1420 hours the Prinz Eugen was instructed to maintain the southerly course while Bismarck attempted to draw off the pursuit by altering away to the West taking advantage of rain squalls. If successful, the cruiser was to proceed independently and carry out cruiser war in the Atlantic. This manoeuvre was put into practice at 1540 hours but twenty minutes later the Bismarck reappeared astern of the Prinz Eugen having found a British cruiser on the starboard flank. At 1814 hours the ruse was tried again and, this time, was successful. The two ships had now parted company for good.

Though successful in ensuring an unseen get-away for the Prinz Eugen, the Bismarck was unable to shake off her shadowers even in the gathering darkness of the more southerly latitudes and in deteriorating visibility conditions of weather. The effect of the oil fuel leak now made its presence felt in the discussions on immediate policy which were held in the flagship and at 2056 hours the C.-in-C. Fleet signalled that, because of the fuel situation, he was steering a direct course for St. Nazaire and that he could not shake off the shadowing units owing to their excellent radio detection gear. The former prevented the drawing of the pursuit over the U/B line south of Greenland and the latter enabled an air attack to be launched at extreme range by Swordfish aircraft from

(1) For positions of these U/B lines See Map XVI.

H.M.S. Victorious. At 2238 hours the first aircraft attacks developed from the port side but scored no success.

25th May

Shortly after midnight a second wave of aircraft from the Victorious made their attacks and a hit by one 18 inch torpedo was gained amidships on the Starboard side at 0028 hours. The hit was on the armoured belt and the damage was negligible. However, as the result of increasing speed to 27 knots, steaming on zig-zag courses and of manoeuvres to avoid torpedoes, the collision mats, used as caulking in the bows, tore away and the bow compartment re-flooded. The other leaks in the dynamo and boiler room became worse, compelling the abandonment of No. 2 port boiler room. Speed again had to be reduced, this time to little more than 20 knots.

C.C. Naval
Staff log

CC/G1, 2,
3/25/5

At 0306 hours contact with the Bismarck, which had been grimly maintained by the two cruisers since 1922/23 was finally lost in bad weather conditions(1). In order to assist re-location a long range sweep by Catalinas was organised. This sweep was designed to cover both a break back to Norway south of Iceland and a course shaped by the enemy for French Biscay ports(2). Three long range Catalinas of No. 210 Squadron took off at 1345 hours to do this sweep and did not land back until 1030 hours on 26th May.(3). Some of our own surface forces were sighted during the night of the 25th/26th but no positive enemy sighting was made. A/210 at 0120/26 passed over the wake of a heavy ship which gave no answer to challenge or other lamp signals. The aircraft circled for an hour but in the darkness and low cloud at 500 feet it was impossible to establish any identity. The position, course and estimated speed on this unknown ship were signalled to base but fuel supply would not permit of shadowing until dawn. As it was, this aircraft did not land back until 1203 hours on the 26th May(4).

26th May

As an additional precaution against a break-back to Norway, Hudsons of No. 269 Squadron patrolled the Denmark Straits throughout the day in very bad weather conditions, a further sweep was carried out south of Iceland by two Sunderlands, one Catalina and a long range Hudson, and a patrol maintained between the Faeroes and Iceland by two more Sunderlands. To endeavour to prevent an unseen escape into a French Biscay Port, two patrols were placed athwart the estimated line of advance from the last sighted position of the enemy towards the

C.C./G4/
25/5

C.C./G2/
26/5

-
- (1) Taking advantage of heavy snow showers the Prinz Eugen had parted company unobserved at 1814 on 24th May. She increased speed to 30 kts. and proceeded south towards the Azores. See Map XVI and Appendix V which gives a summarized account of the enemy ships' movements from German records.
 - (2) A course towards France was considered by the Admiralty to be the most likely in view of the known oil fuel leak and reduction of speed after the action with the Prince of Wales. This opinion was strengthened by the last report of H.M.S. Suffolk to the effect that the Bismarck had altered course to 160° and reduced speed to 20 knots. A further possible confirmation was the D/F fix of a long signal of enemy origin at 0930/25 from a position well to the south eastward of the last known position of the Bismarck. For explanation of Bismarck's movements see Appendix V.
 - (3) See Map XVI for the extent of this sweep.
 - (4) In point of fact, this ship was probably H.M.S. Norfolk. The sightings during the sweep were:-
 1 battleship and 4 destroyers at 0015/26 in position 5400 N. x 2434 W. C.°
 1500 H.M.S. Edinburgh at 0013/26 on position 5318 N. x 2545 W. C.° 150°.
 Unidentified ship at 0120/26 in position 5403 N. x 2750 W. C.° 150°
 Ref. No. 15 Group O.R.B.

C.C./
G.1/
26/5

Bay of Biscay. On the initiative of the A.O.C.-in-C. Coastal Command, the southern of these two patrols was somewhat to the south of the general appreciation as to the likely course steered by the two enemy ships⁽¹⁾. A Catalina of No. 209 Squadron "Z" - flew the southern patrol and a Catalina "M" of No. 240 Squadron flew the northern. Both were on patrol by 0930 hours⁽²⁾.

Force "H" consisting of the battlecruiser Renown (flag), the cruiser Sheffield and the aircraft carrier Ark Royal, had been steaming to the northwestward from the Gibraltar area since 0330 hours on the 25th May to intercept the Bismarck should she be proceeding towards the Bay of Biscay. At 0835 hours on the 26th May, in position 4826N x 1913W, eight Swordfish aircraft were flown off to search an area whose western edge was bounded by the two Catalina Patrols described above.

No. 15
Group
O.R.B.

At 1030 hours, Z/209 Squadron, on the Southern Patrol, sighted the Bismarck and sent a report, amplifying it five minutes later while taking cover in cloud. After sending the amplifying report, Z/209 inadvertently broke cloud cover almost over the Bismarck which immediately opened fire and, before cloud could be regained, the aircraft was hit and holed in several places. Soon after this the aircraft lost touch in worsening visibility, the last sighting having been at 1045 hours⁽³⁾.

The first report was received in Force "H" at 1050 hours and two Swordfish aircraft with long range tanks were ordered to be flown off as soon as possible to gain touch and shadow the enemy. Actually, before they could be got away, one of the Swordfish aircraft on the search patrol sighted the Bismarck and sent in a report at 1114 hours followed seven minutes later by a similar report from another of these aircraft. The two "shadower" Swordfish took off at 1200 hours and contact with the Bismarck was maintained by F.A.A. aircraft, with reliefs, until 2230 hours.

The location of the Bismarck by the Coastal Command Catalina⁽⁴⁾ followed by the sightings by the Ark Royal's aircraft enabled further extensive search by the latter to be dispensed with and all Swordfish not required for shadowing could be prepared for torpedo strike duties. The general situation could now be clearly envisaged. Force "H", some 70 miles to the eastward of the Bismarck comprised the only ships in a position to engage but the Admiralty, mindful of H.M.S. Hood's fate, had signalled that the Renown was not to attack unless the Bismarck was already heavily engaged by either the King George V or Rodney. Both these battleships were some 130 miles to the northward and it was evident that unless aircraft from H.M.S. Ark Royal could reduce the enemy's speed, the

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- (1) Sir Fredrick Bowhill (A.O.C.-in-C) considered that the enemy would steer a course to make landfall at Finisterre and would not steer direct for Brest or St. Nazaire.
 - (2) The strike forces standing by were:-
 - 5 Beauforts of No. 22 Sqn. with torpedoes at Kaldadarnes
 - 8 Beauforts of No. 42 Sqn.) with torpedoes at Wick
 - 2 Beauforts of No. 22 Sqn.)
 - 10 Beauforts of No. 217 Sqn. at St. Eval
 - 8 Beauforts of No. 42 Sqn. at Leuchars ready for deployment north or south.
 - (3) All available aircraft of Bomber Command.
 - (3) The amplified first signal was of 1 battleship in position 4928N x 2150W course 150° speed 20 knots at 1035 hours. His last signal was of 1 battleship last seen in position 4922N x 2144W at 1045 hours.
 - (4) This report also enables the 4th Destroyer Flotilla led by H.M.S. Cassack to steer an interception course and to pick up the Bismarck later in the day with most important results regarding close shadowing and torpedo attacks during the subsequent dark hours.

Bismarck could not be overhauled before reaching the effective range of German shore based bombers the following day. At 1315 hours H.M.S. Sheffield was detached from Force "H" to gain visual contact with the enemy and thus be in a position to direct air strikes on to the target.

When Z/209 reported losing touch at 1045 hours, the other Catalina M/240 - was diverted to continue the shadowing and made a sighting report at 1328 hours. Z/209's efforts to re-locate the enemy failed though M/240 was sighted at 1510 hours and communicated with by visual signalling but unfortunately this aircraft had by then also lost touch. Z/209 then left the scene for base, plugging the various holes in the hull and landed safely at Loch Erne at 2130 hours (1)

As only the Bismarck had been sighted it was decided to sweep an area to the north of the track of this ship to locate the Prinz Eugen. Range limitations prevented a similar search to the south of this track. Two long range Hudsons of No. 233 Squadron therefore carried out a sweep between 1530 and 1700 hours of an area through which the cruiser might be proceeding independently and at her full speed but no sightings were obtained.

Meanwhile M/240 regained contact with an enemy ship at 1600 hours and continued to report positions, speeds and courses until 1800 hours when contact was lost and the aircraft had to return to base having reached prudent limit of endurance. During the shadowing the aircraft was frequently fired at by the enemy vessel. The long patrol, evasive manoeuvres and bad weather conditions had made the pilot dubious about his position and he reported this fact in some of his sighting signals. As all his enemy reports were consistently some 60 miles to the S.S.W. of the corresponding reports during the period made by F.A.A. aircraft and latterly by H.M.S. Sheffield they were accordingly discounted but they undoubtedly left a suspicion with Coastal Command Staff that it was the Prinz Eugen that had been located. (2).

To revert to Force "H". At 1450 hours the Ark Royal despatched the first strike of Swordfish armed with torpedoes. H.M.S. Sheffield at this time had not yet made visual contact with the Bismarck and was about 20 miles from her but unfortunately the strike aircraft had not been informed of her possible presence there. In the poor visibility conditions the strike attacked the Sheffield who fortunately was able to avoid the torpedoes. (3). On arrival back in the carrier at 1720 hours another strike was immediately prepared and took off at 1915 hours. H.M.S. Sheffield by this time had gained visual contact 12 miles from the Bismarck and was able to home the strike by D/F and direct it on to the target.

- (1) Z/209's landfall was 40 miles to the southeastward of his estimated position so that the actual position of the Bismarck at 1040 hours was considered to be about 30 miles to the Southeast of the positions given in the sighting reports. Ref. LE/01/26/5/41.
- (2) When it had become plain that at least one enemy ship - the Bismarck - was making for a Biscay port it was considered that Brest would be used. Bomber Command were requested to and carried out minelaying off this port during the night of 26th/27th May. 28 mines were successfully laid in the "Jellyfish" area. See Map XXI for location of named mining areas.
- (3) The torpedoes carried on this strike were set to run at 30 ft. and were fitted with Duplex pistols, 2 of the torpedoes exploded on hitting the water and 3 exploded astern of the Sheffield. The second strike carried torpedoes fitted with contact pistols and were set to run at 22 ft.

CC/G3/
26/5

No. 15
Group
O.R.B.

The attacks took place between 2055 and 2125 hours. Two torpedo hits were obtained, one on the armoured belt which was not serious, but the other was right aft which disabled the Bismarck's steering gear so effectively that she could no longer steer a course and finally put an end to all hopes of regaining harbour.⁽¹⁾ During the night of the 26th/27th May destroyer attacks were repeatedly pressed home by H.M. Ships Cossack, Maori, Zulu, Sikh and Pierun and further torpedo hits made.

No. 15
Group
O.R.B.

A relief Catalina - O/210 Squadron - had been flown off at 1215 hours from Oban to continue the shadowing of the Bismarck. The aircraft arrived in the area about 1900 hours but no sighting report was made until 2344 hours when a large enemy vessel was sighted. Two further reports were made at 0113/27 and 0236/27. This pilot also reported that he was uncertain of his position. However, when plotted, these positions indicated a ship on a course of 110° and making good 26 knots. As the Bismarck was known to be crippled and only moving slowly in a N.W. direction between 2344 and 0236 hours it was assumed that this really was the Prinz Eugen that had been re-located. This opinion was strengthened by referring to the hitherto discounted reports from M/240 which, taken at their face value, completed the plot of an enemy ship proceeding at about 25 kts. on a mean course of 110° some 60 miles to the southward of the Bismarck's track.⁽²⁾

27th May

No. 19
Group
O.R.B.

To intercept what was now regarded as the Prinz Eugen, No. 19 Group was instructed to fly patrols in the mouth of the Bay of Biscay from dawn. Two crossover patrols extending between 4830N and 4430N down the meridian of 10°W were maintained by Sunderlands of No. 10 Squadron and Wellingtons of No. 221 Squadron⁽³⁾ from 0600-1704 hours; a parallel track search by Hudsons of No. 206 Squadron was carried out as far as possible into the same area between 1215 and 1650 hours and a guard patrol off Brest maintained from 1418-1728 hours by Blenheims of No. 236 Squadron.⁽⁴⁾ and⁽⁵⁾.

C.C.
Naval
Staff Log

Bomber Command had stated, when O/210 Squadron was still sending enemy reports, that they were willing to fly off a large strike force at dawn provided firm shadowing reports were forthcoming from Coastal Command aircraft but that the strike could not wait until the enemy ship ultimately ran into our Bay of Biscay patrols. O/210 Squadron's final signal was at 0404 hours and stated that touch had been lost with the enemy ship but the last observed position had been at 0236 hours. This was not considered certain enough to warrant an attack in force by Bomber Command. However, when no sightings had been reported by 1000 hours a sweep was carried out by 52 Wellingtons and

- (1) Appendix V gives a precis of the German account of this attack and the subsequent measures taken by the German War Staff.
- (2)

	(1328 hours.	Enemy ship in	4808N x 1950W	C 130°
M/240's reports	(1610 hours.	" "	4728N x 1857W	C 140° 20 knots
	(1745 hours.	" "	4715N x 1823W	C 125°
	(2344 hours.	" "	4754N x 1452W	C 110°
O/210's reports	(0113 hours.	" "	4740N x 1330W	
	(0236 hours.	" "	4752N x 1250W	
- Ref. No. 15 Group O.R.B.
- (3) For these tasks No. 19 Group had been re-inforced from Limavady by 5 Wellingtons of No. 221 Squadron and 6 Whitleys of No. 502 Squadron at St. Eval. Ref. No. 19 Group O.R.B. For the positions of these searches and patrols see Map XVI.
- (4) The strike forces available at St. Eval were:
 - 10 Beauforts of No. 217 Squadron
 - 10 Blenheims of No. 53 Squadron
 - 6 Whitleys of No. 502 Squadron
 - 9 Albacores of No. 827 Squadron F.A.A.
- (5) Over the whole period, from the location of the two enemy ships near Bergen on the 21st May until dusk on the 27th May, aircraft of Coastal Command flew 78 sorties totalling 630 flying hours while searching for or shadowing these units.

12 Stirlings of Bomber Command passing through an area round 4800N x 0800W in which it was estimated that the "Prinz Eugen" might be found. None of these patrols, sweeps and searches during the day saw any sign of this ship⁽¹⁾ though many enemy aircraft were sighted.⁽²⁾

C.C.
Naval
Staff Log

At dawn the battleships King George V and Rodney closed in and reduced the Bismarck to a blazing wreck. She was finally sunk by a torpedo from H.M.S. Dorsetshire at 1037 hours on the 27th May in position 4809N x 1607W. (Appendix V gives a summarised account of the measures by the Germans in attempting to get this ship into port).

Ibid

The air support from the German Air Force played no part whatsoever in the final drama of the Bismarck. The distance involved limited the aircraft used to reconnaissance types and light bomb loads. Some units of the British fleet were located from 1000 hours onward but only one attack developed and that failed. However, it was plain that, as these units neared the British Isles, air attacks would be launched whenever possible. Fighter Command informed the Admiralty at 1215 hours on 27th May that large concentrations of enemy aircraft existed in the Brittany and northern coastal areas of France. No attempt was made therefore, to bring any ships up the Channel and the returning naval forces proceeded to their various bases keeping to the west of Ireland. Coastal Command was requested to give all protection possible both against enemy aircraft and U-boats.⁽³⁾ Accordingly the fleet flagship - H.M.S. King George V - was given A/U support from 2000 hours on the 27th until 0730 hours on the 28th by a Catalina when the task was continued by Whitleys of No. 502 Squadron.

Ibid

No. 19
Group
O.R.B.

No. 15
Group
O.R.B.

28th May

Ibid

Enemy aircraft located several fleet units soon after dawn. The two battleships - H.M. Ships King George V and Rodney - were shadowed from 0730 hours when in position 5330N x 1200W and the cruiser H.M.S. Norfolk a little further to the west at 0850 hours. The Whitley A/U escort was backed up by fighter escort of Blenheims and Hudsons which was maintained in relays for the remainder of the day.⁽⁴⁾ Sporadic attacks by single enemy aircraft on these units took place between 0900 and 1000 hours but no hits were obtained.⁽⁵⁾ Two destroyers - H.M.S. Tartar and Mashona - some 40 miles to the southward of the main units were heavily attacked by He.111 aircraft from 0840 hours. H.M.S. Mashona was seriously damaged and had to be abandoned at 1100 hours. The enemy directed subsequent sorties on to H.M.S. Tartar who

C.C.
Naval
Staff Log

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- (1) At this time the Prinz Eugen was about 450 miles N.W. of the Azores. An account of her cruise and arrival in Brest is given in Appendix V.
 - (2) The German Group Command West made every effort to provide air support for the Bismarck particularly in the final stages after her steering gear had been damaged by the Fleet Air Arm attack at 2100 hours on the 26th May. See Appendix V.
 - (3) The following re-dispositions were made:- The six Whitleys of No. 502 Squadron and the five Wellingtons of No. 221 Squadron returned to Limavady. Six Blenheim fighters of No. 235 Squadron from Birchan Newton to St. Eval. Eleven Blenheim fighters of No. 254 Squadron from Sumburgh to Aldergrove. Seven Blenheim fighters of No. 236 Squadron to Limavady. Ref. Nos. 15 and 19 Group O.R.B. s.
 - (4) These major units received during the day, escort by 3 Whitley sorties from No. 502 Squadron, 15 Blenheim fighter sorties from Nos. 254 and 236 Squadrons and 15 Hudson sorties from Nos. 233 and 224 Squadrons. In addition, relays of Blenheim fighters of No. 235 Squadron maintained an interception patrol off the S.W. corner of Ireland from 1600-2100 hours/28.
 - (5) A shadowing He.111 was engaged at 0800 and driven off by T/502 Squadron. An attacking He.111 was engaged at 1004 and driven off by Q/254 Squadron.

was attacked at intervals until dark. It was not until 1600 hours that any Coastal Command aircraft became available to give protection but from that time 2 Blenheim and 9 Hudson sorties were devoted to this task and several engagements with He.111 and JU.88s took place.⁽¹⁾ H.M.S. Tartar, and other destroyers, who had been sent to her assistance, regained harbour that night undamaged.

The search for the Prinz Eugen continues

During the early hours of the 28th, before daylight, aircraft from Bomber Command again laid mines off Brest and St. Nazaire. One of these aircraft reported on landing at 0600 hours that a cruiser and two destroyers had been sighted at 0330 hours on an easterly course off the mouth of the Loire.⁽²⁾ A search was immediately ordered while photographic reconnaissance was required as soon as possible of St. Nazaire in addition to Brest, Lorient and Bordeaux. Low cloud conditions permitted only Brest to be reconnoitred where the two battle cruisers Scharnhorst and Gneisenau were seen still in dock but no sign of the Prinz Eugen. A search by Beaufort, Hudson and Blenheim aircraft off the coast as far south as St. Nazaire failed to locate any naval units.

No. 19
Group
O.R.B.

29th May

During the early hours a wide belt of foggy weather covered the northern half of the British Isles. This hampered all air operations, both British and German, and all the heavy fleet units regained their various anchorages without further incident. This bad weather spread to the south during the day.

Now that the special re-inforcements to No. 19 Group had returned to their normal tasks in other areas, it was only possible to maintain the routine watch on Brest which had been carried out since the arrival there of the two battlecruisers at the end of March but whenever possible sweeps were carried out off the Biscay Coast down to latitude 45°N. During the day the P.R.U. aircraft again viewed the two battlecruisers in Brest and three destroyers were discovered in the roadstead of La Pallice but no signs of the Prinz Eugen in St. Nazaire, Lorient or the Gironde. The worsening weather during the evening caused the abandonment of all flying after 2130 hours.

Ibid

30th and 31st May

Similar weather conditions prevailed during the 30th and 31st and such patrols as it was possible to fly saw no signs of any naval movements neither was it possible to view the Biscay ports except for a glimpse of Brest on the 31st which only confirmed the presence of the battlecruisers.

Ibid

1st June

At 0605 the Admiralty informed H.Q. Coastal Command that W/T signals had just been D/Fed. in the area 4600N x 0600W.

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- (1) At 1628 Hudson I/233 Squadron engaged 2 He.111. One was shot down in flames and the other driven off. Position Slyne Head. At 2221 Hudson B/224 Squadron engaged and drove off 1 He.111. Position Eagle Island. At 2315 Hudson K/224 attacked 2 JU.88 which were approaching the destroyers off Donegal Bay and drove them off. Ref. No. 15 Group O.R.B.
 - (2) This was an erroneous report as no cruiser was in the western area of Europe. The Prinz Eugen was still 500 miles west of the Azores. See Map XVI and Appendix V.

C.C.
Naval
Staff Log

These signals were consistent with the presence of an enemy surface unit and the Prinz Eugen was suspected to be the author.⁽¹⁾ The Admiralty requested special searches to be made in the Bay of Biscay and named La Pallice as the probable port of refuge.

PL/G5/
1/6

PL/G9/
1/6

The weather having slightly improved in S.W. England, sorties were directed to this area and the Hudson on cross-over "B", already on patrol, was signalled to shift patrol to the south eastward to cover the approaches to St. Nazaire.⁽²⁾ All available aircraft of Nos. 217 (Beaufort), 53 (Blenheim) and 827 (Albacore F.A.A.) Squadrons were brought to the ready as a strike force. One Beaufort, taking off at 0805 hours, searched between the D/F position and La Pallice from 1020 to 1100 hours.⁽³⁾ Six Blenheims of No. 53 Squadron, taking off at 0915, carried out a sweep from 1035-1310 hours in the area between the D/F position and the French coast.⁽⁴⁾ Another five aircraft of this Squadron leaving St. Eval at 1400 hours swept down the coast about 40 miles off shore as far as the latitude of La Pallice encountering bad weather with poor visibility.⁽⁵⁾ No sightings of naval units resulted.

C.C.
Naval
Staff Log.

PL/G11/
1/6

Another enemy W/T signal, whose D/F position was 4800N x 0515W, was made at 1550 hours and a final sortie of three Blenheims of No. 53 Squadron, taking off at 1816 hours, proceeded to this area in the approaches to Brest but saw no naval movements.⁽⁶⁾ Prevalent cloud conditions prevented any successful reconnaissance by P.R.U. aircraft of the Biscay ports though six sorties were made.

Reference to Map XVII will show how this ship was missed. The first two searches took off at 0805 and 0915 respectively but were not down in their search areas until 1020 and 1130 hours, by which time the Prinz Eugen was close to the French coast and proceeding up the swept channel under single engined fighter support. If the aircraft already on crossover "B" had received his diversion order correctly when it was sent at 0730 hours it is conceivable he might have located the cruiser escorted by two destroyers at 0830 hours approximately but it must be remembered that the weather reported at this time by the cruiser was overcast with continuous rain in a wind N.E. force 6.⁽⁷⁾ The Coastal sweep by five Blenheims reached the start of their sweep about one hour after the Prinz Eugen had turned the corner into the Brest approaches and the final strike by three Blenheims were not in this area until the ship was being docked in Brest itself.

2nd June

No sighting of the Prinz Eugen having been obtained and there being no confirmation of her arrival in any harbour,

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- (1) This was correct. The signals that were D/Fed were those made by Prinz Eugen when meeting her destroyer escort in 4600N x 0420W. See Appendix V.
 - (2) L/206 on crossover "B", owing to corrupt groups in the diversion order, did not receive the correct version until too late to comply.
 - (3) This was Q/217 Squadron. The area of search is coloured brown on Map XVII. This search was continued by crossover "F", coloured light blue, from 1300-1800 hours by Hudson G/206. Ref. PL/G10/1/6.
 - (4) The aircraft were A.T.U.S.F. and V. The area covered is marked in violet. Map XVII.
 - (5) The aircraft were Y. D. E. X and Z. They reached 4800N x 0600W at 1540 hours and the southernmost point of sweep at 1640 hours. The area flown is coloured blue on Map XVII.
 - (6) The aircraft were P. H. and L. Their track is marked in red and they reached the position 4800 x 0515 at 1926 hours and after 25 minutes searching they returned to base. Map XVII.
 - (7) See Appendix V.

No. 19
Group
O.R.B.

the search continued. A crossover patrol covering the approaches to Brest was maintained from dawn and searches in the Bay were carried out during the day. Nine Fleet Air Arm Albacores of No. 827 Squadron with torpedoes were held in readiness at St. Eval from 0800 hours. Again no sign of the cruiser was discovered and again coastal cloud conditions prevented either high or low level reconnaissance of the Biscay ports.

3rd June

Ibid

Similar measures were maintained all day. An aircraft of P.R.U. managed to get a view of La Pallice and established that the enemy destroyers, previously reported there on 29th May, had left. 10/10 cloud down to 300 feet prevented reconnaissance of Brest or St. Nazaire and the spread westward of these weather conditions forced the withdrawal by 2200 hours of all watching patrols except the crossover off Brest which was maintained through the hour of darkness.

4th June

Ibid

In conditions of poor visibility the Bay searches were renewed from dawn. At 1245 hours a P.R.U. Spitfire obtained photographs of Brest but, although the pilot visually saw the two battlecruisers, he could not vouch for the presence of the Prinz Eugen. However, when the photographs were developed they disclosed the cruiser in the most easterly dry dock in the Brest naval dockyard.

Thus ended, unsuccessfully, the long search for the Prinz Eugen at sea. Most of the patrols and routine searches were equally useful to give warning of any sally that might be undertaken by the battlecruisers. With the arrival of the cruiser the necessity for an unrelaxing watch was increased and for another eight months this requirement continued to be a first call on No. 19 Group.

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(iii) Operations against the Lutzow 11th - 13th June, 1941

11th June

C.C.
Naval
Staff
Log

At 0250 hours the Admiralty informed H.Q. Coastal Command by telephone that intelligence indicated the movement of a major unit of the German navy from the Baltic to the North Sea. This unit was believed to be the battleship Tirpitz and might have passed the Skaw at about midnight. When this message was received there were 14 aircraft on routine offensive and reconnaissance patrols off the South West coast of Norway.⁽¹⁾ These aircraft were warned by "Syko" signal to be on the lookout during the remainder of their sorties for enemy naval units. The coastal patrols "Stand" and "Bert" took off at dawn and photographic reconnaissance was required by 1000 hours of the Kristiansand South, Stavanger and Bergen areas. The newly designed breakout Patrols Sentry I and II and Frice

- (1) 4 Beauforts of No. 42 Sqdn. on a "Rover" Patrol between Stadtlandet and Stavanger.
- 3 Beauforts of No. 42 Sqdn. on a strike at shipping off Egersund.
- 4 Blenheims of No. 114 Sqdn. on an anti-shipping sweep between Stavanger and Lister.
- 3 Beauforts of No. 42 Sqdn. attacking Mandal aerodrome.

C.C.Ops.
633/11

were ordered for the afternoon and a signal was sent to Iceland instructing the flying of "Bear Patrol" (Denmark Straits) and "Polar Patrol" (to the North of Langanæs) from P.M. 12th June.⁽¹⁾ Re-inforcements for strike and reconnaissance operations were deployed into the Northern area during the day.⁽²⁾

C.C. Naval
Staff Log

At 1230 hours further intelligence from the Admiralty indicated that the German unit had only left the Great Belt area at about 0800 hours. Consequently the orders for "Stab" and "Trost" Patrols were cancelled and the take off for "Sentry I and II" and "Frice" was postponed. By 1700 hours still more positive information came from the Admiralty to the effect that the German unit was the Pocket battleship Lutzow⁽³⁾ and that she had left the Kiel Bay area north-bound at 0900 hours on 11th June.

CC/G2/11/6

C.C. Naval
Staff Log

Patrols were therefore arranged in succession on the assumption that the Lutzow would advance at a mean speed of 20 knots which required "Stand" from 0300 on the 12th, "Bert" from 0700 hours and so on. At 2300 hours the A.O.C.-in-C. was informed by the Admiralty Operations Division that the Lutzow was understood to be already West of longitude 10° E and making for the Norwegian Coast. As this was well in advance of the previous appreciation the A.O.C.-in-C. ordered all the Norwegian coast patrols to take off forthwith and to be maintained until further notice.⁽⁴⁾ These measures were embodied in signals to C.-in-C. Home Fleet with a description of a third breakout patrol - "Sentry III" - which could be instituted if circumstances demanded. In conclusion the A.O.C.-in-C. stated that he could not cover every possible exit and considered the existing patrols were the best possible with the aircraft available.⁽⁵⁾ The Home fleet put to sea during the night, proceeding to the South West corner of Iceland from where an interception could be made which ever way the Lutzow might chose to break into the Atlantic. A/U escort was given by Whitleys of No. 612 Squadron from dawn to 1740 hours on 12th June.

C.C.Ops.
638/12

Admty.
N.I.D.24
X.126/47

Actually the Lutzow, accompanied by the light cruisers "Leipzig" and Emden, and escorted by five destroyers had entered the southern end of the Great Belt at 2300 hours. They were engaged on an operation called "Summer Journey" planned to transfer the two light cruisers to Oslofjord and the pocket battleship to Trondheim.

12th June

No sightings of Lutzow were obtained during the morning or forenoon watches although the visibility was good;

- (1) See Map XVIII. CC/01/11/6/41 gives the co-ordinates of these Patrols.
- (2) 5 Beauforts of No. 22 Sqdn. with torpedoes from North Coates to Wick, 1 Sunderland from Mt. Batten and 1 Catalina from Oban to Sullom Voe, 1 Sunderland from Pembroke to Iceland.
- (3) The pocket battleship Deutschland had been renamed Lutzow on her return from her Atlantic cruise in 1939. Under her original name, Hitler considered that her loss would have serious psychological repercussions in Germany. Ref. Fuhrer Conferences in 1939.
- (4) "Sleeve" to be patrolled from 0100/12, "Stand" from 0300, "Bert" from 0330, "Stab" from 0415, "Trost" from 0515 and thereafter to be flown continuously until sighting reports were made. The breakout patrols Sentry I and II to commence at 1900 and 2100/12 respectively. The Iceland patrols to stand by for further instructions.
- (5) The watching air patrols round Brest were stiffened up in case the German force there should attempt a diversion into the Atlantic.

the weather off the Norwegian coast was 6/10 cloud at 1000 ft. with visibility 8 - 10 miles.

C.C. Naval
Staff Log

CC/G1/12/6

RO/G15/
12/6

At 1245 hours the Admiralty informed H.Q. Coastal Command that the Lutzow had just passed the Skaw at 1230 hours. "Sentry I and II" were postponed again and a P.R.U. aircraft was sent to the Skagerrak to search up the line of advance.⁽¹⁾ At 1930 the Strike Force was brought to instant readiness⁽²⁾ and arrangements completed for the continuance all night of "Stand" patrol. "Sentry I and II" were ordered for 1200 and 1400 hours respectively on the 13th June and finally, in case the Lutzow should turn south along the western coast of Denmark, Hudson aircraft from Thornaby were to carry out a reconnaissance along the parallel of 55°N to the Danish coast and then work up to the north to 57°N, taking off at 2200 hours.

Admty.
N.I.D.24
X.126/47

At 1336 hours the German force, still on a northerly course, had passed the Skaw on the port beam and at 1600 hours, in position 5827N x 1035E, the two light cruisers were detached for Oslofjord taking with them the air escort of 2 Arado 196 and 2 Me.110 aircraft. The Lutzow, escorted by the five destroyers, altered course to the west and proceeded out of the Skagerrack stopping off Kristiansand South at 2100 hours to take on board two navigational officers for the passage through the "Inner Leads" to Trondheim.

As no sightings had been made by 2200, the A.O.C.-in-C. took the decision to despatch the strikes to search for and attack the target⁽³⁾ as he appreciated that by waiting for a sighting report from the reconnaissance aircraft it might be impossible for the strike to arrive in the area before the enemy (a) took refuge in one of the nearby fjords or (b) turned back on his tracks at high speed. In making this decision the A.O.C.-in-C.⁽⁴⁾ bore in mind that it would take at least three hours from the time of ordering the despatch for the strike to be in the area; that the Beaufort aircraft had little endurance in hand to search for the target if not found almost immediately; and that any delay in their arrival on the Norwegian Coast after 0200/13th would intensify the risk of their frustration by enemy single engined fighters in the increasing daylight.

No.18
Group
O.R.B.

At 2300 hours 5 aircraft of No. 22 Squadron took off from Wick⁽⁵⁾ and at 2315 hours 9 aircraft of No. 42 Squadron took off from Leuchars. The Lutzow escorted by five destroyers was sighted at 2359 hours in position 5744N x 0650E steering 290° by a Blenheim of No. 114 Squadron on Patrol "Stand".⁽⁶⁾ The pilot endeavoured to shadow but was forced to signal that he was unable to amplify owing to attacks by enemy fighters. His sighting report was relayed out to the strike aircraft already on the way.

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- (1) To be over position 5752N x 0756E at 1730. Ref. RO/G7 and G8/12/6. No sighting was obtained.
 - (2) At Leuchars - 10 aircraft of No. 42 Sqn. with torpedoes.
4 " " " " " " with S.A.P. bombs.
At Wick - 5 aircraft of No. 22 Sqn. with torpedoes.
 - (3) C.C/G2/12/6. T.O.O.2200 - Striking forces to leave forthwith viz:- 22 Sqn. Wick to Jaederens Point (5840N x 0530E) thence South to Lister and return. 42 Sqn. Leuchars to Lister Light thence North to Jaederens Point and return. The A.O.C.-in-C. himself designed this double sweep as offering the best chance of interception.
 - (4) Air Chief Marshal Sir Frederick Bowhill.
 - (5) Two of these aircraft landed back 1½ hours later with turret trouble.
 - (6) Blenheim "W" of No. 114 Squadron at 2350 hours sighted an enemy aircraft, and turned to attack but entered heavy rain. Coming out of the squall the pilot saw, dead ahead, a naval force consisting of 5 destroyers screening a large warship.

13th June

At 0218 hours the Lutzow was located, attacked and hit by aircraft of the torpedo strike of No. 42 Squadron in position 582N x 0540E when, closely screened by destroyers, she was steering 315° at 20 knots.⁽¹⁾ At 0204 hours, after a delayed start, the two remaining Beauforts of No. 22 Squadron detachment at Wick took off to attack following the sighting report made by "W" of No. 114 Squadron. One returned not having sighted the enemy, the other - aircraft "C" - did not return. Reference to the German account indicates that this aircraft was shot down by an Me.109 after attempting to attack the Lutzow at 0423 hours. A further strike of 9 Blenheims and 3 Beauforts, armed with bombs, was despatched from Leuchars at 0230 hours, but this force failed to make contact with the exception of Blenheim "D" of No. 114 Squadron which located the Lutzow at 0557 hours only a few miles east from where the attack had taken place but moving slowly in a southerly direction close to the land. In spite of the presence of seven Me.109 fighters, this Blenheim attacked with 2 - 500 lb. S.A.P. bombs but missed astern. A final strike of three torpedo aircraft of No. 22 Squadron was despatched at 0900 from North Coates but they failed to find the Lutzow, possibly because the aircraft were flying at sea level in view of enemy fighters and thus had a very limited radius of vision.

No. 18
Group
O.R.B.

CH/CH/13/6

Admty.
N.I.D. 24
X.126/47

The log of the Lutzow establishes that the successful air attack came as a complete surprise. The Blenheim which made the original sighting at midnight had not been observed and though it is true that at 0115 hours there was an alarm for two low flying aircraft⁽²⁾ which were momentarily sighted, they were considered to be German planes returning to base. At 0218 hours another aircraft was sighted but not treated as hostile because half an hour earlier it had been reported that three JU 88 had made a "returning to base" signal.

The successful aircraft came out of a rain squall at a height of 50-80 metres and dropped a torpedo which, in spite of an immediate alteration of helm, hit the Lutzow and exploded on the portside nearly amidships. The ship immediately developed a list to port of 18-20° with part of the upperdeck under water and both engines came to a stop.

At 0225 hours a signal was sent out reporting the torpedo hit and requesting immediate fighter protection. A quick survey of damage revealed that both engine rooms and No. 1 turbine room were making water. The heavy list was caused by the flooding of water tight compartments on the portside. The port propeller shaft was useless and the starboard shaft could not be used until the list had been taken off the ship. The smoke making canisters had been damaged by the explosion and they continued to make smoke which enveloped the ship. It was this smoke that was

Ibid

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- (1) At 0218 W/42 dropped a torpedo which was seen to hit. (Ft. Sergt. R.H. Lovatt - received D.F.M. on 17th June).
At 0230 Y/42 dropped a torpedo but did not observe any result owing to smoke and flak. It did not hit.
At 0235 R/42 made two attacking runs but the torpedo would not release. The enemy ship was seen to be heavily on fire.
The remainder of No. 42 Sqdn. strike failed to locate the target and none of the No. 22 Sqdn. strike saw any enemy ships. Ref. No. 18 Group O.R.B. See Map XIX.
- (2) These two aircraft may have been two of No. 22 Squadron searching for the force.

remarked upon by aircraft Y/42 squadron and which caused R/42 Squadron to report that the ship was heavily on fire.

Pumps were started and by trimming oil and water tanks the ship slowly righted herself. As further air attacks were expected the commanding officer decided to get the ship out of the area as soon as possible and ordered one of the destroyers to take the Lutzow in tow until the starboard engine could be started. A further report was made to the Flag Officer Group North indicating the damage and that the ship was making for Egersund to gain protection from the shore A.A. batteries.

An attempt was made to fly off the ship's aircraft to act as fighter cover until the shore based fighter escort arrived but the sea was too rough to hoist it out by crane on to the water and the catapulting gear had been damaged by the torpedo explosion. Apparently the commanding officer was unaware that some fighters were already with him.⁽¹⁾

At 0320 hours the starboard engine was started and a course was shaped at 12 knots for Stavanger as being the nearest base at which emergency repairs could be undertaken. However, soon after, the commanding officer decided to make for a home port for the following reasons:-

- (a) Although both engine rooms and No. 1 turbine room were making water, the electrical pumps were, so far, able to cope with the leaks. The chief worry was the main dynamo plant consisting of eight generators every one of which was damp and had to be stopped at intermittent intervals. If they should all fail together the ship would be at a stand-still and in great danger. This risk was accepted.
- (b) The ship could only be repaired at a home port because no suitable docking facilities were available in Norwegian waters.
- (c) The ship had a relatively strong escort.

Accordingly at 0440 hours the force turned about and the land was hugged as close as was navigationally possible to protect the portside from further torpedo attack while the destroyers were all disposed to starboard.

Just previous to this alteration of course, another torpedo attack was delivered by a Beaufort aircraft. At 0423 hours concentrated A.A. fire was opened by all the ships and the plane turned away dropping its torpedo prematurely. It was then engaged and shot down by one of the escorting Me.109's. This aircraft may have been Beaufort "G" of No. 22 Squadron which never returned. At 0555 hours the Blenheim attack was recorded, the fall of bombs being given as 120 metres astern of the destroyer on the Lutzow's starboard beam.

Shadowing aircraft were dispatched at intervals to try and maintain contact with the enemy force. Hudson "Z" of No. 220 Squadron sighted them at 0420 hours and maintained intermittent contact until 0630 hours; the task was taken on by "X" of No. 248 Blenheim squadron who reported their position at 1027 hours as 5740N x 0730E steering 085° at 15 knots.

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- (1) W/114 Sqn., had reported 2-Me. 109 to starboard of and 2-Me. 110 astern of the enemy force at the original sighting at midnight. N/42 Sqn. between 0130 and 0150 hours was engaged in this area by 1-Me. 110 and 1-Me. 109. E/42 Sqn. at 0140 hours sighted 6 enemy fighters in the area.

Bomber Command had agreed to send a strike of Stirling aircraft if a reliable location was obtained and this signal of 1027 hours was passed to H.Q., Bomber Command for action to be taken. Discussions as to the suitability of the weather conditions for a bombing attack ensued and at 1255 hours four Stirlings took off expecting to be in the target area at approximately 1500 hours. No. 18 Group H.Q. was to keep them informed by W/T of any subsequent position reports. However, as no further reports had come in by 1300 hours it was considered too doubtful as to where the enemy would be at 1500 hours and the Stirlings were recalled.

C.C. Naval
Staff Log

No. 18
Group
O.R.B.

Ibid

A P.R.U. sortie, which had left at 1015 hours, to reconnoitre the Kristiansand South area returned 1345 hours having sighted the enemy force at 1215 hours in a position 30 miles S.S.E. of Kristiansand South and still steering in an easterly direction at about 15 knots. Considerable difficulty was naturally experienced in shadowing this force at this range, owing to the short endurance of the Blenheim aircraft and the strength of the enemy fighter cover. The final shadowing was carried out by a Blenheim of No. 248 Squadron between 1518(1) and 1605 hours and the Lutzow and five destroyers were left in position 5804N x 0952E steering 095° at 10-15 knots.(2)

The next view of Lutzow was not till 17th June when a P.R.U. sortie managed to secure photographs of Kiel. These revealed the Pocket battleship in No. 4 dry dock.

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- (1) Sighted by S/248 Sqdn. at 1518 hours in 5806N x 0925E. See Map XIX.
 - (2) The Lutzow's log records an uneventful passage down the Kattegat although air attacks were expected at any minute during the rest of the day and through the night up to the time the force entered the Great Belt at 0800 hours on the 14th June. Kiel Bay was reached at 1200 hours; the Chief Engineer of the "Lutzow" reported that all eight generators were about to fail altogether. Tugs were requested and in charge of 3 salvage tugs aided by 8 ordinary tugs the ship was towed past the boom outside Kiel harbour at 1445 hours. The Lutzow was dry docked at 1630 hours and did not leave this berth until the beginning of January, 1942.
Reference. N.I.D. 24/X.126/47.

CHAPTER VIII

THE BATTLE OF THE ATLANTIC FIRST PHASE JUNE 1940 - JUNE 1941

(i) Introduction

Early June saw the land campaign in France in full swing. Naval dispositions to meet the repercussions from this and to make up for losses in light craft incurred in the Norwegian campaign and Dunkirk evacuation had further reduced the slender number available to escort ocean convoys. Later in the month the fall of France necessitated the use of still more light craft in anti-invasion measures and the ocean convoy escorts were cut far below the minimum safety mark. To a similar degree Coastal Command's re-dispositions to meet the evacuations and provide anti-invasion patrols had to be at the expense of convoy escorts and A/U patrols. Consequently the suggestion by the Admiralty of the need for aircraft based in Iceland which was made on 7th June had to be turned down by the Air Ministry who replied that any such move would be at the expense of existing commitments. On 18th June the A.O.C.-in-C. foreseeing the rapid spread of the sea war urgently requested additions to the operational strength of Coastal Command in a letter to the Under-Secretary of State. In neither of these cases could any re-inforcement be supplied as the claims of the other R.A.F. commands were considered to be superior.

A.M.
S.48345
encl. 97A and
101A

A.M.
S.48345
encl.
103A

After the uneasy pause in the U/B war during April and early May the first batch of ocean going U/B's put to sea about mid-May and appeared from 21st May one by one in operating areas in the Atlantic. Their cruises extended further than hitherto to the south-west. The longer hours of daylight, the new and improved types of U/B's and the weak A/U forces deployed against them resulted in a heavy toll of shipping. The U/B sinkings figure for June shot up to 284,000 tons, the highest monthly total yet achieved. The successes encouraged a feeling of confidence which bred increasing boldness and a band of U/B aces rapidly developed among the more experienced of the U/B captains. (1)

Italy's declaration of war on 10th June added a considerable force of U/B's to those already against us. Precautionary measures against them and the Italian surface fleet had drawn off further naval and air contingents from the Atlantic in May when relations with Italy became strained(2). Having regard to the paper strength of the Italian Fleet and Regia Aeronautica it was deemed advisable to discontinue the routing of British shipping through the Mediterranean and all such traffic was diverted to the long ocean passage round the Cape of Good Hope.

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- (1) Such men were Prien, Kretschmer, Endrass, Frauenheim, Roesing, Schepke, Schultz and Jenisch, whose names appeared frequently in enemy broadcasts and internal propaganda.
 - (2) The Italian U/B fleet consisted of 20 boats of over 1,000 tons, 108 boats between 500 and 1,000 tons and 7 of under 500 tons. Fortunately the Italian U/B efficiency was not up to the German standard and British naval action against them in June resulted in the destruction of 6 in the Mediterranean and 5 in the Red Sea. Sunderland aircraft of No. 230 Squadron accounted for a further 2 off Greece at the end of the month.

(ii) Abandonment of the South West route for shipping

By the middle of June it became clear that Germany would over-run France and be in a position to attack our Channel and S.W. approach traffic with aircraft, destroyers and E. boats. An Admiralty meeting to consider trade protection in the light of these events was held on 20th June and recommended the re-routing of our ocean convoys to the North of Ireland and the mining of the Bristol Channel. Further meetings were held on 22nd June and decisions were implemented in signals which ordered all inbound convoys to be sailed from 28th June to arrive through the Western approaches to the north of Ireland except in the case of ships bound for English Channel ports as far east as Southampton which for a time were to continue to arrive by the S.W. approaches. Outbound shipping to be sailed as at present until it was necessary to meet the first of the re-routed inbound convoys. Finally a large area of the Bristol Channel between Ireland and the north coast of Cornwall was to be mined.⁽¹⁾

C.C.
S.7011/1 Part 2,
encls. 1A, 2A,
3A

C.C.
S.7011/1 Part 2,
encls. 6A, 11A

C.C.
S.7011/1 Part 2,
encls. 12A, 13A
Letter to C.A.S.
4th July S.15087
encl. 36A

Coastal Command proposed to re-dispose squadrons in order to provide air escort and A/U measures in the Western Approaches. In the absence of sufficient airfields, the A.O.C.-in-C. again stressed the need of air bases in S.W. Eire particularly the ones in existence at Foynes.

As in the inauguration of convoys at the beginning of the war so in this re-routing of the convoy system there was an unavoidable lag in time. As the enemy over-ran the northern and western parts of France he established bomber and long range reconnaissance squadrons. These took an increasing toll of the convoys and shipping still using the English Channel. Early in July enemy aircraft were reporting and bombing ships throughout the Channel and S.W. Approaches out to 9°W longitude. This menace to shipping necessitated immediate abandonment of the southern routing without waiting for the arrival of the first re-routed inbound convoys. It was put into effect from 15th July. Henceforward only small local convoys of coasting type vessels used the English Channel.

C.C.
S.7011/1 Part
encls. 21B, 28A
33A, 34A

During this time the U/B's had been taking heavy toll, mostly beyond the range of surface or air escort, and were showing increasing boldness in attacking the weakly escorted convoys closer in. The change in the routing of our convoys in the Atlantic provided only a short pause as the new traffic lane was quickly discovered by the enemy long range bomber reconnaissance aircraft and the U/B's were accordingly re-directed to new areas astride it and extending out to 18°W longitude. Another new factor made its appearance at this time. Some of the U/B's which were at the end of their patrol time, instead of returning to Germany by the long passage round North Scotland, commenced to use the newly captured ports of Brest and Lorient⁽²⁾. Here they refuelled, re-stocked with torpedoes and obtained a resting period before embarking on a fresh cruise. This doubled their effective time in operating areas, increased their reach-out into the Atlantic and entirely avoided the harassing time on passage. Sinkings for July were again heavy at 196,000 tons.

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- (1) This area was declared on 22nd July but minelaying in it did not commence until 14th November, 1940.
(2) Lorient was first so used by U.30 which entered this port on 7th July, 1940 - Ref. Log of U.30.

Summary

The fast moving events of May, June and July had completely altered the strategical situation. The enemy was now in possession of the European coast line from the North Cape in Norway to the frontier of Spain in the Bay of Biscay and had assumed a commanding position in the Mediterranean. The Axis was in an incomparably better position to crush Great Britain than any previous challenger. To numerical air and military superiority was added a rapidly growing and successful menace to the hitherto all powerful sea power of England - the modernised U/B fleet. England was alone and dependent entirely on seaborne supplies to counter this unprecedented threat.

As far as Coastal Command was concerned the new situation provided many new tasks and no additional resources.

- (a) To the North Sea reconnaissance was added a vastly extended watch to be kept along the deeply indented coastline of Norway.
- (b) Long range anti-breakout patrols to the north and south of Iceland.
- (c) Reconnaissance of the coasts and ports of Holland, Belgium and France.
- (d) Long range fighter protection for shipping in the Atlantic approaches.
- (e) Special anti-invasion patrols in the North Sea and English Channel.
- (f) Air escort and A/U measures extended along a new convoy route to distances unthought of in earlier months.
- (g) Increased and fresh commitments overseas for trade protection.

C.C. S.7011/1
Part 2 encl. 38B
A.M.S5689 encls.
1A-6A

In a letter to D.C.A.S. dated 16th July, 1940 the A.O.C.-in-C. stated his need for immediate increases at home of three flying boat squadrons, one G.R. squadron and two long range fighter squadrons not counting the two Blenheim squadrons already received from Bomber Command(1). Naval Forces were also stretched as never before and although a letter was written at this time by the A.O.C.-in-C. to the Under-Secretary of State for Air and forwarded to the Secretary of the Admiralty pressing for combined air and surface action against the U/B's operating on our one remaining Atlantic life line, it was found impossible to provide the material.

(1) These were Nos. 53 and 59 Sqdns. Loaned to C.C. at the end of June 1940 and soon transferred to C.C. In addition No. 102 Sqdn. Whitleys from Bomber Command was temporarily loaned to Coastal Command for convoy escort and A/U duties. They commenced to operate from Aldergrove on 5th September, 1940. They returned to Bomber Command on 8th October, 1940.

(iii) The Battle Opens in Earnest

Admty. The War
at Sea. Vol. 1
Para.138

Early August saw the continuation of attacks on Atlantic shipping by U/B's and long range bombing aircraft. On the 17th August Germany proclaimed a complete blockade of the British Isles and threatened to sink any neutral vessel on sight. U/B activity was intensified and with increasing boldness escorted convoys were attacked even close off the North Irish coast. The leading U/B aces were putting into operation the tactics they had experimented with in February off the Moray Firth. Convoys were followed during the day at extreme visibility and attacks were made soon after nightfall but on the surface. Relying on their small silhouette in darkness the U/B avoided the sparse surface escort and fired from close range either aimed shots or a salvo of 4 bow torpedoes, following which the U/B retired at high speed still on the surface and escaped in the ensuing confusion. After retiring to a distance of a few miles from the convoy the torpedo tubes were re-loaded and a further attack delivered. These tactics rendered the "Asdic" useless as it could not detect submarines on the surface and the visual lookouts could not pick up the very small target presented by a trimmed down U/B. By adopting the role of submersible destroyers at night the U/B's had, at a bound, achieved virtual immunity from counter-attack and enormously increased their destructive powers.

At first only the more experienced U/B captains adopted these tactics but the remainder found plenty of defenceless daylight targets further to the west beyond the convoy dispersal positions. The increasing use of Brest, Lorient and La Pallice enabled cruises to be undertaken out to 25°W, far beyond air and surface escort reach. In spite of every effort such escort could not be extended beyond 17°W and many ships were sunk during daylight in these distant longitudes. U/B activity was now confined entirely to Atlantic waters and enemy aircraft took over the task of attacking shipping by bomb and minelaying in the North Sea and English Channel. Long range enemy aircraft, among them a new type - the Fockewulf Condor⁽¹⁾ - extended their operations to the Irish Sea and the latter were reporting positions of convoys well to the west and north-west of Ireland. From being a mere "guerre de course" against our shipping, the effort was developing into a full offensive designed to blockade the British Isles by severing our sea life line to the outer world. Sinkings rose to 257,000 tons with a further 53,000 tons sunk by enemy aircraft in the Western Approaches⁽²⁾.

The supply of modified naval D.C's improved during this month sufficiently to enable all Sunderlands to carry at least 2 and in some cases 4. Depth charges were first used in attacking U/B's on the 31st July, the 16th and 29th August.

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- (1) The first few of these aircraft were adapted from the German civilian air liner of this name. The first squadron to be fully fitted for war purposes appeared in August, 1940 and were based at Merignac near Bordeaux. The type was called F.W.200., the squadron KG.40. Shuttle sorties were flown from October 1940 between Merignac and Stavanger in South Norway. In March 1941, detachments were transferred to both Stavanger and Oslo.
 - (2) During these three months the air interceptions of U/B's on passage in the northern transit area continued but of the 21 so sighted and attacked none were sunk or seriously damaged.

The results were encouraging in that the attack on 16th August with 2 depth charges severely damaged U.51 but the supply situation made it impossible to carry a sufficient load to drop several in a stick comparable to the pattern dropped by A/U vessels. Research and experimental work were, however, in motion for the production of an Air Force type of D.C. suitably streamlined and faired for stowage in the bomb bays of land-based aircraft⁽¹⁾.

(iv) The Northwest Striking Force

C.C. Naval Staff
A/U File Encl. 8
S.5689 encl. 7A

A.M. S.5689
encl. 8A

V.C.A.S. Folder 124
"Protection of Shipping
in N.W. Approaches"

C.C. Naval Staff
A/U File Encls.
9 and 11

C.C. S.7011/1
Part 2 encls.
55B, 56A

A.M. S.5689 encls.
10A, 10B

CC/S.7010/17/1

The concentration of U/B effort in the Western Approaches again brought forward schemes for an intense anti-U/B campaign in this area. A letter dated 7th August from the A.O.C.-in-C. to V.C.A.S. and V.C.N.S. gave emphasis to this matter. After discussion at an Admiralty meeting held on 10th August it was decided to embark on a limited programme. Close co-operation was planned between the air forces based in the Northern Ireland area and a small naval force based at Belfast under Captain P. Ruck-Keene R.N. A joint naval and Coastal Command Staff was accommodated in H.M.S. Titania lying at Belfast. Operations by this combined force were hampered by lack of surface craft, the still inadequate weapons carried by aircraft and the difficulties of handling an independent force inside the jurisdiction of the larger naval command geographically containing it, whose headquarters were at Plymouth. During its life - from 16th August to 8th September - it killed no U/B's but the resultant mass of experience, suggestions and constructive criticisms were of great value in drawing attention to the specialised nature of anti-U/B warfare, the difficulties inherent in working sea and aircraft together and the vital necessity for team work and training. Reports on these matters from both the naval and Coastal Command officers attached to this force resulted in a meeting at the Admiralty to discuss the situation and plan for the future. This meeting took place on 23rd September with the Vice Chief of the Naval Staff in the chair and among those present were the A.O.C.-in-C. Coastal Command, Vice-Admiral Submarines and the appropriate Admiralty and Air Ministry departmental heads. The conclusions emerging from the discussion can be summarised as follows:-

C.C. S.7011/1
Part 2 encl. 64B
& C.

(a) Full use was not being made of our A/U material and capabilities.

(b) Depth charges were the proper and recognised armament for aircraft on A/U duties.

(c) A new command was envisaged, based in the N.W. area, for the operation and administration of forces in the Western Approaches;

(d) A weekly meeting would henceforward be held at the Admiralty to review all existing methods and receive suggestions for new methods of Trade Protection.

It was stated at the meeting that the Admiralty had taken over the routing of all ocean convoys and the Trade

(1) See Appendix IV. Development of Depth Charge.

Division in conjunction with the Submarine Tracking Room would develop evasive routeing while convoys were on the high sea.⁽¹⁾

(v) Mounting Losses

While these discussions and meetings were taking place during September the enemy campaign in the Western Approaches proceeded without slackening. Of 59 ships torpedoed, 40 were in convoy and 70% of the total sinkings (285,000 tons) were by night. Though U/B operations extended to 25°W, the majority of the night attacks were close off the north-west corner of Ireland. For the first time two and sometimes three U/B's operated together instead of adhering to the hitherto accepted practice that submarines should act singly in separate patrol areas. Several U/B's now intercepted the same convoy, shadowed it by day and united in combined attacks after darkness. In addition the reconnaissance reports of the long range Fockewulf⁽²⁾ enabled U/B's to effect interceptions on many more occasions than if working purely from their own sightings. Not content with reconnaissance reports the F.W. aircraft frequently bombed independently routed ships and stragglers from convoys inflicting a further considerable amount of loss as far out as 18°W.

Counter action was ineffective. Convoy surface escorts rarely numbered more than three vessels. Daytime air escort was of not much avail as no attacks by U/B's were delivered by day. Any U/B or U/B's which were following the convoy did so at extreme visibility of the convoy's smoke. In poor visibility the convoy could be trailed on the U/B's hydrophones⁽³⁾. Escorting aircraft adhered to the standard escort patrol diagram which, designed as it was against submerged attack by day, only covered some 15 miles ahead and on either bow of the convoy. Night air escort had not been envisaged but as a palliative it was performed on some occasions during the moon periods of August and September. Results were disappointing and the A.S.V. Mk. I proved of no use in such conditions.⁽⁴⁾ An additional handicap in this direction was the lack of night landing facilities on the western airfields.

The root of our troubles was that the night attack caught our defence at its weakest point; the inadequate surface escort dependent on visual lookout could neither prevent the attacks nor detach forces to take vengeance on the attackers. The air escort, such as could be afforded, was of a rigid out-of-date pattern close to the convoy though this was considered essential for the morale of the merchant crews. There were not sufficient aircraft to give the additional cover at a distance from the convoy. Consequently such A/U forces as

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- (1) A central plotting room was established in the Admiralty showing the four hourly positions of all convoys, large independently routed ships and warships at sea.
 - (2) Their duty was to find and shadow convoys and individual ships in the Atlantic and Western Approaches. W/T signals were made to their base reporting these positions and were then relayed out to the U/B's on patrol. Deficiencies on the ships themselves, such as shortage of guns and gun crews, lack of radar equipment and absence of fighter protection enabled these F.W.200 to inflict serious losses on their own account. To attempt to combat this menace 2 long range Blenheim fighter squadrons were moved to Aldergrove and urgent representations made to re-arm them with Beaufighters. Ref. S.7763/1 encl. 17A.
 - (3) In good visibility a convoy's smoke could be seen 30 to 40 miles away.. A large convoy could be heard on U/B's hydrophones up to 20 miles away.
 - (4) It was realised that future hopes against surfaced U/B's at night lay in the long range A.S.V. Mk. II which was being actively developed at Aldergrove and Llanvavady in No. 502 Squadron equipped with Whitleys.

could be employed on hunting U/B's were continually following up cold scents and dashing from the scene of one sinking to the next always two jumps behind the elusive enemy. During this five months of rising U/B activity there were few air attacks on U/B's in their operational area to offset their increasing boldness⁽¹⁾.

C.C. S.7011/1
Part 2 encls.
69A, 76A, 78A
and 80A

The first of the special weekly meetings on Trade Protection took place on 1st October. Four others took place during October. Among the measures approved or planned for the future were the development of A.S.V. Mk. II in No. 502 Squadron, the progress of the special R.A.F. depth charge, the fitting of R/T in all escort vessels and aircraft, and the adaption of A.S.V. sets to be carried by destroyers. It was suggested that more northerly routeing should be adopted to avoid the Focke-Wulf reconnaissance and when a sufficiency of surface escort vessels were available that convoy routes should be canalised along "tramlines" which could be constantly patrolled by surface and aircraft. Suggestions from Coastal Command included:-

A.M. S.5689 encl.
12A

- (a) Air attacks in greater force on the growing U/B bases on the Biscay coast⁽²⁾.
- (b) The use of our submarines to patrol off these bases with air co-operation as reconnaissance.
- (c) Air laid mines in the entrances to these bases.
- (d) Air patrols on the U/B's line of passage to and from these bases.

In mid-October particularly heavy losses by U/B action⁽³⁾ caused a meeting to be held at the Admiralty prior to a special meeting of the Defence Committee. The Admiralty meeting was held on 20th October under the chairmanship of V.C.N.S. to consider immediate measures to be taken in face of these losses. The summarised conclusions were:-

A.M. S.5689
encl. 13A

- (1) Diversionary routeing had failed and some form of "tramlines" should be tried.
- (2) The question of air and naval bases in Eire must be explored.
- (3) Escort vessels, other than destroyers, were too slow to compete with surfaced U/B's; new escort vessels must be capable of at least 20 knots speed.

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- (1) The score was 6 in June, 2 in July, 9 in August, 4 in September and 3 in October. With the exception of the killing of U.26 on July 1st by joint action between H.M.S. Gladiolus and H/10 Squadron R.A.A.F. the remainder were innocuous or caused mere superficial damage.
 - (2) By October U/B's rarely returned to Germany unless in need of an extensive refit. The only U/B traffic round the north of Scotland was the newly commissioned output on their way to Atlantic operational areas or direct to the Biscay ports, of Brest, Lorient, La Pallice and Bordeaux. On 27th September photographic reconnaissance had revealed 10 U/B's berthed in Lorient and on 9th October 9 U/B's were found in Bordeaux. Anti-invasion policy prevented Bomber Command and slender resources prevented Coastal Command from action concentrated enough to prevent or curb the establishment of these bases.
 - (3) Between the 18th and 20th October U/B's torpedoed 17 ships out of convoy S.C.7, 14 ships out of H.X.79 and 7 ships out of H.X.79A. For guide to convoy lettering see Appendix XI.

- (4) Every effort must be used to produce A.S.V. or specially designed R.D.F. for escort vessels.
- (5) Every available light naval craft must be diverted to the N.W. area. Anti-invasion dispositions must take second priority.

D.O.(40) 35th
Mtg. S.7010/9/
13E.7A

The Defence Committee met on 21st October with the Prime Minister in the chair and these conclusions were approved.

The staff at Coastal Command felt that our existing methods of escorting convoys were out-of-date and that in place of rigid close escort a much more extensive and flexible cover should be adopted. The underlying principle was to employ sweeps covering the water which convoys traversed together with more distant escort of individual convoys. It was considered that any U/B's which were shadowing the convoy at extreme visibility range would be forced to dive. Night sweeps around and ahead of convoys by the A.S.V. Whitleys were recommended as soon as sufficient of these aircraft became operational. Proposals on these lines were embodied in an appreciation by Coastal Command Staff on 28th October.

C.C. S.7011/1
Part 2 encl.
85A

Note was taken of this new line of thought by the 5th Trade Protection Meeting. This meeting emphasised the importance of late afternoon and dusk air patrols round convoys in order to frustrate U/B's from taking up positions round the convoy prior to night attack. It again drew attention to the shortage of aircraft which hindered such measures of support and protection being afforded to all convoys in the danger area. Finally a further plea was put forward for the intensive bombing of U/B and Focke-Wulf bases on the Biscay coast.

D.O.(40) 39th
Mtg. S.7010/9/
13 encl. 8A

On the last day of October a Defence Committee meeting was held to consider the general situation. It was decided that the threat in the Western Approaches made it essential to reduce to a minimum the light naval forces allotted to anti-invasion duties. It also agreed to A.O.C.-in-C. Coastal Command's request for a third squadron of aircraft suitable for carrying long range A.S.V. and noted that the Air Ministry were pressing on with experiments for fitting L.R.A.S.V. in other aircraft in addition to Whitleys. However, it also took note that the Air Ministry would give priority during the next few months to the building up of the Metropolitan Fighter Force in order to make good the wastage during the successful Battle of Britain and in anticipation of the renewal of the offensive in the Spring. Re-inforcements for Coastal Command would thus be at a discount. Regarding bases in Eire, it felt that negotiations with De Valera would be difficult (see mins. of D.O.(40) 35th Mtg.); that the seizure and maintenance of naval and air bases against the will of the government and people of Eire would involve a grave military commitment, but that it might have to be done if the threat on our Western Approaches became mortal.

U/B successes against our Atlantic shipping reached a peak in October with a total of ~~352~~ 500 tons sunk. Most of these losses were incurred only about 250 miles to the northwestward of Ireland. Full use of the moon period

13th-17th October was made by 4 of the U/B aces⁽¹⁾ to lead night attacks against incoming convoys and the majority of the month's losses were inflicted during this period.

Counter measures were again ineffective. Delay was being experienced in the fitting of long range A.S.V. to the Whitleys of No. 502 Squadron (2). Shortage of surface escorts reduced the defence of convoys to impotence and lack of night landing facilities on aerodromes in the North-West area prevented the vital evening air escort except by flying boats. Only the Sunderland, itself in short supply, had the necessary endurance for this task.

(vi) Shortage in aircraft availability

Shortage of aircraft for the diverse duties falling to Coastal Command continued to be the theme note in these difficult days. In a letter dated 11.10.40 the S. of S. for Air explained the reason why the aircraft and crews available for operations in Coastal Command were so few in relation to the total aircraft strength of the operationally fit squadrons. The salient reason was shortage of trained crews. Since the outbreak of war the establishment of all the G.R. and torpedo bomber squadrons had been increased. Re-equipment had been taking place with larger aircraft calling for an increase in the size of crews. The training organisation was inadequate to meet these increased demands and a serious deficiency of pilots and crew personnel resulted. It was not until after the commencement of war that the first operational training unit (No. 1 O.T.U. at Silloth) was formed and under the pressure of the increased requirements mentioned above it soon became nothing more than a quick conversion course for pilots with no training of efficient crews. These converted pilots and half-trained crews were then sent to Coastal Command squadrons where they could not be employed on operations until much further flying and training had been given them. In fact the squadrons had been for a year trying to carry out their own operational training and had gradually accumulated the personnel who, although filling vacancies on establishments, could in no sense be regarded as trained crews.

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Return of
Daily strength
Vol. III and
Squadron Forms:
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In spite of the increase during the year of nine squadrons (3) and the general raising of squadrons initial equipment figures, the daily availability of operational aircraft had only risen from 170 in September, 1939 to 226 in September, 1940⁽⁴⁾. It was of course realised by this time that operational squadrons could not be expected to carry out training and that before strengths were increased or new

one of these U-boats

- (1) Prien, Kretschmer, Endrass and Frauenheim. It is of interest that Prien returned to Germany after his part in these attacks and was sighted on the surface and attacked off S.W. Norway by Hudson E/233 Squadron on 25th October. The U/B defended itself with flak and severely shot up the aircraft but E/233 succeeded in straddling the surfaced U/B with a stick of 10-100 lb. anti-submarine bombs obtaining one direct hit just abaft the conning tower. The U/B was damaged but not severely and reached Kiel two days later.
- (2) One of the first Whitleys of this squadron to become operational with the L.R.A.S.V. while on the way to escort a convoy located a U/B on 29th October in visibility of 600 yards and after attacking it with anti-submarine bombs found the convoy in similar low visibility entirely by means of A.S.V.
- (3) No. 10 Sqdn. R.A.A.F. in Dec. 1939, Nos. 235, 236, 248 and 254 Sqdns. from Fighter Command in Feb. 1940, Nos. 53 and 59 Sqdns. from Bomber Command in June 1940, No. 98 Sqdn. stationed in Iceland from Aug. 1940 and No. 321 Dutch Sqdn. formed in Aug. 1940.
- (4) On 21st September, 1940 Coastal Command's strength was:-

28 Squadrons of total I.E. 461 aircraft. Only 226 aircraft were available with fully trained crews. A further 100 aircraft were serviceable but were without complete crews. See App. I for the November figures.

squadrons raised or new types requiring larger crews were brought into service, the necessary training organisation must be built up. In this respect the Coastal Command position was in the process of being improved by the formation of three operational training units. This could not be done in a day, but it was being pressed on as quickly as possible. An additional problem arose during this month which was to slow down even further the efficient expansion of Coastal Command. Italy declared war on Greece on 28th October, 1940. Urgent re-inforcements were called for in the Middle East by the German and Italian threat in South-East Europe and Africa. The Home Air Commands were informed by the Air Ministry on 11th October that considerable demands would be made on this account and required them to treat such demands as a first call on resources regardless of what effect they might have on immediate operations. Finally, the intensification of the war since April 1940 had resulted in heavier casualties to aircraft on operational tasks. From an average of 7 to 8 per month the figures had risen rapidly to an average of 38 per month. See Appendix XIV.

C.C.
S.7010
enc. 62A

(vii) The scarcity of available aircraft in Coastal Command comes to a head

No-one was more dissatisfied with these conditions than the A.O.C.-in-C. who had never ceased to press for more long range aircraft for A/U purposes, more long range fighters to counter the F.W.200 and more airfields in the N.W. area. The same sense of frustration due to inadequate numbers and limitations of type was felt in naval circles. The opinions, comments and complaints ascended through the various staffs and emerged from the heads of service branches on to political ground already disturbed by current events, the alarming figures for the U/B sinkings of the month - (345,500 tons) - the ineffectiveness of counter-measures, the loss of control over English Channel traffic, the arrival undetected of 7 enemy destroyers in Brest, the persistent fear of invasion and the increasing night bombing raids on London and the provinces. When, therefore, the First Lord of the Admiralty on 4th November issued a memorandum demanding immediate and long term increases in the strength of Coastal Command, the issue was taken up in the Defence Committee and developed into claims to have the Command transferred bodily to the Admiralty. The story of this argument, which resulted in the transfer to the Admiralty of the operational control of Coastal Command is given now in this Part of the narrative as it arose mainly over trade protection, with particular emphasis on the war against the U/B's.

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(viii) The Transfer of Operational Control of Coastal Command to the Admiralty, November 1940 - April 1941

Introduction

Hansard
Vol. 367
p. 783

On 10th December, 1940, Mr. Churchill announced in the House of Commons the Defence Committee's decision to transfer the operational control of the Coastal Command to the Admiralty. In retrospect, that decision is interesting for several reasons. In the first place, it signified the defeat of a proposal, which had been made by Lord Beaverbrook as Minister of Aircraft Production, to sever Coastal Command completely from the Royal Air Force. Although Lord Beaverbrook's suggestion represented a revival of an Admiralty claim of long standing and although it received the official support of the First Lord, it is significant that it did not emanate from the Naval Staff. Indeed in December 1940, the responsible naval authorities

showed no indication of wanting to press that claim strongly. The decision to preserve Coastal Command as an integral part of the Royal Air Force, and to transfer its operational control to the Admiralty was, however, a compromise reached by the Defence committee of the War Cabinet after a full inter-departmental inquiry into the subject. In the second place, it is necessary to point out that the new policy was "declaratory", in the sense that it virtually involved no practical change even in the restricted field of purely operational control. This, at least, was the view which was taken at the time by the members of the Air Staff.⁽¹⁾

While, theoretically, the decision may have marked a break with the past, in practice it hardly altered the existing operational procedure at all. Nevertheless, it is equally clear, in the third place, that the detailed arrangements for the transfer of operational control contained in the instrument which came to be known as "Coastal Command's charter" provided a useful guarantee of the Command's status, vis a vis the local naval commanders and the Admiralty, for the rest of the war period. That "charter" formed an agreed declaration of principles which could be and was, in fact, appealed to more than once, whenever the local naval authorities showed an inclination to disregard it in the day-to-day conduct of operations. Lastly, it is even more essential to observe that the transfer of operational control of Coastal Command in no sense involved a final liquidation of the Admiralty's long-term claims upon the shore-based naval co-operation squadrons of the Royal Air Force. The decision of December 1940 was made at a crucial stage of the war at sea, when any radical administrative changes affecting the two services might well have been disastrous. That situation was the compelling reason which prompted the Naval Staff not to urge the larger claims which were held in abeyance but were not abandoned.

Autumn 1940 - Coastal Command's increased responsibilities

The occupation by the Germans of the whole seaboard of western Europe from the tip of northern Norway to the Franco-Spanish border during the spring and summer of 1940 presented two obvious threats to the security of this country - an immediate threat of invasion, and a long-term threat to our lines of sea communications. Once the first threat had been countered by the Royal Air Force's victory in the Battle of Britain, the responsibility of meeting the second and no less dangerous threat devolved, in the main, upon the Royal Navy. The complete change in the general strategical situation, consequently involved a heavy increase in the commitments and responsibilities of the Coastal Command. In relation to these new and heavier burdens, which had never been envisaged in our pre-war plans, the resources of the Command in aircraft, personnel and equipment became dangerously inadequate. The operation of German aircraft from Norwegian bases pointed to the need for strengthening our

(1) There appears to have been some difference of opinion between the Naval and Air Staffs as to the exact meaning of "operational control" and this difference naturally coloured their respective interpretations of the Defence Committee's decision of 4th December, 1940. The view of the Air Staff was that "operational control" meant the power of issuing general directives as to the broad strategical objective to be pursued and did not include the power of issuing detailed commands for the employment of air units. The Air Staff, therefore, contended that no transfer of "operational control", in this limited sense, could take place in December 1940, since the Admiralty had exercised such powers from the beginning of the war. See minute from D.C.A.S. to C.A.S. dated 1st February, 1941. H.Q. Coastal Command File B.7033/2 (Enclos. 7D).

system of North Sea reconnaissance patrols against the danger of German commerce raiders; a sudden increase in the mining from the air of our ports and swept channels called for the re-introduction of the air "security" patrols: the wider range of German aircraft westward since the acquisition of French airfields in the Gironde area posed new problems in the protection of our ocean-going convoys in the Western Approaches against the combined attacks of aircraft and U-Boats: the consequent routing of such convoys to the north of Ireland gave rise to new needs for air cover and additional reconnaissance in the convoy areas: and finally, there was a sharp increase in the requirements for reconnaissance from overseas stations.

Admiralty memorandum on the strengthening of Coastal Command, 4th November, 1940

Early in November 1940 Mr. A. V. Alexander, as First Lord, emphasised these various needs for increased air co-operation in the protection of our maritime trade and stated the Admiralty's case for immediate and long-term increased in the strength of Coastal Command. At that date, according to the Admiralty estimates, the approximate operational first-line strength of the command was four hundred aircraft, which represented an increase of 100% on its strength in September 1939.⁽¹⁾ The First Lord's comment on these figures, in a memorandum dated 4th November, 1940, was that "in my view the number should be brought much nearer to 1,000 planes in operation at the earliest possible moment." The immediate naval requirement, however, was that fifteen of the hundred new Royal Air Force squadrons, which under a recently approved expansion scheme were to be brought into service by June 1941, should be put at the disposal of the Coastal Command. The minimum long-term requirement for shore-based naval co-operation aircraft in the Home Waters area was estimated at 826 aircraft of all types - a total which indicated a deficiency, as compared with the existing establishment, of about 400 aircraft. The estimated deficiency of naval co-operation aircraft overseas was approximately 480.

Considered by the Defence Committee of the War Cabinet, 5th November, 1940

These suggestions for increasing the strength of Coastal Command were considered by the Defence Committee of the War Cabinet on 5th November, 1940. In presenting them to the committee, the First Lord explained the Admiralty's concern about the limited resources with which Coastal Command was attempting to carry out its extremely important duties in the protection of trade and expressed the feeling that the Command had always been the "Cinderella" of the Royal Air Force. The latter view was repudiated by the Secretary of State for Air, who referred to the way in which the effective equipment of the naval co-operation squadrons had been handicapped by the failure of the Lerwick and Botha. Sir Archibald Sinclair also described the First Lord's request for 1,000 aircraft for Coastal Command as exaggerated and pointed out that any undue expansion of the naval co-operation force would inevitably hamper the building up of Bomber Command's strength and would sacrifice the possibility of its being employed effectively on offensive operations. At this stage Lord Beaverbrook brought forward his proposal, which was entirely alien to the matters under discussion, that the Royal Navy should take over Coastal Command from the Royal Air Force and run it as a separate Naval Air Service. He considered that the Navy should

(1) This inaccurate estimate confused establishment, strength, serviceability and availability. See Appendix I. for the November 1940 details.

set up their own training establishments and draw on their own personnel for pilots and maintenance staff. He anticipated that there would be no difficulty in supplying all the aircraft needed for a naval air force. The Prime Minister remarked on the advantages which might be anticipated from having the protection of trade completely under one operational control and noted that there might be less serious consequences involved in splitting off Coastal Command from the Royal Air Force now that the latter was expanding so rapidly and "forming itself into the leading element in bringing about our victory", than there would have been in 1937, when he had advised Sir Thomas Inskip against such a measure. He considered on the other hand, that it would be poor economy to duplicate training grounds or to set up competition between the services in the market for aircraft. Sir Dudley Pound, First Sea Lord, while recognising that the control of Coastal Command had always been one of the Naval Staff's objectives, urged that the crux of the problem was how to safeguard our trade during the next few months and maintained that a solution would be dependent upon the Air Ministry's willingness to assign a larger proportion of new squadrons and of maintenance personnel to Coastal Command. In reply, Sir Archibald Sinclair emphasised that the Air Ministry was pressing forward with the latest air expansion programme and that it was ready to consider any proposals for improving the efficiency of Coastal Command. The Chief of the Air Staff, Sir Charles Portal, drew attention to the difficulty of co-ordinating under one control the protection of our seaborne trade since, under the existing arrangements, the protection of naval bases and of coastwise shipping was a responsibility of Fighter Command. Thus the mere absorption by the Admiralty of Coastal Command would not achieve the desired unity of control. He remarked also that, as things then stood, there was no evidence that the effective control of the day-to-day operations of Coastal Command did not rest in the hands of the local Naval Commanders-in-Chief. He suggested that the proper test to apply to the suggested transfer of authority was whether or not it would result in an increase in net resources.

On this evidence the Prime Minister decided that a full inter-departmental inquiry should be held and promised that he himself would circulate a minute to the Admiralty, the Air Ministry and the Ministry of Aircraft Production on the various aspects which seemed to need investigation. In conclusion, however, he sounded a note of warning by referring to the waste of resources which had occurred during the last war, as a result of the expansion of the Royal Naval Air Service engaged on purely defensive duties at home, at a time when the Royal Flying Corps had been fighting for its life in France. Such a waste, he reminded the committee, should never be allowed to happen again.

Inter-Departmental Inquiry into Lord Beaverbrook's Proposal that Coastal Command should be Transferred to the Admiralty

Mr. Churchill's Questionnaire, 11th November, 1940

Mr. Churchill's note on the matters to be considered in the enquiry was communicated to the ministers concerned on 11th November and it took the form of a questionnaire, the full text of which ran as follows:

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C.C. S.7033/2
encl. 1A

"It has been suggested that the function of air reconnaissance over the sea by shore-based aircraft and flying boats, air co-operation in the protection of trade, and offensive air operations against enemy ships at sea should be taken over by the Fleet Air Arm and that the latter should absorb the whole organisation, personnel and equipment of Coastal Command R.A.F.

W.P.(40)458

This suggestion should be studied by the Admiralty, the Air Ministry and the Ministry of Aircraft Production, particular attention being paid to the following aspects of the enquiry:-

A. What complaints have the Admiralty against the present system?

B. If the suggested transfer were carried out:-

(i) What operational advantages would there be over the present system?

(ii) Would the various stages in the training of pilots and crews best be managed in Royal Naval or in Royal Air Force training establishments?

(iii) What would be the effect of the change on the provision of men and aircraft? Would there be any net increase of resources?

(iv) How would an increase of "overheads" and an overlapping of functions between the R.A.F. and the F.A.A. be avoided?

(v) How could an undue diversion of resources to defensive duties owing to the desire of the F.A.A. to ensure its requirements on an over-generous scale best be met?

(vi) What would be the minimum number of aircraft the Admiralty would require to be provided within the next twelve months?

C. If the suggested transfer were not carried out:-

What improvements could be made, within the framework of the present organisation, to increase the resources available to Coastal Command, and to bring the co-operation between the latter and the Royal Navy to the highest pitch of efficiency?"

Lord Beaverbrook's Memorandum on "A Naval Air Force"
11th November, 1940

The particular questions, which obviously went to the root of the matter, would undoubtedly have embarrassed the impetuous Minister of Aircraft Production if he had waited to consider them before expounding his case further. With characteristic and perhaps calculated impatience, however, Lord Beaverbrook had already restated his indictment of Coastal Command in a memorandum which, lacking both restraint and sound argument, virtually contributed nothing to the discussion and probably injured rather than promoted the policy of which he was the misguided advocate. The document, in fact, merely drew attention once more to the problems confronting the Navy (which were already familiar to the War Cabinet),

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restated the general arguments in favour of the specialisation of naval air work, (which had been commonplace in the pre-war controversies) and dogmatically condemned the naval air co-operation which had been provided by the Royal Air Force(1). The minister's conclusion was that satisfactory air co-operation with the Royal Navy could be "achieved only under the direction of a naval air command, including the present Coastal Command of the Royal Air Force and the Fleet Air Arm" and that the naval air force would need to be strengthened within the next few weeks(2).

Admiralty-Air Ministry agreement on the immediate expansion of Coastal Command, 11-13th November, 1940

Of more immediate importance, so far as the solution of the current naval problem was concerned, were two joint meetings of the Naval and Air staffs, held on 11th and 13th November. As a result of these conferences a programme for the immediate and medium term expansion of Coastal Command was quickly agreed. Three new squadrons - one general reconnaissance squadron of Wellingtons fitted with long-range A.S.V., one torpedo-bomber/general reconnaissance squadron of Beauforts, and one long-range fighter squadron of Beaufighters - were to be added to the strength of the Command as soon as they could be formed. In addition its long-range fighter force was to be increased by the equivalent of one and a half squadrons by raising the establishment of the five existing squadrons from sixteen to twenty. All deliveries of American PBY flying-boats (Catalinas), of which fifty-seven were due to reach this country by the end of April 1941, were to be put into the first-line. By this means it was hoped that the flying-boat strength of the command would be increased by the equivalent of four squadrons (3). The medium-term programme was to consist of the addition to Coastal Command by June 1941 of the fifteen squadrons asked for by the Admiralty(4).

Admiralty Reply to the Prime Minister's Questionnaire, 22nd November, 1940

An examination of the memoranda circulated by the First Lord of the Admiralty and the Secretary of State for Air to the Defence Committee of the War Cabinet in reply to the Prime Minister's questionnaire would seem to indicate that the balance of argument was clearly against the absorption of Coastal Command by the Fleet Air Arm. It is noticeable that the Admiralty memorandum of 22nd November made several admissions which were bound to have influenced the Defence Committee against such a radical solution in the near future. For example, when discussing the arrangements for the training of pilots, the Admiralty was obliged to recognise that until the existing shortages in airfields, aircraft, instructors and maintenance staff had been remedied, it would be necessary to continue "the system at present in force, whereby the R.A.F. train all pilots in

- (1) "It is not a satisfactory argument to say that the R.A.F. can fulfil the task of supplementing the surface craft of the fleet. It has failed to do so. The Coastal Command of the R.A.F. is quite inadequate". W.P.(40)439.
- (2) "Weeks only can be devoted to the strengthening of the naval air force. Time measured in months would be too long". Ibid.
- (3) The establishment of five of the existing flying boat squadrons (of which one was overseas at Singapore) was to be raised from six to nine. One new squadron (of nine I.E.) was also to be added.
- (4) These fifteen squadrons were to include the four new squadrons mentioned above but were to be additional to the establishment increases to the long-range fighter squadrons and the flying-boat squadrons. Joint note by Chief of Naval Staff and C.A.S. dated 4th December, 1940. Annexed to minutes of D.O.(40) 47th Meeting.

C.A.S. to P.M.
14th Nov. 1940
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the initial and service flying stages". Neither could the Royal Navy provide the requisite number of instructors for the training of Coastal Command and Fleet Air Arm observers. In notable contrast to Lord Beaverbrook's diatribe was the Admiralty's tribute to "the already excellent co-operation which exists between Coastal Command and the Navy." The only suggestion which was put forward for improving that co-operation under the existing system was that provision should be made to allow members of the headquarters staff of the Command to work in the Admiralty building. This particular proposal, it is interesting to observe, had long been advocated by the Air Officer Commanding-in-Chief of Coastal Command himself. A further admission was that the protection of convoys within thirty miles of the coast and the defence of naval shore bases would still need to be the responsibility of Fighter Command -- even if Coastal Command were transferred to the Admiralty. Nor, finally, could the Admiralty produce any satisfactory evidence for its opinion that, as a result of the transfer, there would be a gain in net resources. As regards aircraft, the memorandum pointed out, rather lamely, that any net increase would be dependent upon "the extent to which the Ministry of Aircraft Production is able to supply us (i.e. the Admiralty) with British and/or American aircraft without undue interference with R.A.F. supplies". As regards personnel, the Admiralty expressed a hope that it would be able "to produce an increased number of recruits for training for the Naval Air Service" but admitted frankly that "there might be difficulty in providing an increased number of trained maintenance personnel".

As the Naval Staff had already agreed with the Air Staff on the measures which it would be practicable to take in the immediate future to increase the strength of the naval co-operation forces, the First Lord could not reasonably lay great stress upon the admitted deficiencies in Coastal Command as a reason for advocating its transfer. In these circumstances, the sources of naval dissatisfaction with the existing order of things were thus confined to a comparatively restricted range of topics all bearing on the subject of operational control. The Admiralty complained that it had "no will in the design and equipment of aircraft of Coastal Command"; that it "had no voice in the operational training of the Command"; and that "it had no responsibility for the day-to-day operational control of Coastal Command aircraft which are carrying out what are essentially Naval operations". The latter complaint however, seemed to conflict with the approbation which the First Lord had extended to the system of Area Combined Headquarters -- for that organisation was based on the principal that the day-to-day control of operations in the defence of trade in Home Waters was the primary responsibility of the local Naval Commanders-in-Chief, assisted and advised on air matters by the Air Officers Commanding of the respective Coastal Command general reconnaissance groups⁽¹⁾. The devolution of authority to these local commanders had been the agreed policy of the joint staffs which had created the system before the war and was, in fact, the main reason for that system's success during the war.

Air Ministry Memorandum 21st November, 1940

The Air Ministry's case for the retention of Coastal Command as an integral part of the Royal Air Force was stated by Sir Archibald Sinclair in a memorandum dated

(1) See C.I.D. Paper No. 1425 - B. April, 1938. For the evolution of the Area Combined Headquarters see Volume I. The Pre-War Evolution of Coastal Command 1919-1939.

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21st November, 1940. In this he contended, firstly, that everything that could be done in the existing circumstances to remedy the deficiencies in the command's strength had already been done. Secondly, he disproved the more glaring mis-statements made in the memorandum by the Minister of Aircraft Production. Thirdly he discounted the operational advantages which naval opinion expected would result from the suggested transfer. Lastly, he deplored the policy of transfer because it would involve a reversion to the principle of separate air forces which had been abandoned in 1918. He was able to show that the weakness of Coastal Command had arisen, partly from the unprecedented increase in its responsibilities for naval co-operation after the German conquest of Western Europe, partly from the temporary priority which had necessarily been given to Fighter Command during the battle of Britain and partly from the War Cabinet's subsequent decision to build up the offensive strength of Bomber Command. Even so, the operational strength of the squadrons operating under Coastal Command had increased, during the past year, by nearly one hundred per cent. - a rate of expansion which exceeded that of the Air Force as a whole and which contrasted sharply with the rate of progress of Bomber Command. As a result of the joint staff discussions on the problem of correcting the existing deficiencies, Sir Archibald Sinclair felt justified in claiming that the Admiralty was satisfied with the contemplated increases, which represented the maximum that could be done at the moment, having regard to the other commitments of the Metropolitan Air Force. The Air Ministry had arranged to pool resources with the Admiralty in aircraft, airfields and personnel and would review the progress of the expansion weekly, so that new units could be formed as soon as possible. Those resources could not be expanded by the expedient of absorbing Coastal Command in the Royal Navy, since there were no concealed resources which such a transfer would bring into play.

The only criticisms of Lord Beaverbrook which seemed to call for serious answers were that Coastal Command had failed to provide the desired form of specialised training in Naval air work and that there was no increasing flow of Coastal Command pilots on a large scale. On the first point, the Secretary of State referred to the specialised training afforded to pilots of the command by the School of General Reconnaissance, the Flying Boat Operational Training Unit and the Torpedo Training Unit. On the second issue, he quoted figures which showed the inaccuracy of his colleague's statement. A deficiency in the strength of available pilots in the command which had amounted in the previous June to more than a hundred had been turned, by the beginning of November, into a surplus of nearly a hundred. The planned output of the command's Operational Training Units amounted to ninety-five pilots per month in the future, a figure which compared favourably with the monthly average of thirty-three pilot casualties (including wounded and injured) over the last six months. Similarly, at the beginning of July, the strength of crew personnel in operational units was below establishment by more than two hundred, but in November there was a surplus strength of nearly four hundred. During October 159 crew personnel had passed from Operational Training Units, while crew casualties for the same period, (including wounded and injured) came to only 27.

Not least among the unfortunate operational consequences which might be expected to follow from a transfer of Coastal Command to the Admiralty was the abandonment of the system

of common basic training for the shore-based and ship-borne aircraft(1). That system had been amply justified during the Battle of Britain, since it had been possible to loan to the Metropolitan Air Force, in its hour of greatest need, a number of Fleet Air Arm pilots who were able promptly to take their place with Royal Air Force squadrons fighting in the line (2). If, in the future, the need for pilots in the Fleet Air Arm was intensified, the flexibility of common basic training might prove equally beneficial to the ship-borne air forces. Further, the establishment of a Royal Naval Air Service would unavoidably result in an increase of "overheads" and in duplication of effort, which the creation of a unified air force had been designed to avoid. It would also encourage the Royal Navy to build up an air force adequate for its peak requirements for employment in the purely defensive duty of protecting our maritime commerce, at a time when it was vital that we should concentrate on the main task of winning the air war against Germany. The wresting of general air superiority from the Germans would not be possible unless we decided to allot the minimum proportion of our resources to the strictly defensive roles. Nor, finally, would the transfer of Coastal Command to the Royal Navy achieve the concentration under a single authority of responsibility for trade defence. "The Navy would still rely upon Fighter Command for the defence of its Fleet bases and for the protection of coastwise shipping and upon Bomber Command for its main striking force. Only co-operation can solve the problem of meeting widely varying commitments with a limited force."

The memorandum concluded by restating the arguments for the retention of the principle of a unified air force which had been adopted in 1918. "Taking the short-term view", the Secretary of State wrote, "the transfer of Coastal Command to the Royal Navy would not provide a single additional aircraft for the defence of trade. The confusion, delay and shattering of mutual confidence which would result from such a major surgical operation on the Royal Air Force at a critical time would certainly detract from, and not assist, our air effort as a whole.

Taking the long-term view, the problem is to decide whether our available air resources would be best exploited by having one unified Air Force, or two separate Air Forces. It is my firm opinion that a decision to split the Air Force would irreparably damage our effort to win the war in the air.

The problem of making the most effective use of air resources between the competing needs of an Army, a Navy and an Air Force, is not a novel one. The problem arose in an acute form in the last war when, after much wasted effort, it became necessary to amalgamate the two existing Air Services in order to secure an economical and effective direction of our air effort.

The fusion of the British Air Services was decided upon at a time when the problem of defeating the air power of the enemy had reached a critical stage. Now the same problem

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- (1) Up to the end of the Service Flying Training School course, basic flying training was essentially the same for Royal Air Force and Fleet Air Arm pilots, though the ground instruction for the latter was modified to suit naval requirements.
 - (2) In July above 55 F.A.A. pilots had been lent to the R.A.F. and these proved invaluable during the hard fighting of August.

has arisen again, but in much more formidable proportions. Less than ever before can we afford the luxury and the waste of a divided Air Force. Air Power is the key to victory. Let us not abandon the principle which enables us to weld it with maximum effect."

D.O.(40)
47th Mtg.
(Min. 1)

The Defence Committee (Operations) of the War Cabinet decides to transfer the operational control of Coastal Command to the Admiralty, 4th December, 1940

These various memoranda were considered on 4th December by the Defence Committee, their leading arguments being re-emphasised in the discussion. At the opening of the meeting Mr. Churchill stated that there seemed to him to be two conditions which would need to be satisfied in solving the problem of the control of Coastal Command. The first was that the maximum possible force should be deployed for action in the North-Western Approaches; the second that a single authority should be responsible for bringing in the convoys. The only fresh suggestion produced by the Naval Staff at the meeting was that, if the Royal Navy was not allowed to take over Coastal Command, there should be established in the Admiralty a standing Technical committee which should keep under constant review the equipment of the Command and make sure that naval needs were satisfied. In reply, the Chief of the Air Staff observed that, though the Air Ministry was always open to suggestions of that kind, so long as the Royal Air Force was responsible for issuing actual flying orders, it must also remain the responsible authority for deciding what type of aircraft should be flown. The root cause of Coastal Command's alleged failure to provide a satisfactory degree of specialisation on naval air work in the earlier stages of the war had been shortage of aircraft and, in particular, a lack of A.S.V., earlier called "special wireless equipment". That cause was being remedied but, for himself, he was "perfectly prepared to see the Royal Navy in operational control of Coastal Command". On the other hand, he expressed his disagreement with the policy of complete transfer, for technical and psychological reasons. If Coastal Command aircraft were handed over to the Royal Navy, they would become subject to a new system of flying instructions, a new discipline and a new code of law and regulations. Thus the flexibility of the existing organisation, under which all shore-based aircraft were controlled by uniform rules and regulations and every airfield had the same system of flying instructions, would be forfeited⁽¹⁾. He also pointed out that such a change would affect 28,000 men. The Royal Air Force would no doubt imagine that these men were being transferred because the Navy did not consider they were capable of performing their functions as part of the Royal Air Force. The harm done to the air force's esprit de corps would be grievous and it would not be apparent that the change had not originated with the Admiralty at all.

Summing up the discussion, the Prime Minister said that while it might have been desirable, if they had been starting afresh in peace time, to make the great change which had been proposed, it would be disastrous, at that stage of the war,

(1) Under the existing system squadrons could thus move from airfield to airfield with perfect freedom. As the shore-based units of the Fleet Air Arm came under the operational control of Coastal Command, they fitted easily into this organisation.

to tear a large fragment from the Royal Air Force. The times were unsuitable for an inter-service controversy, but all were agreed that complete operational control over Coastal Command must be secured to the Admiralty. In the event of divergences of view between the Admiralty and the Air Ministry, it would be for the Defence Committee to decide on the allocation of resources to Coastal Command, leaving it for the Admiralty to make the best use of those resources⁽¹⁾. The administration and training of the command were to be retained by the Air Ministry. Conclusions were then carried embodying these decisions and approving the measures for increasing the strength and efficiency of the command.⁽²⁾

First Lord of the Admiralty suggests arrangements for detailed transfer, 30th January, 1941

On 30th January, 1941 the First Lord of the Admiralty wrote to the Secretary of State for Air to suggest that a small joint Admiralty-Air Ministry Committee should be established under the presidency of the Vice-Chief of Naval Staff to consider detailed arrangements for the transfer⁽³⁾. The First Lord suggested that the committee should draw up a scheme giving the Admiralty "complete operational control of all aircraft in Coastal Command" and the naval Commanders-in-Chief at home local operational control through the Combined Headquarters. He also wished arrangements to be made to ensure that "Coastal Command resources should not be diverted to other services without the express concurrence of the Admiralty", that closer liaison should be maintained between the Naval Staff and Headquarters Coastal Command and that technical questions affecting the efficiency of naval air co-operation should be kept constantly under review⁽⁴⁾. For the latter purpose he suggested the establishment of a joint Admiralty-Air Ministry Standing Committee, working under the chairmanship of the Commander-in-Chief, Coastal Command.

Report of Joint Naval and Air Staff Committee,
19th March, 1941

See annexure
(2) to Report
of Committee on
Coastal Command
Appendix VII

Sir Archibald Sinclair agreed to this proposal to leave the detailed transfer arrangements to a small joint committee on 3rd February, when he nominated as the Air Ministry representatives Air Vice-Marshal A. T. Harris, Deputy Chief of the Air Staff and Air Commodore Durston, Director of Operations (Naval Co-operation). The Admiralty representatives were Vice-Admiral T. S. V. Phillips, Vice-Chief of Naval Staff and

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- (1) It is presumed that by this remark the Prime Minister made did not imply that the actual disposition of the squadrons of Coastal Command was to be an Admiralty responsibility. The actual location of squadrons was decided by the Air Officer Commanding-in-Chief.
 - (2) The re-equipment Programme for Coastal Command that was approved at this meeting is at Appendix VI.
 - (3) Annexure (1) to Report of Committee on Coastal Command. Appendix VII.
 - (4) The list of questions concerned were:-
 - (1) Numbers of aircraft
 - (2) Types of aircraft
 - (3) Equipment of aircraft
 - (4) Scales of reserve
 - (5) Formation of squadrons
 - (6) Types of weapon
 - (7) Numbers and training of air-crews
 - (8) Methods of patrol, escort and search
 - (9) Anticipated expansion of Coastal Command
 - (10) Proposed dispositions of newly formed squadrons
 - (11) Allocation of aircraft and aerodromes
 - (12) Methods of protection of trade from air or submarine attack
 - (13) Requirements for effective reconnaissance
 - (14) Methods of perfecting attacks on ships.

Vice-Admiral G. C. C. Royle, Fifth Sea Lord. This committee held meetings on 13th and 25th February, 1941 and communicated its report on 19th March. On the subject of operational control its recommendations were that:-

See
Appendix VII

- (i) "Operational control of Coastal Command will be exercised by the Admiralty through the Air Officer, Commanding-in-Chief, Coastal Command.
- (ii) Subject to the over-riding operational authority of the Admiralty referred to above, the Air Officer, Commanding-in-Chief will normally delegate the day-to-day detailed conduct of air operations to the Coastal Command Groups, who will be responsible to him for meeting the air requirements of the Naval Commanders-in-Chief.
- (iii) In the event of any operational difficulty arising which cannot be resolved locally by Commanders-in-Chief, it will be referred to the Admiralty who will make a decision in consultation with the Air Officer Commanding-in-Chief, Coastal Command"(1).

The committee considered that the First Lord's proposal for the establishment of a joint Admiralty-Air Ministry Standing Committee might lead to some duplication of effort and recommended, instead, that technical questions should be kept under review by a joint Admiralty-Coastal Command Committee. The exact composition of this committee was not specified in the report but its meetings were to be attended by the Fifth Sea Lord, the Assistant Chief of Naval Staff (Home) or the Assistant Chief of Naval Staff (Trade) when required and, in particular, when the A.O.C.-in-C., Coastal Command was in the chair. It was suggested that the committee should make recommendations on subjects within its terms of reference for consideration by appropriate Air Ministry Committees on which the Admiralty was already or might in the future be represented. The Naval Staff's other suggestion that the headquarters of Coastal Command should be accommodated in the Admiralty building was found to be impractical. As an alternative the Air Ministry agreed to provide a Coastal Command Liaison Section in the Admiralty to maintain liaison with Northwood. The section was to work with the Naval Staff and was to be responsible for keeping the Admiralty informed on all matters affecting the operational strength and dispositions of Coastal Command forces. Finally, the report approved the principle that "Coastal Command resources should not be diverted to other services without the express concurrence of the Admiralty, except as a result of a decision of the Defence Committee."

(ix) Significance of the transfer of operational control

The findings of the joint committee on Coastal Command were approved by the Admiralty and the Air Ministry and the transfer of operational control in conformity with its

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- (1) Para. 4. These recommendations were designed to implement conclusion (b) of the 47th meeting of the Defence Committee (Operations) held on 4th December, 1940. This read as follows:-

"Agreed that Coastal Command should remain an integral part of the Royal Air Force, but that for all operational purposes it should come under the control of the Admiralty."

recommendations took effect on 15th April, 1941(1). It has already been noted that the principles of operational control enunciated by the joint report of 19th March, 1941, were mainly "declaratory" of existing practice and that the transfer of operational authority to the Admiralty was to involve little practical difference in the day-to-day control of the shore-based naval co-operation aircraft of the Royal Air Force. It would, however, be idle to pretend that no change of any sort had occurred. It may, indeed, be said that the report did three things. First, it emphasised the predominance of the naval element in the existing operational partnership for the protection of sea-borne trade. In particular, it strengthened the authority of the local Naval Commanders-in-Chief vis-a-vis the Air Officers Commanding the reconnaissance groups. It did not, however, place the Coastal Command Groups under the operational control of the Naval Commanders-in-Chief. That at least was the agreed interpretation placed upon the operative clauses of C.A.F.O. 835 by the Chief of Naval Staff and the Air Officer Commanding-in-Chief Coastal Command in August 1942(2). Second, it left the ultimate responsibility for Coastal Command's administration, technical development and training with the Air Ministry, whilst providing in the Coastal Command Committee a more effective means of ensuring periodical consultation on such matters between the Naval Staff and Headquarters Coastal Command.(3) Third, it gave definition to the constitutional position of Coastal Command which hitherto had remained rather nebulous. The report itself came to be known in the Royal Air Force as Coastal Command's "Charter" and though the description was obviously only a loose one, there is a sense in which, at least during the war, the term had real meaning. It is significant, indeed, that no further attempt was made either by the Admiralty or by any other outside authority to force the government to retract the decisions made in December, 1940.(4)

(x) Practical Working of the Admiralty's Operational Control

A real understanding of the limited transfer of authority which was effected in April 1941 involves, however, some knowledge of the manner in which the Admiralty's "control" of Coastal Command operated in actual practice. The degree of control exercised by the Admiralty over Coastal Command after April 1941 differed according to circumstances. In

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- (1) The agreed conclusions of the report were announced in C.A.F.O.835 24th April, 1941. See Appendix VIII.
 - (2) See Appendix IX. The very necessity for such an agreement, however, indicates that there had been some previous differences between the naval and air authorities as to the exact status of the Air Officers Commanding the Coastal Groups as defined in C.A.F.O.835.
 - (3) The first meeting of this committee was held on 6th May, 1941. By agreement, its terms of reference were later changed and it was instructed "to consider the fighting efficiency of the Coastal Command as a whole with reference to its work with the Admiralty". Its meetings were held irregularly on 29th August and 4th December, 1941 and on 23rd February, 24th August and 26th October, 1942 and subsequently, H.Q. Coastal Command File S.7033/2.
 - (4) Air Chief Marshal Sir John Slessor sums up the Royal Air Force opinion as follows:- "It is difficult to resist the conclusion that this whole episode (which had not the enthusiastic support of the Naval Staff) was as unfortunate as it was unnecessary. The controversy it raised between the Two Services at a critically dangerous time was greatly accentuated by the intervention of a Minister without full knowledge of the technique of air-sea operations coupled with his lack of judgement on the general conduct of warfare. As far as the practical conduct of the air-sea war was concerned this "transfer of operational control" was a polite myth and left the actual situation exactly as it stood before, except for a legacy of mistrust and bad feeling on the part of the Royal Air Force which was not fully eradicated for more than two years.

normal circumstances, when the aircraft resources of the command were being used primarily for trade protection, the Admiralty exercised merely a general control of the command's operations through the Air Officer Commanding-in-Chief. The actual day-to-day air operations, at this stage, were controlled in the Area Combined Headquarters by the Commanding Officers of the reconnaissance Groups, who acted in close association with the local Naval Commanders-in-Chief and in consultation with the Air Officer Commanding-in-Chief. This is how Air Marshal Slessor, who was then Commander-in-Chief of Coastal Command, described the system in March 1943; "In the Area Combined Headquarters, as I see it, the Admiral and the Air Officer Commanding both operate within the bounds of the policy laid down by the Admiralty and by Headquarters Coastal Command. Subject to that the Admiral says "the naval requirement is that such and such a convoy is attacked", and it is up to the Air Officer Commanding to do it, if tactical and technical considerations make it possible..... There are limits to this, of course, and a certain amount depends on good sense and personalities - but that is so, whatever the system. But I regard the Admiral as normally being the predominant partner, though there are certain purely air operations against targets at sea (such as the Bay Offensive) where the principal part is played by the Air Officer Commanding and the Admiral has to conform - Naval Commanders-in-Chief are certainly not in a position to order air operations, but they are in a position to say what effect they would like achieved by their associated Air Officer Commanding"(1). It only remains to note that the actual disposition of the available air resources as between the various reconnaissance Groups was the responsibility of the Air Officer Commanding-in-Chief.

A slightly more direct but still "remote" degree of control was exercised by the Admiralty on the occasions when the Home Fleet put to sea. When this happened the Admiralty itself normally took over control of naval operations from the local Naval Commanders-in-Chief and the need for co-ordination naturally required Headquarters, Coastal Command to be in a similar position of responsibility relatively to the reconnaissance Groups. It was, therefore, the practice of the Admiralty, on such occasions, to send a signal to Headquarters Coastal Command directing the Commander-in-Chief to give priority in air operations to the requirements of fleet reconnaissance. These were the only orders affecting the air situation which were directly issued by the Admiralty, for the Naval Staff never attempted to instruct the Air Officer Commanding-in-Chief as to the manner in which he should conduct the operations. The effect of the Admiralty signal was thus merely to cause the control of the long-range aircraft of the command to pass from the Group Commanders to the Air Officer Commanding-in-Chief, who exercised it directly, in accordance with the naval requirements for fleet reconnaissance(2).

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- (1) Minute dated 27th March, 1943. H.Q. Coastal Command File S.8 Pt. 2 (9a).
 - (2) During Air Chief Marshal Joubert's tenure of the office of Commander-in-Chief, Coastal Command (June 1941 - November 1942) the exercise of this function occasionally stimulated protests from the local Naval Commanders-in-Chief. On 23rd August, 1942 Air Chief Marshal Joubert agreed with the Chief of Naval Staff that when air reinforcements were being sent to or when air forces were being withdrawn from any reconnaissance Group, H.Q. Coastal Command would inform the Admiralty in sufficient time to allow the reactions of the particular Naval Commander-in-Chief to be obtained.

It is thus clear that, in all circumstances, whether the priority was for shipping protection or for fleet reconnaissance, Admiralty "operational" control amounted to remarkably little. (1)

Conclusion

The decision to retain Coastal Command as an integral part of the Royal Air Force, and to transfer its operational control to the Admiralty may be considered to have been a sensible compromise. Three factors were probably responsible for it. There was, first, the Air Staff's promptness in expanding the strength of Coastal Command in order to enable the Admiralty to meet its heavy commitments in the North-Western Approaches. That ready response to the Admiralty's declared needs not only prevented the Admiralty from insisting on the absorption of Coastal Command but paid welcome dividends in the spring of 1941 when the battle of the Atlantic assumed an even deeper seriousness. Secondly, there was the unquestionable success of the existing system of organisation for the protection of sea-borne trade, centred in the Area Combined Headquarters. That system was left, in all essential details, undisturbed. It is not fanciful to suppose, however, that, had that system previously shown signs of weakness, the War Cabinet would have been compelled to find some other alternative. In such circumstances the temptation to transfer the administrative as well as the operational control of Coastal Command to the Admiralty might well have proved irresistible. Lastly, there was the Defence Committee's recognition that the severance of Coastal Command from the Royal Air Force at a period of almost unparalleled crisis, would, in the short run, not enhance the efficiency of naval air co-operation and, in the long run, might well have jeopardised the chances of wresting the weapon of air superiority from the Germans. (2)

(xi) Development of the Battle of the Atlantic

This digression has carried us well into April 1941, and it is necessary to return to the late months of 1940 to carry on the history of the U/B war. We saw that for October the U/B sinkings achieved a record figure of 362,500 tons and that the main burden of Coastal Command's complaints were lack of aircraft, unsuitable weapons and paucity of aerodromes in the N.W. area from which to operate. During November the U/B activity continued in the Western Approaches between 8°W. and 23°W. though one U/B, working from Lorient, cruised for two or three weeks off Freetown and sank 4 ships. Early in the month one of the U/B aces - Kretschmer - sank two armed merchant cruisers and a large merchant ship on the 3rd and followed this up on the 5th by attacking convoy HX83 from

Admiralty
Monthly A/S
Report Nov. 1940

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- (1) This raises the question whether the operational "control" of Coastal Command by the Admiralty was ever more than a kind of legal fiction. Both Air Chief Marshal Joubert and the Chief of Air Staff regarded it in that light. In a demi-official letter dated 10th June, 1942 the former wrote to the latter as follows: "In my opinion this operational control has made no contribution whatsoever to the war effort and, in fact, has proved a dead letter. It is a fact that the Admiralty are incapable of exercising operational control because they have neither the knowledge nor the experience necessary for the handling of air forces. The Admiralty Staff, therefore, have leaned heavily on the A.O.C.-in-C. who has to take all the important decisions and run all the operations." In his reply, the Chief of Air Staff agreed that the operational control of Coastal Command by the Admiralty was rather "a meaningless formula" but pointed out that the Admiralty did not actually interfere with the operational efficiency of H.Q. Coastal Command. H.Q. Coastal Command. Operational Record Book, June 1942. Appendices.
 - (2) The German efforts to solve this same problem of naval co-operation by the G.A.F. are narrated in Vol. III. Chapter II.

which he sank one ship⁽¹⁾. U/B activity then ceased until the 13th and was not renewed on a heavy scale until the latter part of November. Losses by U/B action were thus very much lighter and amounted to 146,500 tons.

The Focke-Wulf

Admiralty Trade
Division
Statistics

C.C. Narrative

However, the enemy long range reconnaissance aircraft, particularly the Focke-Wulf squadron, were very much more active. Shipping and convoy positions were continuously reported by them and damaging attacks made on stragglers from convoys and independently routed ships involving the loss of 43,000 tons. Strenuous efforts were made by long range fighters of Coastal Command to intercept these aircraft off the S.W. corner of Ireland both on their way out and when returning. The frequent W/T signals sent out by these aircraft during their sorties were D/Fed and a rough running plot of their course could be maintained but the actual interception was extremely difficult. Long range fighter escort was given whenever possible to large independently routed ships when east of 10°W. but with the few fighter aircraft available it was impossible to afford general protection even in this limited area. On the last day of November one of these long range aircraft was intercepted by three Blenheims of No. 236 Squadron off S.W. Ireland but after a dog-fight the enemy got away into cloud, although smoking heavily. The Blenheim fighter was not sufficiently gunned nor had it a decisive superiority in speed to ensure destruction following the rare interceptions.

Pleas for the bombing of U/B Biscay bases

V.C.A.S. daily
conferences,
for 8th and
11th November

C.C. S.7011/1
Part 2 Enc. 87A

The repeated request from Coastal Command and the Admiralty for attacks on the "Wasps' nests" as a partial solution to the thankless task of chasing the "Wasps" when afield produced a decision to pay more attention to the U/B and Focke-Wulf operating bases on the Biscay coast. Permission was given to employ Coastal Command's limited bombing resources on these objectives and Bomber Command occasionally laid on light raids but the scale of attack on such dispersed targets as U/Bs in harbour or aircraft round airfields did little to hinder or damage these centres. The A.O.C.-in-C., Coastal Command drew attention to these limited measures in a memorandum dated 11th November, in which he advocated some really heavy attacks⁽²⁾ as being an immediate necessity to relieve the pressure in the

- (1) On the same day convoy HX84 following along the same route but 650 miles to the westward was attacked by the Pocket Battleship Admiral Scheer. The armed merchant cruiser Jervis Bay was sunk but, due to the sacrifice of herself in a hopeless action, the convoy of 36 ships had time to scatter and the Admiral Scheer was only able to sink 11 of them. Various naval forces put to sea to intercept her and to cover the different convoys at sea in the North Atlantic. Coastal Command instituted "break in" patrols in the Denmark Straits and between Iceland and Scotland. During the next few days the F.W.200 aircraft reported the positions of all our major forces engaged in the search. Efforts to locate this ship by surface and air patrols were maintained until the 15th November but were unavailing as she had proceeded into the South Atlantic and did not break back into the North Sea until the end of March 1941. Her "break out" and "break in" have been dealt with in Chapter VII Sections (b) (c) and (d).
- (2) During December 1940, much heavier attacks were delivered by Bomber Command:-

42 a/c on Bordeaux on 8th
22 a/c on Bordeaux on 11th
60 a/c on Lorient and Bordeaux on 28th.

Heavier though they were than the tiny effort previously, these raids were not sufficient to damage or disrupt either the U/B or the F.W. organisations.

SECRET

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Western Approaches. He also recommended the attacks as a longer term policy as the positions of U/Bs were known when in harbour from photographic reconnaissance, whereas once they put to sea it was a "needle in a haystack" proposition to our sparsely distributed surface and air forces. Regarding the Focke-Wulf and other long range aircraft he suggested the fitting of catapult gear or light flight decks to oil tank and grain ships (whose clear decks permitted this) from which to fly off Hurricane type fighters.

Measures against enemy aircraft attacks(1)

At an Admiralty/Air Ministry meeting held on the 13th November to discuss measures to improve air defence of shipping in Home waters it was decided to route ocean convoys through the Western Approaches along a comparatively narrow lane which would facilitate long range fighter cover and to divert the large independently routed ships to tracks much further north out of range of the Focke-Wulf aircraft. A part of the long range fighter squadron at Bircham Newton in Norfolk should go to Aldergrove in North Ireland and the initial establishment of Coastal Command's fighter squadrons should be raised from 16 to 20 aircraft. A/A guns, which were in very short supply, would be provided for merchant ships from the Home A/A command and from the defence systems of aerodromes not expected to be subject to enemy raids. The east coast convoys would be routed closer to land particularly in the Moray Firth area so that Fighter Command could provide short range cover, thereby releasing long range fighters from Dyce on the north-east coast of Scotland for deployment in the north-west area. Arrangements were expedited to equip and convert a merchant ship - S.S. Crispin - as a "Q" ship to carry masked A/A armament for cruising as a straggler in Focke-Wulf areas. Finally H.M.S. Pegasus was to carry Fleet Air Arm Fulmar fighters and accompany convoys so as to catapult off the fighters if Focke-Wulf appeared on the scene to shadow the convoy.

The genesis of Night A/U operations

Although night sweeps around convoys by Whitleys fitted with long range A.S.V. beam aerials was commenced in November, the aircraft were still without the homing aerials which "look ahead". Thus, although the beam aerials could pick up a U/B, it was necessary to turn 90° and close the position by dead reckoning trusting to a visual look out to locate the U/B. Flares to aid this identification were tried but the standard flares, if released below 3,000 feet, dropped too fast and were alight for too short a period to be of any assistance. Experiments with towed flares brought no solution and designs for special slow dropping flares of high candle power were inaugurated. This development was very slow and it was 1943 before a flare adequate for attacks on U/B's at night was produced.

(xii) The Leigh Light

This problem of the illumination of an A.S.V. contact at night was solved independently of the flare development experiments. The originator - Squadron Leader H. de V. Leigh - was employed at Headquarters, Coastal Command in an administrative post. In October 1940, he placed his proposals before the A.O.C.-in-C. Briefly, they amounted to the installation of a naval type searchlight in an aircraft fitted with both beam and

(1) See also Chapter X (iii) (b).

C.C. S.18329

homing aerials. The light would bridge the gap of about $\frac{1}{2}$ to 1 mile left between the target and the aircraft at the point at which the A.S.V. contact fades out in the sea returns and would brilliantly illuminate the U/B, enabling a low level and therefore accurate attack with depth charges.

Every encouragement was given to this project by the A.O.C.-in-C., and full scale trials against one of our submarines acting as target were carried out early in May 1941. These trials established beyond all doubt that the project was a successful proposition. Ultimately, squadrons fitted with this invention became one of the major influences in the war against the U/B's under the name of the author - The Leigh Light Squadrons. The full history of this development is given in Appendix X.

(xiii) Combination of F.W.200 and U/B's

The success of the enemy tactics in using his long-range aircraft, such as the Focke-Wulf, to report positions of convoys and large independent ships robbed us to a large extent of the power of evading known U/B patrol areas. In addition to this reporting, these aircraft developed the technique of actually homing U/Bs on to themselves while shadowing convoys. The U/Bs so directed intercepted the convoys and shadowed by day at a safe distance of extreme visibility and took up attacking positions close around the convoy at dusk or soon after and pressed home attacks during the dark hours. The counter-measures open to us were:-

- (i) Destruction of the Focke-Wulf aircraft.
- (ii) Provision of more extensive air cover to convoys to prevent the U/Bs from following up the convoys on the surface and particularly the air support late in the day to frustrate the closing in of U/Bs to their attacking positions.
- (iii) The fitting of A.S.V. in surface escort vessels in order to locate and attack U/Bs on the surface at night, and in all aircraft so as to render more certain the detection of U/Bs both by day and night.
- (vi) The re-routeing of Atlantic convoys further north out of range of the Focke-Wulf aircraft and closer to Iceland so that air cover could be given from bases in that island. To establish a fuelling base there for escort vessels which could thus afford escort still further out into the Atlantic.

Suggestions for these and other measures were the subject of memoranda and discussion at Trade Protection meetings during December 1940. Action was taken immediately to implement some of these proposals.

- For (i) the "Q" ship Crispin and H.M.S. Pegasus were at sea, merchant ships were receiving small numbers of A/A weapons and more long range fighters were operating in the Western area(1).
- (ii) was impracticable until Coastal Command had more aircraft and could allocate more squadrons to the Western Approaches together with new airfields from which to operate.

(1) A suggestion was made in December 1940 by the A.O.C.-in-C. that the F.W. aircraft might be brought to action by a Whitley aircraft carrying a Spitfire in a similar manner to the Mayo Composite of pre-war days. This composite should cruise on the habitual tracks used by the F.W. aircraft. On sighting the enemy the Spitfire would be released. After correspondence with V.C.A.S. the project was abandoned as impracticable. Ref. V.C.A.S. Folder No. 124 "Protection of shipping in N.W. Approaches".

SECRET

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C.C. S. 7011/1 Part 2
Enc. 112A

C.C. S. 7010/17
Encs. 90A-92A

- (iii) was expedited, though the first adaption of radar to shipborne uses gave indifferent results. The long range A.S.V. in Whitley aircraft was meeting considerable "teething" trouble.
- (iv) was decided upon but it was not to come into force until early spring 1941 when lengthening days and higher temperatures would enable both flying boats and land based aircraft to be operated and by which time a naval fuelling and repair base would be established at Hvalfjord near Reykjavik.

Urgency was added to the desirability of these measures by the increasing activity of the Focke-Wulf aircraft. During December and January these aircraft sank 22 ships of 78,000 tons(1).

December U/B activities

Admiralty Trade
Division statistics

The U/B operations in the North Atlantic were on a considerably lower scale due to winter sea conditions and were mostly further away from our coasts, between 15° and 20°W. One convoy - HX90 - was severely handled at the beginning of the month by a party of four U/Bs led by two U/B aces(2). The attack was on the familiar night procedure lines and eleven ships were sunk. After this episode no other convoys were attacked and the casualties during the rest of the month were stragglers, independently routed fast ships and ships dispersed from convoy west of longitude 15°W. Several U/Bs operated in more southerly latitudes not only to take advantage of the absence of air and adequate surface escort but also for the better weather and sea conditions found in those areas. Five ships were sunk off Portugal(3) and four in the Freetown area(4). Losses for the month by U/B action rose to 212,000 tons. (5)

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- (1) Previously, between August and December 1940, 31 ships of 134,000 tons were sunk by long range enemy aircraft, mostly F.W., in the Atlantic. 125 other ships were attacked and many suffered damage.
- (2) Kreschner and Schultz.
- (3) The aircraft based at Gibraltar were unable to reach this area. No. 200 Group had been based at Gibraltar since the outbreak of war, but operating under the orders of the A.O.C., Mediterranean. This group was transferred for administration only to Coastal Command in August 1940. The aircraft were operated to meet the needs of the Naval C.-in-C., Gibraltar whose title was Flag Officer Commanding the North Atlantic (short title F.O.C.N.A.). On the 9th July, 1941, following a request by the A.O.C.-in-C., No. 200 Group Gibraltar was transferred operationally to Coastal Command with a Group Captain as Commanding Officer. The aircraft in 1940 consisted of No. 202 Squadron of 6 London flying boats and a detachment of Swordfish floatplanes from No. 3 A/A Co-operation Unit. During the winter the Fleet Air Arm operated 6 Swordfish aircraft from the North Front. The limited range of these aircraft permitted only very local escort and anti-U/B sorties. Provision of a flying boat base, extension of the North Front landing strip and increased accommodation had been proceeding since the outbreak of war. It was not till May 1941 that No. 202 Squadron was re-equipped with Catalina flying boats and not until the end of 1941, that the first land based squadron arrived, this being No. 233 Squadron of Hudsons. On 21st December, 1941, the Group was disbanded and all flying at Gibraltar came under the control of the R.A.F. with Air Commodore S. P. Simpson as A.O.C., directly responsible to H.Q., C.C., and working with the Naval C.-in-C., in an Area Combined Headquarters established in the dockyard; this A.C.H.Q. was later transferred to a tunnel in the Rock at the back of the dockyard. Ref. S.7010/17/4 E.7A & 8A. C.C.O.R.B. Appendices for November, 1941.
- (4) Three Sunderlands of No. 210 Squadron were ordered on 15th January, 1941 to fly out to Bathurst in West Africa to initiate No. 95 Squadron for convoy protection against U/Bs in the Freetown area. Reference CC, Ops. Folder No. 9, but owing to gale casualties at Gibraltar it was mid-March before the first two Sunderlands arrived at Freetown. See Vol. III, Chapter II, Section (iii).
- (5) Renewed suggestions were made by the Naval Staff at H.Q.C.C. for the formation of a Combined Hunting Force of surface and aircraft with which to harass and hunt to exhaustion any U/Bs located or disclosing themselves within medium air range. It was also pointed out that long range fighters were not the answer to the Focke-Wulf but that the provision of merchant ships fitted with catapult or flying off facilities for short range 8 gun fighters was the correct line approach to this interception problem. Ref. Coastal Command Naval Staff A/U File Encl. 15.

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(xiv) U/B tactics standardised

In spite of these successes by small groups of U/Bs against convoys and shipping the U/B High Command realised that, resulting from the increasing use of aircraft and the inevitability of more numerous escort vessels, the U/Bs would have to operate further and further away from the British coast and finally out of range of Focke-Wulf aircraft. The problem of locating shipping in convoys would become more and more difficult in the empty spaces of the ocean and it would be necessary to employ patrol lines of U/Bs to intercept convoys. Having effected an interception it was essential to mass the rest of the line before commencing the attack in order to set a concentration of U/Bs against the concentration of shipping in convoy. Consequently, from October 1940, a system of controlled operation of U/Bs at sea was inaugurated. "Pack" tactics came into being during November and December. The High Command disposed these groups in lines of search in various areas athwart the Atlantic shipping routes. Their movements while searching were controlled by W/T from the High Command. As soon as convoys were sighted by either U/B or F.W. a report was made to base and the locator continued to keep contact making shadowing reports on High Frequency W/T and homing signals on Medium Frequency W/T. The High Command then decided what concentration to effect and issued orders by W/T to the neighbouring U/Bs as to what course and speed to adopt to form a pack in concentration round the convoy. These U/Bs gained final Contact by homing on to the M/F signals by the shadower. Each U/B had to report back to base as it made contact with the convoy. Not until a sufficient concentration had been achieved did the High Command order the attack to commence. The attack itself was left to the individual U/B commander's determination.

This system was standardised and maintained up to 1944 with the High Command post situated at first at Lorient transferring to Paris on 30th March, 1942. Its weak point was in the volume of W/T signals necessarily passing between the U/B's or F.W. aircraft at sea and the shore based Command. Such signals could be D/F'ed, indicating which convoy was threatened and by their stereotyped nature tended to give away the nature of the information or orders being transmitted.

The F.W. aircraft themselves proved less efficient as locaters than was hoped. Due to the absence of sea and navigational training the recognition, accurate reporting and shadowing requisites were below the standard necessary for systematic search and co-operation with the U/Bs.

Because "Pack" tactics required a maximum of surface mobility and immunity from air interference, the increasing air effort of Coastal Command, although not yet killing U/Bs, forced the U/B dispositions further and further out into the Atlantic until by the middle of 1941 the effective range of F.W. aircraft could not reach the U/B areas and their use was confined to reporting the position of outward bound convoys to the westward of Ireland and to operating on the U.K. to Gibraltar convoy route. In the latter area the F.W. co-operation, after a period of special training, was of value and resulted in many convoy battles later in 1941 and onwards.

(xv) The Establishment of the Western Approaches Command and creation of No. 19 Group

It will be remembered that one of the recommendations of the little Combined Striking force under Captain Ruck-Keene during August 1940 was that a new Command should be created to look after the approaches north-west of Ireland, through which our whole trade was now diverted. The Admiralty meeting on the Western Approach situation held on 23rd September confirmed the necessity of this Command. During October the limits of the new Western Naval Command were provisionally agreed upon in relation to the existing Plymouth and Rosyth commands. After some deliberation Liverpool was decided on as being the best site for the headquarters. Naturally it was to be an Area Combined Headquarters to accommodate the necessary air partnership. The R.A.F. changes to conform to this regrouping were discussed during the same period. At first it was considered that it would be sufficient if the air side at Plymouth became a wing headquarters but it was soon realised that a new group would have to be created and on 6th December, 1940, it was decided that No. 19 Group should operate the south-western area coincident with the new Plymouth naval command and that both should form an Area Combined Headquarters at Plymouth. The old No. 15 Group was to be transferred to the Area Combined Headquarters at Derby House in Liverpool and would operate the Western Approaches which lay between the northern boundary of No. 19 Group and a line drawn from C. Wrath to Iceland which became the boundary between No. 15 and No. 18 Group.

These changes, including the setting up of the new A.C.H.Q., at Liverpool, took some months to become effective. In the meantime the old Plymouth A.C.H.Q., continued to exercise control and little by little transferred the organisation and operational functions to the new centre. C.-in-C., Western Approaches and No. 15 Group did not finally take over and commence control from Derby House, Liverpool until 16th February, 1941.(1)

(xvi) Iceland as a base for aircraft

The pressure of events which was forcing our main trade route further and further north and which made Iceland so essential as a base for air and surface craft naturally brought the consideration of the facilities of that island to the forefront. This is a good place, therefore, to outline the history of our use of Iceland up to this time.

On the 23rd September, 1939, Admiralty Intelligence intimated the possibility of a U/B depot ship and shore station being located on the S.W. coast of Iceland. Coastal Command was asked if a special reconnaissance of Icelandic coasts could be arranged. The only aircraft having the necessary range and endurance was an American P.B.Y. flying boat which at that time was undergoing flying tests in this country. This aircraft was accordingly prepared and took off from Invergordon on 26th September piloted by Wing Commander K. Barnes. After examining the south and south-western coasts of Iceland the aircraft ran into fog and was finally forced to land off Raufarhovn on the north-east coast.

(1) Map XX shows the new group boundaries and locations of squadrons after re-deployment in March 1941. The new C.-in-C., Western Approaches was Admiral Sir Percy Noble.

Although technically interned, Wing Commander Barnes seized a favourable opportunity and took off in poor visibility returning to Invergordon on 28th September. After consultation between the authorities concerned Wing Commander Barnes was sent back to Iceland to satisfy internment claims. He made good use of the subsequent months to survey as much of the island as he could with a view to air base facilities. In due course a British naval expedition under the code name of "Fork" landed at Reykjavik on 10th May, 1940. This move was made not only to forestall a similar move by the Germans but to secure a useful base in the North Atlantic.⁽¹⁾ Wing Commander Barnes was now allowed to return to the U.K. and submitted a very useful report on the possibilities of using aircraft in Iceland.

The first aircraft to be sent over were Battles of No. 98 Squadron in August 1940. They operated from an airfield near Reykjavik. About the same time a flight of No. 701 Squadron Fleet Air Arm Walrus were based at Reykjavik. These squadrons were under the orders of the G.O.C., Iceland for the bombing of any invasion force, for general reconnaissance and the protection of the port of Reykjavik. However, by arrangement, the Battles were from time to time used for purely naval reconnaissance particularly in the Denmark Straits between Iceland and Greenland. These occasions grew more continuous until by November 1940, arguments arose as to who should control their use. The Air Ministry as early as 10th September had decided to send a squadron of flying boats and some Hudsons in the spring of 1941 for the better protection of the island and to increase the range of reconnaissance. The recommendations by the A.O.C.-in-C., Coastal Command in connection with the more northerly routing of Atlantic convoys decided the Air Ministry to press for the formation of an Iceland Air Force under the control of an independent wing headquarters and that Coastal Command aircraft should go there as soon as possible to be used primarily for A/U work. In addition a Norwegian squadron - No. 330 - was formed to equip with Northrop float planes in Canada which would ultimately replace No. 98 Squadron. Approval to these dispositions was given on 1st January, 1941, at a Chiefs of Staff committee meeting, including the addition of a long range fighter squadron, as well as the flying boat and Hudson squadrons; the whole to be operated by a Wing headquarters which the meeting considered should be under Coastal Command No. 18 Group.

Operations were commenced in April using a flight of 10 Hudsons from No. 269 Squadron working from the airfield at Kaldadarnes; the flying boat squadron - Sunderlands of No. 204 Squadron - arrived in April and worked from the base ship Manela with moorings off Reykjavik. An Area Combined Headquarters was established adjacent to the Naval and Military headquarters at Reykjavik while the operational and administrative control of No. 30 Wing and other R.A.F. units was

(1) This expedition was confirmed at the 113th conclusions of the War Cabinet on 6.5.40. A Royal Marine battalion was embarked on the 7th May at Greenock in the cruisers Berwick and Glasgow landing at Reykjavik on 10th May, 1940. A Military force to relieve the Marines left the Clyde in two transports on 14th May, 1940 escorted by two destroyers. This was operation "Alabaster" and it landed at Reykjavik on 17th May, 1940. Ref. The War At Sea. Vol. I Para. 59.

A.M. N.40
(DONC.) Enc. 37

C.C. S.7010/17
Enc.93A

A.M. N.40
(DONC.)
Enc.50

C.O.S.(40)
1074 N.40
(DONC.)
Enc. 52
C.C. S.7010/17/3
Enc.31A

transferred to No. 15 Group of Coastal Command. In May a flight of six Hurricanes was provided for the protection of Reykjavik and the naval anchorage at Hvalfiord. This enabled the long range fighter squadron to be dispensed with as its presence was urgently required overseas. Finally the Northrop floatplane squadron became operational in June 1941 and No. 98 Battle Squadron returned to England.

(xvii) Increase in numbers of U/Bs at sea

The expansion in U/B construction which had commenced at the outbreak of war was by now bearing increasing fruit and during the early months of 1941 many more U/Bs were coming into service.⁽¹⁾ Between 15 and 20 could now be maintained at sea in the Atlantic. However, due mainly to the tempestuous weather, the January shipping losses fell to 127,000 tons - only two escorted convoys being attacked - the remainder of the losses being either among stragglers astern of or rompers well ahead of their convoys, or dispersed ships west of 20°W longitude.

Co-operation with the Submarine Tracking Room

In addition to the weather, the evasatory routeing of convoys played a part in the lower shipping losses. This avoidance of dangerous areas was based on the predictions of the Admiralty Submarine Tracking Room. Mention of this organisation has already been made in Chapter II and of how valuable was the close liaison to Coastal Command in the planning of A/U sweeps and patrols. The standardisation of the U/B offensive tactics against shipping, depending as it did on frequent W/T intercommunication, enabled a great deal of D/F. and other intelligence to be used in the building up of a comprehensive plot of U/B dispositions. This was not only the basis of all evasive routeing, but often indicated which particular convoy had been sighted by U/Bs and on which one, therefore, the surrounding U/Bs were concentrating. This knowledge allowed aircraft to be diverted to it (if it was within air reach) from other convoys which were in safe areas. The clue which gave the indication was a particular type of signal transmitted by a U/B making a sighting report. This invariably commenced with the keyed transmission of an accentuated or barred E. Hence the convoy which was close to the D/Fed position of such signals was known as an "E. barred convoy" and by February this had become accepted as a fire alarm requirement for Coastal Command to provide cover if possible and in priority over any other A/U task. The increased dividend paid by so utilising Coastal Command's still slender resources in collaboration with the Submarine Tracking Room was demonstrated by the gradual but steady retirement of the majority of the U/Bs further into the Atlantic out of reach of interference by the air.⁽²⁾

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- (1) See App. XIX for growth of U-boat fleet.
 (2) This was reflected in the fall in aircraft sightings from November 1940 onwards. The figures were - 5 sighted in the Western Approaches during November. 3 in December, 4 in January, 1941 and 4 in February. Although on no occasion were the air attacks lethal, the "nuisance" value of air cover hindered the exploitation of enemy concentration tactics and by February 1941 U-boats rarely operated within 200 miles of our air bases.

Admty. A/S
 Monthly Report

The moral was obvious but the Command was desperately short of aircraft which could operate further than 300 miles from the western coasts.

Admty.
Trade Div.
Statistics

Focke-Wulf activities increased markedly in February and they re-commenced working from airfields in Norway in addition to their Biscay base at Merignac (near Bordeaux), often working their sorties so as to take off from one and land at the other. Heavy execution was done by them against stragglers and single large ships a few hundred miles to the westward of Ireland and their co-operation with the U/Bs in the reporting of convoys resulted in the shipping losses rising to ~~39~~ ships of ~~147~~,000 tons with a further 23 ships of 86,000 tons by their own effort.⁽¹⁾

(xviii) Preparations to meet a spring U/B offensive

C.A.S.
Folder
No. 637

C.O.S.(41)
75th meeting

In view of the increased Focke-Wulf operations and the appreciation that, with the advent of better weather conditions, the U/B offensive would be stepped up considerably in the spring, the Prime Minister instructed the Chiefs of Staff to submit recommendations to meet the situation in the north-west approaches on the basis that, until further notice, absolute priority should be given to overcoming the U/B and Focke-Wulf menace.⁽²⁾ Measures were discussed at an Admiralty/Air Ministry meeting on the 27th February and a C.O.S. meeting later on the same day made the following observations and recommendations:-

- (1) East coast convoys to have one escort vessel only. This would reduce the Rosyth escort force by six or seven A/A escorts which would be available for the north-west approaches.
- (2) Two new "Hunt" class destroyers not to go to the Mediterranean yet but to be used to release ships for the north-west approaches.
- (3) Six Coastal Command squadrons to be deployed from the North Sea to re-inforce the north-west approaches in Northern Ireland and Wick. Six Hudsons in each Hudson squadron to be fitted with long range tanks.
- (4) That Bomber Command should take over certain Coastal Command duties in the North Sea and English Channel.
- (5) The work in the construction of new airfields in Northern Ireland, Iceland and the Hebrides should be expedited, if necessary by the use of Service labour.
- (6) To expedite the delivery of American P.B.Y. flying boats, observing that there were only 10 in the U.K. at the moment. To hasten the delivery of Flying Fortress aircraft from America for allotment to the

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- (1) The question of "stragglers" had become a major problem as they constituted 50 per cent of the U/B and F.W. victims. Two Trade Protection Meetings discussed this problem during February and made recommendations regarding better fuel, slower convoy speeds and more propaganda amongst the masters and engineers of merchant ships. Ref. S.88156/1/Air. encls. 11A and 12A.
 - (2) See also Chapter X (v) (b)

north-west approaches. It was noted that M.A.P. hoped to give Coastal Command 20 Beaufighters during March.

(7) The two Sunderlands under orders to reinforce No. 95 squadron at Freetown to remain for the present in the U.K.

(8) The A/A Command to withdraw 100 Bofors guns and provide a further 100 from immediate production for the use of the Admiralty.

(9) A/A light automatic guns and crews now employed on coastal shipping to be drawn on for providing A/A protection to ocean going ships.

The immediate measures were approved and on 1st March a directive embodying those concerning Coastal Command was sent to the A.O.C.-in-C. requesting the re-deployment of the squadrons to be effected as soon as possible. The limiting factor for the concentration of Coastal Command aircraft in the north-west approaches was the aerodrome accommodation which, although planned, was lagging behind schedule. Accordingly, the Prime Minister on 1st March minuted the C.A.S. and C.I.G.S. that "he wishes this work to be driven forward at all costs and wants a report as soon as possible of the actual steps being taken to overcome the labour difficulties". On the advice of the C.A.S. the Prime Minister minuted the Ministers of Labour, Transport and Shipping and the Secretary for Home Department for arrangement with the government of Northern Ireland on this matter.

A.M. S.48345
encl. 112A

C.A.S. Folder
No. 637 "Battle
of Atlantic"

The Battle of the Atlantic Directive

On the 6th March the Prime Minister issued a Battle of the Atlantic Directive to all members of the War Cabinet, the Defence Committee including the Chiefs of Staff, the Production Executive, the Import Executive and the Ministers of Shipping and Transport drawing attention to the supreme importance of combatting the U/B and enemy aircraft menace. It is important enough to quote it nearly in full.

C.A.S. Folder
No. 637 "Battle
of the Atlantic"

"In view of various German Statements, we must assume that the Battle of the Atlantic has begun.

The next four months should enable us to defeat the attempt to strangle our food supplies and our connection with the United States. For this purpose -

(1) We must take the offensive against the U/B and the Focke-Wulf wherever we can and whenever we can. The U/B at sea must be hunted, the U/B in the building yard or in dock must be bombed. The Focke-Wulf and other bombers employed against our shipping must be attacked in the air and in their nests.

(2) Extreme priority will be given to fitting out ships to catapult, or otherwise launch, fighter aircraft against bombers attacking our shipping. Proposals should be made within one week.(1)

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- (1) The C.A.S. had observed in a note of 3rd March that the use of numbers of long range fighters in combatting the Focke-Wulf and giving air escort to shipping was grossly uneconomical. He considered the proper answer was for certain ships to carry short range fighters and, as a deterrent, the rapid arming of all merchant vessels with A/A guns and P.A.C. Ref. C.A.S. Folder No. 637 and C.O.S. (41)130. See also Chap. X. Section (V) (c)

(3) All the measures approved and now in train for the concentration of the main strength of the Coastal Command upon the north-west approaches and their assistance on the East Coast by Fighter and Bomber Commands will be pressed forward. It may be hoped that, with the growing daylight and the new routes to be followed, the U/B menace will soon be reduced. All the more important is it that the Focke-Wulf, and if it comes, the JU.88 should be effectively grappled with."

Paragraphs 4, 5 and 6 concerned the Admiralty in reference to delaying the re-equipment refits of the American destroyers (fifty of which had been received in the previous autumn), suggestions that ships of 12 - 13 kts. speed should be released from convoy and stating that the Admiralty had first claim on all shortrange A/A guns, U.P. weapons and P.A.C.s⁽¹⁾.

(7) "We must be ready to meet concentrated air attacks on the ports on which we specially rely (Mersey, Clyde and Bristol Channel). They must be therefore provided with a maximum defence. A report of what is being done should be made in a week."

Paragraph 8 concerned all departments involved in repairs to damaged shipping, expediting this work.

Paragraphs 9 and 10 drew attention to the terrible slowness of the turn-round of ships in British ports and directed the Minister of Labour to effect re-inforcement of the labour force engaged in this work.

Paragraph 11 directed the Minister of Transport to ensure against congestion at the quays by improving handling of cargo traffic.

Paragraph 12 called for Progress Reports on all these matters to be made weekly.

Memoranda by the First Sea Lord and the Chief of the Air Staff were submitted on 18th March reporting on the action taken to implement the instructions in the Prime Minister's Directive. The re-deployments⁽²⁾

W.P. (4)62
18th March

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- (1) U.P. signified "Unrotating Projectile" and indicated a rocket propelled missile. P.A.C. signified "Parachute and Cable". A parachute was projected into the air with a length of thin wire cable suspended underneath it. Batteries of these were a deterrent to low flying aircraft.
- (2) By this date the following re-deployment had taken place:-
- 7 Hudsons of No. 206 squadron from Bircham Newton to Aldergrove.
 - All the Hudsons of No. 224 squadron from Leuchars to Aldergrove.
 - 8 Blenheims (F.) of No. 236 squadron from St. Eval to Aldergrove.
 - 8 Beauforts of No. 217 squadron from St. Eval to Limavady.*
 - 2 Stranraers of No. 240 squadron)
 - 3 Sunderlands of No. 10 squadron) from Oban to Lough Erne.
 - 4 Lerwicks of No. 209 squadron from Stranraer to Oban.
 - 8 Hudsons of No. 220 squadron from Thornaby to Wick.
 - All the Whitleys of No. 612 squadron)
 - 8 Blenheims (F) of No. 248 squadron) from Dyce to Wick.
 - Bomber Command transferred Nos. 107 and 114 squadrons of Blenheims to Leuchars and Thornaby respectively.
 - All the Beauforts of No. 42 squadron from Wick to Leuchars.
 - All the Whitleys of No. 502 squadron from Aldergrove to Limavady.
 - See also Map KK.
 - For Fighter Command deployment see Chapter X (v) (b).
- * No. 217 squadron had to return to St. Eval on 15th March as the runways were of insufficient length on the Northern Ireland airfields to operate Beaufort aircraft.

of aircraft had increased Coastal Command's strength in Northern Ireland from 56 to 96 aircraft. Fighter Command were undertaking to provide fighter escort to all convoys between the Humber and London and fighter cover for those north of the Humber up to the Orkneys. In addition they had deployed squadrons to cover the Liverpool and Bristol Channel areas and night fighter protection for the Forth - Clyde area.

The Battle of the Atlantic Committee

C.A.S.
Folder No. 637
"Battle of
Atlantic".

On the 19th March the first meeting took place of the Battle of Atlantic Committee. The Committee consisted of members of the Cabinet, the Naval and Air staffs and Scientific representatives with the Prime Minister presiding. The meeting went through all the paragraphs of the Battle of Atlantic Directive noting what had been done, what was intended, making suggestions and confirming or initiating future action(1).

At the second meeting, which took place on 26th March, progress reports were discussed on the items considered at the first meeting and the Prime Minister required written reports for subsequent meetings on aerodrome construction progress, the fitting of catapult fighters and the supply of Catalinas. Subsequent meetings, which took place at weekly intervals until May 1941, when they became fortnightly, were the hearings of progress reports on measures designed to prosecute the war on U/Bs and enemy aircraft, provide the protection of shipping and to facilitate the rapid turn-round of merchant ships in harbour having regard to our import and export necessities.

(xix) The enemy offensive increases

Meanwhile the enemy offensive in the Atlantic was rising in intensity. The Focke-Wulf aircraft were again very aggressive during March; they operated in the area between our western coasts and longitude 17° West, bombing stragglers and single ships and reporting convoys to assist the U/B groups which were disposed westward from this longitude. In addition long-range He.111 aircraft joined in the attacks on ocean

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- (1) With reference to action by the air against U/Bs it was reported to the meeting that up to 15th March Bomber Command had dropped 128 tons of bombs and Coastal Command 78 tons of bombs on Lorient while 47 tons and 12 tons respectively had been released on U/B berths in Bordeaux. Photographic reconnaissance of these ports disclosed little resulting damage to U/Bs but intelligence reports indicated the 4 U/Bs had been sunk in Lorient and 3 in Bordeaux besides others damaged. In the light of post-war evidence this was not so but at the time the disparity in effectiveness between the few sorties necessary to bomb U/Bs in harbour and the hundreds of sorties over the sea resulting in little or no damage to U/Bs at sea coloured the counsels when it came to possible future allocations of four-engined long-range bombers to Coastal Command. In this respect when it was suggested that Coastal Command's lack of long-range aircraft might be met by the loan or transference of the new Halifax squadrons or better still the projected Lancasters, the proposal was resisted as unjustifiable diversion. In the caustic words of Air Marshal Harris "20 U/Bs and a few Focke-Wulf in the Atlantic would thus provide the efficient anti-aircraft defence for all Germany".

Admty. Trade
Div. Statistics

A.M. N.60. DONG
encls. 16, 17,
20 and 24

Admty N.I.D.
24/X 95/46

Admty. N.1.D.
24/X. 95/46

Admty. Trade
Div. Statistics

Admty. A/S
Monthly Report

shipping - K.G.27 operating from France in the south-west area, including the Irish Sea, and K.G.26 to the north of Scotland, operating from Norway. 90,000 tons of shipping was sunk by these aircraft. In the interim before the special measures against them could be provided, every possible palliative was explored under the spur of the Prime Minister's insistence. Minutes from him at this time to the Admiralty and Air Ministry directed enquiries into the possibilities of establishing R.D.F. stations on the western coasts to facilitate interception by long-range fighters, the jamming of ship report signals sent out by the Focke-Wulf and the possible leakage of convoy routing intelligence to enemy agents.

Another factor had arisen which further complicated the problem of providing adequate long-range A/U cover. This was the menace of enemy surface raiders. As early as 4th January the heavy cruiser Hipper had been discovered in Brest, having broken unseen out of the North Sea in December 1940. This had necessitated the provision of reconnaissance patrols in the Bay of Biscay whenever photographic evidence could not be obtained of her continued presence in Brest. However she had carried out a successful commerce raid during February, getting out and back into Brest unseen by any air patrols. More intense patrols were instituted and naturally the task absorbed some of the long-range aircraft otherwise available for A/U cover. Early in March the battle cruisers Scharnhorst and Gneisenau had been sighted to the south of the Canary Islands by H.M.S. Malaya, and additional long-range air patrols were instituted against a break back by these two ships to Germany. Fleet reconnaissance was made a priority for Coastal Command over all A/U work except the support of very important convoys. Convoys were graded in order of preference and only Grade I qualified for air escort. In the middle of March the two battle cruisers were sighted in the outer area of the Bay of Biscay by aircraft from H.M.S. Ark Royal and on the same day the photographic reconnaissance of Brest disclosed that the Hipper had left. For the next fortnight special long-range air patrols were flown to provide reconnaissance for fleet dispositions to intercept any of these ships. All attempts at the location of these enemy units were unavailing. On the 28th March photographic reconnaissance revealed the two battle cruisers in Brest; they had in fact entered harbour on 22nd March, but the weather had precluded reconnaissance before the 28th. The Hipper broke back unseen into the North Sea via the Denmark Straits and north of Iceland(1).

The March Atlantic shipping losses were heavy; to the 240,000 tons sunk by these surface raiders was added the 90,000 tons by long-range enemy aircraft and 243,000 tons by U/Bs. This latter figure might well have been much higher had it not been for a fine piece of counter-offensive work by our escort vessels which was a heartening sign of their growing effectiveness. During a battle between several U/Bs and a homeward bound convoy three of their most prominent aces had been accounted for. Prien and Schepke had been killed in the destruction of their

(1) For a fuller description of the movements of these three ships and how air reconnaissance failed to locate them see Chapter VII Sections (g) to (n).

boats - U.47 and U.100 and Kretschmer had been captured when his boat - U.99 was sunk. In all three cases the improved R.D.F. being mounted in escort vessels played a decisive part.

The enemy modifies his U/B dispositions

The increased tempo of the U/B offensive had not resulted in a very marked increase in the number of sightings and attacks by A/U aircraft. Of the seven U-boats sighted in March only four were attacked and two of these were on the passage route round the north of Scotland. U/Bs were treating the potential threat from the sky sufficiently seriously to only surface by night when within range of air bases. From the outskirts of medium range cover they became bolder and operated freely on the surface at all times west of 17° West longitude.

However, during April 1941 the new routeing of convoys from the north-west approaches close to Iceland before taking the south-westerly leg towards Newfoundland enabled surface escorts based in Iceland to remain with the convoys as far as 35° West while the arrival of the first Coastal Command Sunderlands and Hudsons in Iceland provided intermittent air escort to 30° West(1).

These measures, together with the loss of the three ace U/B captains in March, caused the enemy to modify his dispositions. Some U/Bs operating in the North Atlantic were stationed yet further west beyond 35°W. and an increasing number were directed down to areas off West Africa south of 35° North latitude. Here, due to absence of air cover and slender surface escort resources they achieved much success immune from counter-attack(2);

Thus commenced a policy of searching for and exploiting "soft spots" in our defence which the enemy pursued until the end of the war.

(xx) New Policy of A/U protection for shipping

Mention has been made of the fact that for some time the A.O.C.-in-C. and Staff of Coastal Command had not been satisfied with the methods in use to give air protection to convoys and independent ships. Only the provision of more numerous and longer ranged aircraft was awaited before putting into practice the schemes already worked out for a flexible system of air cover. Such additions were now in sight, resulting from the re-deployment of Coastal Command's strength and the gradual appearance of new squadrons of Catalina, Whitley and Wellington aircraft. Early in March it had been possible to inaugurate experimental sweeps by Whitleys and Wellingtons covering areas containing two or more convoys instead of rigidly affording individual close escort. A Staff memorandum was produced at H.Q. Coastal Command on 10th April drawing attention to the results of analysis between September 1940 and April 1941 regarding the number of U/B attacks on convoys relative to the nature of convoy protection by aircraft and the circumstances under which U/Bs were sighted in these areas from the air.

- (1) In April there were in Iceland - 5 Sunderlands of No. 204 squadron, 5 Hudsons with long-range tanks of No. 269 squadron and 15 Battles of No. 98 Squadron.
- (2) Of the 249,000 tons of shipping sunk by U/Bs in April, 60,000 tons was effected off the West African Coast.

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A.M. S.88156/
1/Air encls.
15A and 16A

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Encl. 16

17 convoys had been heavily attacked while still in range of air bases but all the attacks were by night. All these convoys had had some (but not continuous) close air escort during the previous day. 25 sightings of U/Bs had occurred and of these only six were by aircraft actually escorting convoys. The remainder were made by aircraft proceeding to the convoy, returning from the convoy or searching for the convoy(1).

A number of recommendations were made and a new policy proposed:-

- (1) Convoys and single ships were rarely attacked in daylight, therefore it was a waste of time to provide close escort before the afternoon.
- (2) The dangerous time when air escort was desirable on an E. barred convoy was from afternoon to dusk.
- (3) Close escort during dark hours was useless on account of the non-sub echoes by A.S.V. on escort vessels and scattered ships and the impracticability at present of air attack on U/Bs at night(2).
- (4) That the total aircraft effort in the western approaches would be more effective in protection of shipping if sweeps were maintained by aircraft which covered the two main convoy routes in use and extended as far west as possible, thus utilising every minute of air search instead of going round and round the same bit of water near a slow moving object like a convoy and wasting the advantage that the mobility of aircraft gives in searching out new areas of water.
- (5) By reason of their different objectives, aircraft on A/U duties cannot be expected to provide protection against enemy aircraft.
- (6) The number of aircraft required for this new policy would not exceed that necessary for the continuous close escort of convoys and the A/U cover would be extended considerably further to the westward.

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A/U File
encl. 17

This policy was discussed with the Admiralty, the Flag officer commanding submarines(3) and the C.-in-C. Western Approaches. It was commenced during the latter part of April and a policy signal embodying the main points was made by the C.-in-C. Western Approaches on the 9th May, 1941. This stated that regular individual air escort of convoys and

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- (1) It was due to the comparatively larger numbers of U/Bs which were sighted by aircraft searching for their convoys that the value of "distant" escort as opposed to "close escort" had been realised.
 - (2) In addition to the lack of a reliable method of illuminating and identifying the A.S.V. contact, the very inaccurate altimeters made it unsafe to fly low enough at night for the release of depth charges. The maximum height for this release was 300 feet - above this the D.C. broke up on hitting the water.
 - (3) Admiral Sir Max Horton.

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File encl. 20

independent ships was suspended and replaced by sweeps, searches or convoy escort carried out by air striking forces operated according to the circumstances or on information received of E. bar reports. The hours between 1400 and dark were stressed as particularly important. Air escort at night was abolished and A/A protection defined as that afforded by fighter aircraft. This latter was necessarily limited in range from our shores.

Results of New Policy

Admty.
Trade Div.
Statistics

This policy was effective in so far that comparative immunity from U/B attacks on convoys and independent ships was secured out to the limits of air cover, namely 350 miles from U.K. and Iceland bases but the May losses to shipping by U/B action were higher than ever - 325,000 tons. (1) This was brought about by the continuation of the April U/B Command strategy. 32 ships of 186,000 tons were sunk in the Freetown area against 25 ships of 135,000 tons in the North Atlantic, moreover the majority of the latter casualties occurred west of of 35°W. longitude - beyond the reach of either air or surface escorts. (2)

A.M. S.88156/
1/Air. encl.
19A

7th, 8th, 9th
and 10th meetings
of the Battle of
Atlantic Committee

CC/S.7011/1/Y
encl. 25B
S.6457 encl. 41A

A.M. N.60 DONG
encl. 29

The immediate reply to this enemy strategy was the diversion of all shipping from the Freetown area except those ships which had, of necessity, to pass through those waters and the institution of complete trans-Atlantic surface escort. This last was effected by the co-operation of the Royal Canadian Navy and the basing of escort forces in Newfoundland (3) The corresponding air measures took the form of increasing the strength of the Sunderlands in No. 95 squadron and the formation of No. 200 squadron of Hudsons in the Freetown - Bathurst area, the re-inforcement of the long-range Hudson squadron in Iceland, (4), the formation of No. 120 squadron with Liberators, and closer co-operation with and provision of Catalinas for the Royal Canadian Air force on Canada's eastern seaboard. (see Volume III. Chapters II and III).

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- (1) Losses from Focke-Wulf and other long-range aircraft which had been 17 ships of 53,000 tons in April had dropped to 5 ships of 21,000 tons in May.
 - (2) A memorandum was sent by the A.O.C.-in-C. to the Admiralty, Air Ministry and C.-in-C. Western Approaches on 16th May drawing attention to the enemy's strategy and proposing the development of flying boat squadrons to Greenland and Newfoundland to counter the enemy's withdrawal out of U.K. and Iceland air range. Regarding the spread of the U/B offensive to Southern waters he proposed the occupation of of the Azores and Cape Verde Islands so as to operate aircraft from these bases in addition to Bathurst and Freetown. As an immediate remedy he advocated the re-routeing of South American traffic away from the West African Coast. Ref. CC/S.7011/1/Z encl. 32A.
 - (3) HX. 129, at the end of May, was the first eastbound convoy to have complete trans-Atlantic surface escort. OB.331, at the beginning of June, was the first westbound convoy to be so escorted.
 - (4) In June 1941 there were in Iceland 3 Sunderlands of No. 204 squadron. (Flying accidents during May had written off no less than 4 of these precious long-range aircraft). 11 Hudsons with long-range tanks of No. 269 squadron. 14 Battles of No. 98 squadron.

(xxi) Tactics against the U/Bs

So much for policy and strategy. Now to consider the tactics employed against the U/Bs. The development of air patrol and attack had been proceeding slowly since the early days of the war⁽¹⁾. It was slow because the subject was new with no previous experience and because any changes or advances in technique had to be tried out, not experimentally with controlled targets, but under war conditions against the enemy. It had been found that the best height to fly for visual locations of U/Bs on the surface was 1500 - 2000 feet but increasing vigilance on the part of the U/B bridge look-outs resulted in the aircraft, more often than not, being seen by the U/B first or at any rate simultaneously. Consequently during 1940 and early 1941 most of the attacks were made on the "swirls" or foam marks left on the surface after the U/Bs had dived. Under these conditions the anti-submarine bomb was virtually useless and the depth charge had been adopted as the proper weapon. The modification of Naval depth charges for use by aircraft carried with it a tendency to use this weapon in the same manner as the Navy, namely, exclusively for attack on U/Bs which had already dived. This tendency was strengthened by the fact that, in practice, the aircraft seldom had any other kind of target to attack. Consequently depth charges were set to explode at depths of 100 feet, 150 feet or even 200 feet and were released at times up to five minutes after the U/B had vanished.

Once a submarine is completely submerged it is a matter of guess-work as to what its position is either in depth or plan. The inaccuracies of this guess-work, with no aiming-mark except the "swirl" on the surface, vary in proportion to the time elapsing between disappearance and release of depth charges. Naturally this had resulted in very few kills and gave colour to Admiral Doenitz's later boast that ~~"an aircraft had as little chance of hurting a U/B as a crow has of killing a mole"~~⁽²⁾. *The aeroplane can no more eliminate the U-boat than a crow can fight a mole.*⁽³⁾

To reduce this time lag, various methods had been tried. Height of patrol was varied. Flying in and out of cloud base was recommended and as many pairs of binoculars as possible were allocated to operational aircraft but no real advance took place until the advent of the Mark III Long-range A.S.V. As this equipment became more reliable and was fitted to more aircraft it became apparent that it was of vital assistance to unseen approach by day using a complete cloud cover till the last possible moment. Even then it was discovered that, unless the cloud base was low, the U/Bs could still get well under water after the aircraft had broken cloud and before the attack could be pressed home⁽⁴⁾. The new problem was to make the aircraft more difficult to see from the bridge of the U/B. After various experiments in camouflage it was discovered that plain white on all side and under surfaces of the aircraft gave a remarkable degree

- (1) See Appendix III for a monthly record of flying hours on the different tasks and the resulting sightings and attacks on U/Bs.
- (2) Appendix III gives the numbers of sightings, attacks and results obtained during the period September 1939 to May 1941.
- (3) From the moment of sounding the alarm gongs to dive, a U/B could be under the surface in 25 seconds.

- (4) This remark was made by Admiral Doenitz in the course of an important interview for world publication given to a Swedish newspaper on 4 August 1942. Reference: *Adm. CB.04050/42(9)* p. 37 in *R.A.F. in Maritime War Vol. III* p. 423.

of invisibility in the cloud and sky conditions generally prevalent in northern latitudes. This white camouflage, with certain refinements resulting from scientific investigation, remained the standard colour of A/U aircraft throughout the rest of the war. Thus started in the summer of 1941 the familiar "White Crows" of Coastal Command(1).

Co-operation with surface A/U forces

The co-operation between air and surface craft had also been slow in development but this was for different reasons. Visual signalling between the two continued to be slow and inefficient. Previous to August 1940 the two services had little personal contact at squadron and flotilla level. It was not till the short lived "North-West Striking Force" had presented its report in September 1940 that the importance of close personal contact between the airman and the sailor, both in training and in operations, had been stressed. Deficiencies in numbers and equipment had prevented those lessons from materialising into general custom but the ideals to be aimed at were not lost sight of, particularly in North Ireland where the initial contacts were still alive and the naval commander of the first striking force was now Naval Officer in charge of Londonderry.

Early in March 1941 the C.-in-C. Western Approaches and the A.O.C.-in-C. Coastal Command issued a joint directive bringing into existence another combined A/U striking force. Up to 50 per cent of the air strength of No. 15 Group was to be available and such surface forces as could be collected in the Western Approach Command. An area 180 miles square to the northwest of Ireland was to be searched out to 18°W. by air sweeps every 24 hours. Should a U/B be located, a hunt to exhaustion would be commenced and maintained for 48 hours. Surface craft stationed in this area would immediately proceed to the scene and a combined hunt develop. Three of the squadrons stationed in North Ireland formed the air contingent but it was only possible to find three destroyers for the surface contribution. The local control was exercised by the N.O.I.C. Londonderry who had officers from the air squadrons attached to his headquarters to ensure co-ordination of operations. Although the plans were admirable the project again failed for lack of surface craft. However the air sweeps were maintained whenever weather and aircraft availability permitted. The area swept out was varied in conformation to convoy positions and Admiralty Tracking Room information. Whenever possible escort vessels were detached from the nearest convoy or in some cases sent out from Londonderry to assist in combination when U/Bs were located by the air. In this way several combined hunts took place during the ensuing months but generally speaking the scent was too cold when surface craft arrived and it was difficult to keep unbroken continuity of air patrol over the spot even for 48 hours on account of the superior claims for air support to convoys. In other words there were not enough aircraft or escort ships to do convoy escort and conduct a sustained offensive against a located U/B.

Co-operation round convoys

Round convoys the co-operation between aircraft and escort ships was improving. The development of Radio Telephony made

(1) See Appendix XII for the Development of "White Camouflage" against U-boats.

inter-communication easier and quicker. By March 1941 most of the escort force in the Western Approach Command had been equipped with R/T and, although the usual teething troubles were being experienced, it was becoming a reliable method of communication which enabled the senior officer of the surface escorts to direct his attendant aircraft to distant search and for the aircraft to report results without having to leave the scene and return to visual signalling range. As strict W/T silence was imposed on all convoys the increasing reliability of R/T facilitated situation reports being made from the convoy to base using the returning aircraft as messenger.

The ban on wireless transmission had its disadvantages in one respect important to Coastal Command. Homeward bound convoys and single ships were often very difficult to find when they entered the fringes of air cover at which it was possible to afford air escort. The position of such shipping was only known in the U.K. approximately from the dead reckoning since leaving the port of departure. During the voyage, bad weather, emergency alterations of course and speed might make a difference of many miles between the actual and plotted positions when it came to detailing air escort to meet the convoy or ship. Aircraft frequently never found them or at best only located them after hours of searching. Proposals were made whereby the convoy should break wireless silence in order to home on the aircraft. Although set on foot in May, 1941 these proposals took some time to materialise into any regulated procedure and further detailed mention of this is made later in this narrative⁽¹⁾.

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

A.M. N.60 DONG
encl. 18
C.-in-C.
W.A. signal
T.O.O.
1906B/30/5/41

A.M. S.88156/1/
Air encl. 19A

Finally, the basis of all true co-operation - mutual understanding of each other's difficulties and possibilities - was being furthered by the exchange of visits between R.A.F. officers and Naval officers engaged in A/U work. Officers from escort vessels went out as passengers in escorting aircraft and captains of aircraft took trips in escort vessels actually engaged in these duties.

Air Action to harass U/Bs on passage

As has been described in Chapter II, the harassing of U/Bs on passage had been carried out by No. 18 Group operating in the sector from the North Sea to the Atlantic. After the fall of France the enemy rapidly established U/B bases in the Bay of Biscay thus obviating the necessity to use the northern passage route except for newly commissioned U/Bs. During the winter of 1940/41 these bases were developed so that by the Spring they could deal with all the refitting necessary to the flotillas attached to them and no U/Bs ever returned to Germany. The main U/B operational traffic was through the Bay of Biscay. This area was the responsibility of No. 19 Group, newly formed at Plymouth in February 1941 when No. 15 Group moved up to Liverpool. The large deployment of Coastal Command's strength into the north-west area left No. 19 Group with only sufficient aircraft to provide escort to local convoys, for occasional sweeps into the inner Bay of Biscay and to carry out minelaying and bombing attacks in the Brest and Lorient areas. No sorties could be spared for the harassing of U/Bs' lines of passage. During March 1941 reconnaissance duties, which had commenced with the cruiser

(1) See Volume III Chapter II.

Hipper's activities in February, rose to a first priority task with the appearance of the battlecruisers Scharnhorst and Gneisenau. The subsequent watching patrols round Brest and numerous sweeps through the "Bay" area⁽¹⁾, which were carried out whenever photographic reconnaissance failed to establish the continued presence of the two battlecruisers in harbour, sighted and attacked a few U/Bs on passage.⁽²⁾ During June it became possible to fly anti-U/B patrols in addition to the other tasks and, aided by systematic plotting of the sightings obtained, a series of standard A/U cross over patrols were designed. Such patrols were augmented during July 1941 and formed the genesis of the Bay offensive⁽³⁾.

(xxii) Summary

June 1941 may be said to be the end of the "Scarecrow Phase" in the Air War against U-boats at sea. During the period since the outbreak of war the Air was adapting itself in methods, technique and weapons to combat a threat which had nearly defeated us in the First German War and which was rapidly becoming a major threat in the Second German War. By June 1941 the Command, in consultation from time to time with the Admiralty, had decided on what lines to prosecute this struggle and it remained for the future to produce the means to implement the broad policy agreed upon.

The mass of war experience in action against the U/Bs⁽⁴⁾ which had been gained by the Navy and Coastal Command was considered by a joint committee under the chairmanship of the Director of Anti-Submarine Warfare in the Admiralty. This committee held six main meetings during April and issued its final report on 6th May, 1941. Proposals were made as to future tactics and material required. Regarding the Air side of U/B warfare, the advance that had been achieved during the previous 20 months of war and the state of A/U tactics reached by May, 1941 can be gauged from the recommendations and observations made by this committee.

The following are the main points alluding to Coastal Command:-

- (1) The committee believes that the main object of air co-operation with our convoys should be to prevent any U/B from making contact with the convoy or, if contact is made, to prevent it from shadowing.
- (2) With adequate air co-operation a U/B should find it impossible to shadow one of our convoys.
- (3) The committee is not convinced that the present A/U aircraft patrol carried out round the convoy is the best that could be desired to meet varying conditions of weather and daylight. It is also considered that there

(1) At the end of May 1941 the strength of No. 19 Group was 1 Sqdn. of Beauforts, 1 Sqdn. of Blenheim bombers, 1 Sqdn. of Sunderlands, a detachment of Hudsons and 1 Sqdn. of Blenheim fighters.

(2) During June 1941 the Group was re-inforced by 1 Sqdn. of Hudsons and a detachment of Wellingtons.

(3) In the Bay area during April - 1 U/B was attacked.
In the Bay area during May - 3 U/Bs were attacked.
in June - 5 U/Bs were attacked.
and in July - 9 U/Bs were attacked.

(4) Full details of the growth of the Bay Offensive are given in Volume III, Chapter II.

(5) Statistics for the 20 month period of the war giving hours flown, U/Bs sighted and attacked together with results obtained are in Appendix III. Aircraft wastage figures are in Appendix XIV.

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are occasions when A/U aircraft patrol round the convoy should be abandoned in favour of a search to cover a wide front on the line of advance of the convoy.

(4) If submerged attack on our convoys re-develops it will be necessary to modify the type of A/U patrol carried out by aircraft with the convoy.

(5) The committee appreciates the great potential value of aircraft freed from routine patrols on convoys, as a "harassing force" to take the offensive against U/Bs. But, with our primary object of the safe and timely arrival of our shipping in mind, it is believed that such a force can only be justifiably instituted when the close protection of our convoys has been made reasonably sure. This emphasises again the shortage of aircraft in Coastal Command and the committee, though appreciating that the allocation of available aircraft has to take into account requirements overseas and the needs of Bomber Command recommends most strongly that Coastal Command should be re-inforced at the earliest possible date with long-range aircraft. (1)

(6) The committee appreciates that if aircraft can be used to ensure that a U/B once located can never surface without being again located the eventual destruction of that U/B becomes more than a probability. The moral effect of harassing a U/B in this manner must also be borne in mind. If a re-inforcement could be provided of two squadrons of aircraft fitted with long-range A.S.V. and if this force could be employed solely for the purpose of locating and attacking U/Bs, we shall have made a great advance in the anti-U-boat campaign.

(7) Reliance on shore-based aircraft must always involve possibilities of failure of air co-operation due to weather conditions at base or to difficulties of locating the convoys at sea owing to navigational and dead reckoning inaccuracies. The latter point is under investigation and may be solved by the use of D/F.

(8) In any event the success of shore-based aircraft co-operation depends largely on efficient R/T communication between ship and aircraft.

(9) The fitting of long-range A.S.V. to all A/U aircraft is an essential. The present position is shown in an appendix and it can be seen that much remains to be done. The committee feels that its importance cannot be too strongly emphasised.

(10) The committee believes that aircraft fitted with long-range A.S.V. and maintaining an A/U patrol on our convoys at night could do much both to detect and to assist in the destruction of U/Bs. But the numbers of aircraft available have hitherto precluded their use to anything but a limited extent with convoys at night. Improvements in aircraft A.S.V. are constantly under review and the Committee are confident that this will effect a further improvement in A/U efficiency.

(1) The Order of Battle, establishment, strength and average daily availability for June 1941 is given at Appendix I.

(11) The shadowing U/B uses High Frequency W/T to signal its "enemy reports". If our escort ships can D/F these to get an accurate bearing they can commence an anti-submarine search immediately. The committee recommends that the possibility of fitting both HF/DF and R.D.F. in the same ship should be investigated at high priority but if technically impossible, that HF/DF should be fitted in Rescue ships and/or Fighter Catapult ships. (1)

(12) The committee believes that there is scope for further investigation into all these problems and recommends the formation of a standing sub-committee from Coastal Command and the Admiralty for this purpose. (2)

As the previous narrative shows, some of these recommendations had been under consideration for some time. There was in fact complete agreement as to the lessons learned and the tactics to be followed.

Two major deficiencies still kept air power as only a potential, instead of being an actual, threat to the life of a U/B - numbers of long-range aircraft and lethal weapons. The gradual arrival of both these desirable factors is dealt with in the ensuing volume.

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- (1) This development of HF/DF in escort vessels had a particular interest for Coastal Command. It was realised at once that its successful use would not only permit escort vessels to start off on a search but would enable the escorting aircraft to be directed down the line of bearing and result in a much earlier attack on the U/B. Although primarily a naval ship construction problem, Coastal Command continually pressed for a solution particularly after Air Chief Marshal Joubert took office as A.O.C.-in-C., as he had just previously been A.C.A.S. (R) and was conversant with all air interception measures. See Vol. III Chap. II (viii).
- (2) This eventuated as the Standing Committee on Aircraft attacks on U/Bs and held its first meeting on 26th June, 1941.

CHAPTER IX

AERIAL MINELAYING (April, 1940 - June, 1941)(i) Preparatory Period(a) Early Plans for minelaying

Although aerial minelaying was not commenced until April, 1940, plans for such minelaying were under consideration prior to the outbreak of war, when the Standard Magnetic Mine later used in this operation was still in its experimental stages. This type of mine, designed to lie on the sea floor, was an innovation in warfare, as all mines previously used, either in mine barrages or for offensive purposes, were buoyant and moored at fixed depths below the surface. The authorisation for the development of this type of mine had been given by the Admiralty as early as May 1936, when experiments to develop a moored mine to be laid by aircraft, were abandoned. The Germans had been experimenting with ground mines in 1918 but these had not got beyond the experimental stage at the time of the Armistice. In July 1939, the Admiralty informed the Air Ministry that a trial order for 30 mines had been placed, with the possibility of a further order for 120. Replying on 30th August, the Air Ministry requested that a certain number of these mines should be allocated to the R.A.F. for trial drops from Torpedo Bombers. It was also suggested that there should be a conference of Naval and Air Staffs to discuss the possible effect of the mine on world shipping, and its uses in war.

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S.38232
Enc. 1A

A.M.
S.38232
Enc. 101A
A.M.
S.38232
Enc.113A

A.M.
S.1636/I
Enc.3A & 3B

The outbreak of war came before the Admiralty could reply to this letter, and with their reply on 11th September they forwarded an appreciation on the Magnetic Mine, as a basis for discussion between Naval and Air Staffs of operations to be undertaken by the R.A.F. and the Fleet Air Arm, and for calculation of the stock of mines required. It was hoped that 170 mines would be ready for operations by the following summer, a trial order having been placed for that number. The appreciation was based on a number of assumptions both as to the capabilities of the mine and its usage. It was assumed that if warning was given of the general areas of minelaying the act of mining would be brought within the terms of the Hague Convention, (1) and that Italy and Japan would join in the war, under which circumstances it was estimated that some 4636 mines would be needed within a year to lay in all probable areas, (2) involving the use of 8 squadrons (3). It was expected that carrierborne aircraft of the Fleet Air Arm would also assist in the operation.

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- (1) The Hague Convention laid down that all floating mines should be moored, and rendered safe if they broke away from their moorings. As the ground mine was a new development it was not covered specifically by any clause in the convention.
 - (2) This included the Middle and Far East as well as waters mined by home-based aircraft.
 - (3) It was hoped that by mid 1940 when the mines were ready 2 Torpedo Bomber and 2 General Reconnaissance Squadrons would be available for operations from Home Stations. The 2 Torpedo Bomber Squadrons totalling 24 aircraft would be continuously employed on minelaying, and about one third of the General Reconnaissance squadrons. These would total 42 aircraft. Overseas requirements were estimated at 24 Torpedo Bomber and 48 General Reconnaissance aircraft; these it was thought would give a minelaying capacity of about 380 mines per month by home-based aircraft and a total of 460 per month in the various overseas commands.

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(b) Technical problems in mine development

When it was understood that supplies of Magnetic mines were likely to come through more rapidly than had been expected, the question was raised as to whether any aircraft other than the Coastal Command Torpedo Bombers, the Botha and the Beaufort, were suitable for minelaying, but it was found that no existing bomber could carry the mines. The question of scaling down the mines to adapt them for use in a Stirling or Halifax was under consideration.

A.M.
S.1636/I
Enc. 4A

In the meeting of Naval and Air Staffs on 19th September the discussion was limited to the immediate problem of mining German fairways. The aircraft to be used principally for the purpose was the Botha, with which Coastal Command Torpedo Bomber Squadrons were to be re-armed, and also Beauforts; it was stated, however, that the range of the Botha would be limited, and that it would not be able to operate further east than the Kiel Canal. The chief technical difficulty arising at the time was to make the mechanism of the mine sufficiently strong to withstand the shock on hitting the water when dropped from a Botha, even at its minimum speed. Trials were needed to determine the maximum height and speed at which a mine could be dropped without sustaining damage, and also to test the performance of the Botha when loaded with a mine. It was decided subsequently that the only modifications necessary on both the Botha and the Beaufort to make them suitable for minelaying, would be the fitting of a fuzing attachment to the torpedo carrier.

A.M. S.1636/I
Min.5

On 3rd October, the Air Ministry informed the Admiralty that a mine had been successfully dropped from a Wellesley aircraft at a speed of 167 m.p.h. and from a height of 200 feet. In view of the long range of these aircraft it was suggested that they might be used for minelaying. As however, there were no Wellesley Squadrons in the U.K., and as the Air Ministry had previously decided that the minimum height compatible with safety in minelaying was 500 feet, this suggestion was not acceptable. The Air Ministry stipulated that minelaying should be carried out at not less than 500 feet, with a minimum speed of 150 knots. By 1st December the Admiralty were able to report that minelaying trials under these conditions had been successfully carried out, (1) in the latest trial the mine casing had sustained minor damage, but that could be remedied by strengthening the casing without altering the design of the mine or its mechanism.

A.M. S.1636/I
Enc. 10A

A.M. A.1636/I
Enc. 17A

Ibid Min.5
Enc. 17A

A.M. S.1636/I
Enc. 20A

At a Naval and Air Staff Meeting held at the Admiralty on 25th January, it was announced that some 80 'A' Mark I mines (magnetic) would be ready by the end of February, 180 by the end of March and from then on at the rate of 100 per month until the bulk order for 980 was completed by the end of November. It was understood that production could not be

A.M. S.1636/I
Enc. 24B

(1) Table showing progress of dropping trials with M. Mine to bring them within Air Ministry requirements. Relay changes up to 4 micro amperes were considered acceptable.

Date	Height (feet)	Speed (m.p.h.)	Angle of Roll	Casing	Components
14.9.39	320	115	Negligible	No damage	Relay correct
23.9.39	185	165	"	"	"
28.9.39	350	168	"	"	Relay zero change 2 micro-amp.
6.10.39	480	172	"	"	Relay correct
17.10.39	600	168	"	Rear section distorted	Relay zero change 4 micro-amp.

A.M. S.1636/I
Enc. 20B

substantially increased by firms on the existing contract, and that other firms could not be brought in, without reducing the production of other important types of mine. Alternative types of ground mine such as modified 'B' bombs (1), which could be laid by Bomber Command aircraft, and delayed-action bombs (2) were discussed, though it was appreciated that neither of these would be as effective as the 'A' Mark I mine. The principle operational consideration was that minelaying could apparently only be carried out on moonlight nights, that is approximately seven nights a month, and with the short nights round midsummer, the best laying period appeared to be the winter. However, it was estimated that the initial lay should be carried out in April on a considerable scale, so as to disorganise enemy shipping, and following that, pressure was to be kept up by a steady programme. Should circumstances make it desirable to start laying earlier, aircraft should be held in readiness for operations during the March moonlight period (20th - 26th). Strategically the Elbe was the most promising laying area, though the water was on the deep side for actuating the mine firing device. The Kiel Fjord was the best laying area, and was second only to the Elbe in importance for enemy traffic. The Ems and Jade-Weser estuaries were also suitable though traffic was less dense (3). By this time the failure of the Botha as an operational aircraft had been recognised, and in consequence the number of Torpedo Bombers available for minelaying was considerably below earlier expectations; it was hoped that some 14 Beauforts would be available for operations by the end of March, rising to 40 by June. The 'A' Mark I mines had been designed with a tail piece to make them suitable for laying by Torpedo Bombers, but, as the number of these aircraft was so small, experiments had been started in substituting a drogue for the tail piece, so that the mines could be carried by Bomber Command Hampden aircraft, and dropped from a substantial height without damage, even at Hampden operational speed. These aircraft were known to have a longer range than the estimated range of Beaufort, and could therefore be used against targets as far east as Kiel; some 72 aircraft should be available by the end of February, rising to 150 by June.

- (1) The R.A.F. possessed 5,000 'B' bomb cases, some already filled, and subject to the satisfactory completion of current tests, about 1,000 of these could be made available with magnetic, or other firing devices, as ground mines.
- (2) It was suggested that the R.A.F. long delay-action fuze bomb should be so modified as to detonate after a specific period of immersion. No method of achieving this had been reached to date, but it was being investigated; these would have no lethal value against shipping, but would have diversionary effect.
- (3) Distribution of merchant shipping among principal ports in the Western Estuaries (C.C. File No. 7010/16 enc. 17B).

Estuary	Port	Entered		Cleared	
		No.	1000 tons	No.	1000 tons
Elbe	(Hamburg)				
	(Altona)				
	(Harburg)	16,288	18,922	17,496	19,015
	(Wilhelmsburg)				
	(Cuxhaven)	481	869	466	573
Weser	(Bremen)	7,106	5,862	7,241	5,906
	(Bremerhaven)	967	2,927	896	2,899
Ems	Emden	3,820	2,906	3,821	2,912

During 1935 43,533 ships, aggregating 17,197,000 nett tons, passed through the Kiel Canal, the western end of which terminated at Brunsbüttel on the Elbe. Enemy naval vessels were stationed principally at Wilhelmshaven on the Jade and at Bremerhaven and Cuxhaven, though the principal U-boat building yards were at Hamburg.

A.M.
S.1636/I
Enc.27A

In order to correct any false impressions arising from this meeting, the Air Ministry informed the Admiralty on 3rd February that the range of the Beaufort when carrying a mine or torpedo had not yet been tested, but that it was estimated that it would be about 350 miles when loaded; as it was 410 miles from E. Anglia to Kiel it would be necessary to use the Beauforts for laying in the western Estuaries only, and the Hampdens for the more distant areas. The Admiralty wrote on 10th February suggesting 4 areas in the Baltic between Kiel and Danzig⁽¹⁾ as possible targets for the initial laying, but the Air Ministry had to reject the most easterly ones, as even with Hampdens it was not possible to go further east than Swinemunde.

A.M.
S.1636/I
Enc.28A

A.M.
S.1636/I
Enc.30A

(c) Public announcement of mined areas

A.M.
S.1636/I
Enc.28A

A.M.
S.1636/I
Enc.31A

In their letter of 10th February the Admiralty also suggested that to comply with the Hague Convention 48 hours notice of minelaying should be given; at the same time the whole question of notice was taken up with Foreign Office. In their letter of 19th February they gave a warning not to impinge on any areas claimed by other countries as territorial waters, though not recognised as such by this country, and requested that a minimum of 96 hours notice should be given to the Foreign Office before minelaying commenced; this would give them time to circularise their officials in neutral countries, and also foreign missions, especially of the Baltic countries. The delivery of this warning could then be synchronised with a public warning on the B.B.C., which it was suggested should be 48 hours before mining commenced. The Admiralty agreed to these proposals and asked that they should be given a week's notice by the Air Ministry, in order to get their official publication of the warning printed in time. It was intended that more areas in the Baltic and North sea should be declared dangerous than were actually to be mined, in order to avoid indicating to the enemy the precise laying areas.

A.M.
S.1636/I
Enc.38A

(d) Appreciations on operational factors

C.C. File
7010/16
Enc.5A

Ibid
Enc.7A

An Air Ministry draft appreciation on Plan W.A.15 (Aerial Minelaying) was drawn up and sent to Coastal Command, with the request that a similar appreciation should be drawn up by the Command. In their appreciation, sent to the Air Ministry on 19th February, Coastal Command reviewed the whole minelaying situation; details of the policy of mining, the capacity of both mines and aircraft for the task, and a detailed analysis of potential laying grounds, the land marks identifying them and the strength of the opposition likely to be encountered by the aircraft engaged in laying mines in these areas were included.

(1) Areas suggested were:-

- (i) Schleswig Coast through centre of the Fehmarn Belt and the Cadet Channel to Cap Arkona (this area was practicable).
- (ii) Peerd Point, Rugen Island to point where meridian of 16° east crosses the German Coast. (The R.A.F. could not go further east than Swinemunde. 15° 25'E).
- (iii) Rectangular Area about 20 miles to seaward and 20 miles each side of Stolpmunde (Impracticable).
- (iv) The Gulf of Danzig (Impracticable).

The strategical purpose of minelaying, it was stated, was to menace enemy shipping passing in and out of their base ports. It was directed primarily against warships, armed merchant vessels, flak ships and submarines operating against Allied sea communications, but it would also be effective against enemy trade, particularly their import and coasting trade.

The mine, lying on the sea floor, was fired by any violent change in the surrounding magnetic field, such as the passage of a ship above it; the range of the magnetic field was measured as a distance below a ship's keel, and varied according to the size of the ship⁽¹⁾. As the Germans had no battleships at that time the maximum depth for a mine was 77 feet⁽²⁾, though the ideal depth was considered to be 30 feet when even small ships and submarines would actuate the firing device; the construction of the mine, however, precluded laying in less than 30 feet of water without damaging the mechanism. The output of mines was not large but as Beauforts and Hampdens were the only aircraft suitable for minelaying and the numbers and output of these aircraft were limited it was considered unlikely the laying rate would surpass the production rate⁽³⁾ of the mines. Both types of aircraft could only carry one mine.

In order to retain the element of surprise the selection of laying areas was made, in as far as possible, where the splash raised by the mine entering the water would be unobserved from lighthouses, flakships or from the shore. It was thought that laying in areas some distance from the shore and from distinguishable land marks, should only be undertaken on moonlight nights, particularly in estuaries where coastal features were ill-defined and navigational aids few, and that laying in other than moonlit nights could only be held to be justifiable where coastal features were very distinctive and where there were navigational aids such as lighthouses or lighted buoys in operation. Other considerations to be held in mind were to avoid laying on moonlight nights at a time when the moon was declining and the aircraft might come between the moon and any observer on the shore, and also, when possible, to lay mines at or near low water, so that no mistakes should be made and the mine be laid in a position whence they might be recovered.

The principle operational considerations were the facts that aircraft losses would be greater in areas

- (1) The range of the magnetic field with various types of ship was:-

Battleship	55 feet
Heavy Cruiser	50 "
Destroyer	30 "
Submarine	25 "

- (2) This was calculated as 50 feet depth below the keel of a heavy cruiser plus 27 feet for its draught.

- (3) Estimated numbers of aircraft available:-

	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>
Beaufort	14	20	28	40
Hampden	85	112	112	112
Totals	99	132	140	152

Estimated output of mines:-

	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>
	80	180	280	380

nearer the shore but navigational accuracy would be more difficult further seawards. Similarly the nearer the area chosen was to a harbour the more restricted it would be, but fewer mines would achieve a greater lethal density. The tactical considerations included the questions of the relative value of formation flying, the methods of approach to target areas, according to the nature of the opposition, the methods of laying the mines, low flying to avoid R.D.F. pickups, and the use of diversions; in the case of diversions it was stressed that careful timing would be essential in order not to defeat their purpose by giving the defences warning of activity before mines were laid. In the light of the various considerations the approaches to each of the German ports were discussed in detail, with all possible laying areas and their relative values given.

The other considerations when planning minelaying were the rate of the re-armament of the Coastal Command Torpedo Bomber squadrons and the standard of training required. The scale of effort in minelaying would be determined by the number of mines available and the operational efficiency of the units concerned. The re-arming of the Coastal Command squadrons with Beauforts was slow; No. 22 Squadron was unlikely to be operationally efficient before the end of March, and the re-arming of No. 42 Squadron had not commenced. The efficiency of the Hampden squadrons of Bomber Command was an unknown factor, but as they had not been accustomed to pinpoint accuracy at low altitudes over the sea at night, and navigational accuracy was essential, for minelaying, it was thought they would need intensive training. The output of mines did not suggest that a reasonably lethal concentration could be laid at the mouth of even a single estuary or port, and to do so would allow the enemy to concentrate their sweeping and defensive equipment, though suspicion could possibly be allayed by dropping long-delay bombs in other fairways. The alternative was to lay mines in several areas, which would probably lessen the number of ships sunk, but would ensure the dispersal of sweeping equipment and A.A. defence batteries(1).

C.C. File
7010/16
Enc.11A

The Air Ministry amended draft of Plan W.A.15 was forwarded to Coastal Command on 26th February, and was on similar lines to the Coastal Command appreciation. The laying areas off the Elbe and Kiel Fjord had been amended at the request of the Admiralty who considered it preferable at the outset of the campaign at least, to avoid laying in narrow waters, in spite of the fact that if lays were not made in the narrow waters of the Elbe, the water in which they were laid would be 12 or 13 fathoms, where only the largest ships could actuate the mine firing device. It was appreciated that the ideal depth for minelaying would be 5 fathoms, but neither the modified nor the unmodified mines could be laid in under 5 fathoms so that areas had to be further seaward. The specifications for laying were given, and it was stated that the unmodified mine should not be dropped from a height greater than 500 feet, at a speed greater than 150 knots; the modified mine (with parachute attachment) could be dropped at any height over 400 feet, and at any speed. It was suggested that alternatives to the magnetic mine might be used, such as 'B' bombs, or a

- (1) The proportionate scale of effort against the various areas suggested was:-

The Elbe	3
Kiel	3
The Jade-Weser	2
The Ems	1

modified depth charge adapted as a mine, or long delay bombs fitted with Osmosis pistols⁽¹⁾. The scale of effort in laying was to be the maximum effort on the first night of the moonlight period and as great as possible with available aircraft and mines on subsequent nights.

C.C. File 7010/
16 Enc.19A

Commenting on March 11th on the Air Ministry draft the A.O.C.-in-C., Coastal Command expressed some dissatisfaction over the choice of areas for laying, especially those areas where the water was more than the maximum depth stipulated for the effective operation of the mine, or further from the shore than suggested in the Coastal Command Appreciation, as navigation was rendered more difficult by being away from recognisable landmarks. The view was also expressed that a small number of pilots laying accurately could give a greater lethal density than any large scale laying by semi-trained personnel. However, the Air Ministry, while agreeing that accurate spacing of mines could only be achieved by highly trained crews were of the opinion that because of this very fact it was better to lay in wider areas well away from the shallows, thus lessening the danger of the recovery of the mine intact. It was also suggested at Coastal Command at that time, that it should be possible to lay mines on clear starlit nights provided that a geographical fix could be taken for a timed run. A memorandum on minelaying in the German estuaries was drawn up, giving navigational approaches to laying areas, and possible diversion areas.

A.M. S.1636/I
Enc.46A

C.C. File 7010/
16 Min. 12

Ibid
Enc.18A

(e) Technical developments

A.M. S.1636/1
Enc.43B

A conference of Naval and R.A.F. technical staff was held on 8th March to discuss the progress made in the development of the modified mine. It was reported that after initial success in the experiments, it had become impossible to meet Air Staff requirements, as the parachute would not stand the snatch load when released at 200 m.p.h.; it was agreed therefore that a new parachute should be designed on the lines of one developed at Woolwich to be used in conjunction with star shells. As a result of this failure it appeared likely that it would not be possible to use Hampdens for mining in April; commenting on this, the D.D. Plans Air Ministry said that they would again have to "resist pressure to go off half-cock with the Beauforts alone". The Admiralty were informed of the position on 13th March, and it was stressed that while it was hoped that mining would begin in April the position depended wholly upon the parachute situation. On 15th March, however, trials with the new type of parachute were successfully carried out at Farnborough. A meeting of Naval and Air Staffs was held on the same day, but before the results of the trials were known, and it was decided that minelaying should not begin until the parachutes were ready. It was further decided that the precise areas for minelaying should not be defined finally until trials had been carried out to test the distance from which the splash put up by mines was visible, and that no diversionary operations were to be undertaken prior to the first lay.

A.M.
S.1636/I Enc.43A

Ibid Enc.45A

(f) Preparations for operations

A.M. S.1636/1
Enc.47B

When the results of the parachute trials were known, it was requested that Nos. 49 and 83 Hampden Squadrons, on loan

- (1) Osmosis pistols that functioned satisfactorily under water could be fitted to 250 lb. and 500 lb. bombs, and would give a delay of 6, 36, 72 or 144 hours.

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A.M. S.1636/I
Enc.47A

C.C. File 7010/
16 Enc.24A

to Coastal Command as a strike force, should be recalled to their home stations for training during the March moon, in flights over the areas in which they would be minelaying. It was considered undesirable that mining should be carried out by four squadrons only, as the success of the plan depended upon concentration of effort. As a result the two squadrons were recalled on 16th March. This move drew a protest from Coastal Command as it was essential to maintain a striking force. It was pointed out that if the re-arming of Nos. 22 and 42 squadrons had been speeded up, such a situation would never have arisen, and that the Command would still be without a strike force even when the squadrons became operational, as they were to be used for mining. A rate of training for the Hampden squadrons was suggested so that there might always be two squadrons with Coastal Command.

C.C. File 7010/
16 Enc.19A

Ibid Enc.28A

C.C. File
7010/16 Min.33

Ibid Enc.37A

Meanwhile, No. 42 squadron carried out preliminary trials and training in tactics on Vildebeests. Trials were also carried out at Pembroke Dock on 23rd March with dummy mines, consisting of oil drums filled with sand, to test the amount of splash made on entering the water, and range at which this splash was visible. The weight of the drums used in the trials was 50 lb. and 100 lb., as opposed to the 1500 lb. weight of an actual mine, but no splash was observed by watchers in conditions of ideal visibility at from four miles to half a mile distance. A request was put through for the R.A.E. Farnborough to provide concrete dummies of a weight corresponding to an actual mine, for further tests. On 27th March a Beaufort of No. 22 Squadron was ordered to proceed to Gosport for special trials.

A.M. S.1636/I
Enc.55A

At the Naval and Air Staff meeting on 1st April, minelaying was one of the subjects discussed, and it was stated that 200 mines would be available at units by 18th April; if this number were laid during the April moon, only 100 would be available for May according to the existing programme, but production was being speeded up, and it was hoped that 200 mines would be available for May and subsequent months. An additional order for 3,000 mines over and above the existing order for 980 was being placed. The new parachute attachment for the modified mine was satisfactory, and should be available in sufficient numbers for the April operations. The units participating in these operations would be the six Bomber Command Hampden squadrons and one Coastal Command Beaufort squadron; the latter had the more difficult problem as they had only recently been re-armed with Beauforts, and the areas in which they would lay mines demanded greater navigational skill than those selected for Bomber Command. Aircraft of both Commands had been carrying out night reconnaissance over their respective areas, and Coastal Command aircraft had been carrying out intensive training in accurate placing in target areas in the Bristol Channel. The flying restrictions to be observed with the modified mine were laid down as a maximum speed of 200 m.p.h. and a height not more than 1,000 feet.

A.M. S.1636/I
Enc.54A

C.C. File 7010/
16 Enc.39A

On the same day the Air Ministry notified Bomber and Coastal Commands that an allocation of 200 mines was to be made for April, of which 45 were to go to Coastal Command, and were being sent to North Coates Fitties, from which station their aircraft would operate. It was also arranged that the Armament Officer of No. 22 Squadron and four of his staff should go to Gosport for a short course on the handling of magnetic mines. On 6th April the Admiralty informed the Air Ministry that one Lieutenant Commander and one Petty Officer were to be

C.C. File 7010/
16 Enc.51A

attached to each station (1) to advise on the handling of mines, with a civilian Fitter and Fitter's mate to examine the mines after transit. The personnel were scheduled to arrive at their respective stations on 16th April.

(g) Final plans

A.M. S.1636/I
Enc.65A

On 8th April a meeting was held at the Air Ministry, at which Naval Staff were present, to discuss the final plans for minelaying. It was again emphasised that as few risks as possible should be taken of allowing the enemy to recover a mine intact. The Germans at the outset of their mining campaign had paid too little attention to this, and we had been able to learn the secret of their mines and take appropriate counter measures. The exact areas for laying were decided upon, the result of trials having shown that the splash from a mine dropped from 500 feet was unlikely to be seen from a distance of a mile. It was pointed out that care should be taken not to lay mines within a mile of a lightship. The possibility of mining on clear but moonless nights was discussed, but it was agreed that the first operations should be carried out in moonlight, on the greatest possible scale, and widely distributed. The A.O.C.-in-C's Bomber and Coastal Commands were to decide when their joint action should begin, but if the weather was unsuitable in either the Baltic or the North Sea at that time, the operations should be concentrated on the clear area, and not postponed unless it was unfit for laying in both areas. The scale of effort was also decided, the Elbe, Kiel and Lubeck receiving priority with 38 mines each. These areas were the responsibility of Bomber Command; Coastal Command was to lay 28 mines in the Jade-Weser and 20 in the Ems areas. It was hoped that the first minelaying would pass unnoticed as extensive reconnaissance had been carried out in the previous four weeks, and for that reason it was decided that no long delay bombs should be dropped as diversions at the time of the first laying, as the detonations would be likely to put coastal watchers on their guard. It was however agreed that it would be useful to drop them in Kiel Fjord and Schillig Roads, on clear nights after the moonlight period.

(ii) Opening Phase of the Campaign to the fall of France

(a) Minelaying during the Norwegian Campaign

A.M. Signal
M121 (File
IHK/33)

An Air Ministry signal was sent on 11th April authorising Bomber Command to start minelaying as soon as eight mines were available, and detailing the areas for the first lay. Coastal Command was authorised to start as soon as practicable. In the Coastal Command Operational Instruction No. 12 issued on 12th April aircraft were warned to be ready for mining operations commencing on the night of 17/18 April. Operational Instruction No. 13 issued later the same day warned four Beauforts of No. 22 Squadron to start laying at dusk, or soon after, on the night of 12/13 April in the Elbe or Schillig Roads, as German naval forces breaking back from the North Sea after the invasion of Norway might make use of the Elbe or Wilhelmshaven; owing to the weather this operation was not carried out. The first minelaying was carried out by Bomber Command on the night of 13/14 April. Coastal Command commenced operations on the night of 15/16 April when nine Beauforts of No. 22 Squadron

No. 16 Group
O.R.B. April
Appendices

-
- (1) The 6 Bomber Command squadrons were to operate from Scampton, Hemswell and Waddington.

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were sent to lay in the Jade-Weser area (1). Six of these aircraft were successful, two returned with their mines, having failed to locate the target, and one failed to return.

B.C. File
S.23824/Ops(b)

These operations with magnetic mines were given the code name "Gardening", the mine being known as a vegetable. The various areas in which these vegetables were "planted" were given alphabetical letters as they came into use, and when a lay was made the area was referred to by a vegetable name commencing with the same letter as that given to the area; thus the 6 mines successfully laid in the Jade-Weser, area Y, were referred to as 6 Yams. (See appendix XIII and Map XXI.)

A.H.B. IRk/30/7
Enc.1A

A.M. Signal
X.343 20th April

Owing to the heavy mining activity by German aircraft in the Thames estuary on the night of 17/18 April the Admiralty requested that security patrols (2) should be recommenced. This was not possible, however, in view of the bombing effort required in Scandinavia, but the Air Ministry informed the A.O.C.s.-in-C of Coastal and Bomber Commands on 26th April that, at their discretion, returning gardeners should machine gun the seaplane bases and flare paths in the Heligoland Bight.

C.C. File 7010/16
Enc.70A

A signal (AP/116) was sent by H.Q. Coastal Command to No. 16 Group on 20th April authorising the employment of mine-laying of Fleet Air Arm Swordfish of No.815 squadron, then stationed at Bircham Newton and operating under Coastal Command. Operations were to start as soon as the necessary modifications to the aircraft, for fuzeing the mine, could be made, and the mines collected from North Coates. The first operation by six of these aircraft was successfully undertaken on 23rd April, without loss, the mines being laid in the Wester Ems. (3)

A.M. Signal X676

On 24th April the Air Ministry signalled Coastal Command to take over the planting of the Elbe from Bomber Command as from that date, the latter being ordered to plant the Kiel area. Arrangements were made for No. 22 Squadron to take over the Elbe area while continuing to plant the Jade-Weser, and No. 815 Squadron was to plant the Ems. On 27th April the Admiralty requested that the 26 remaining mines allocated to Coastal Command for April should be laid 10 each in the Jade-Weser and Ems areas and six in the Elbe; after April 25th however, minelaying operations by both Coastal and Bomber Commands had to be cancelled owing to fog in the North Sea. A total of 19 mines were laid by Coastal Command during April, six in the Ems and thirteen in the Jade-Weser

C.C. Signal
AP/123

C.C. File 7010/
16 & 83A

- (1) These were two rectangular laying areas in the Jade-Weser.

A.

53° 50' 00"N 07° 48' 36"E
53° 50' 42"N 07° 46' 12"E
53° 51' 36"N 08° 01' 12"E
53° 52' 12"N 08° 01' 00"E

B.

53° 57' 18"N 08° 00' 00"E
53° 57' 00"N 07° 58' 48"E
53° 54' 48"N 08° 02' 24"E
53° 54' 24"N 08° 01' 15"E

Note: Not to be dropped within a
mile of the Aussenjade Lighthouse

(S.1636/I enc. 75B)

- (2) Patrols had been maintained by Bomber Command until the commencement of the minelaying campaign over Sylt and other enemy seaplane bases from which minelaying aircraft left.
(3) The code name for the Ems estuary was Xeranthemum. The area was divided into two, a rectangular area covering the Wester Ems.

A.

53° 36' 30"N
53° 36' 00"N
53° 38' 36"N
53° 39' 00"N

06° 21' 00"E
06° 21' 42"E
06° 26' 18"E
06° 25' 30"E

and B. A Circular Area with radius ½ mile from the position 53° 33'N x 06° 04'E.
The latter was not planted during April in accordance with A.M. Signal X900.

areas. Bomber Command laid 109 mines in the Elbe, Kattegat, Kiel Canal, Belts and Western Baltic areas.

A.M. Signal
X298

Form Green
CH/G6/29/4

No.16 Group ORB
May Appendices

C.C. File 7010/16
Enc. 97A

In view of the serious situation in the Norwegian Campaign, and at the request of the Admiralty, it was decided on 28th April that No. 22 squadron should be taken off minelaying and moved to a station within bombing range of Stavanger. Accordingly the Squadron was ordered to move to Lossiemouth on 29th April. Owing to the weather they did not move until 1st May, and returned the following day, six aircraft being sent to Bircham Newton in readiness to take over stand-by duty on 2nd May from Bomber Command Blenheims in case any move was made by the enemy liners Europa and Bremen, and enemy warships then in Wilhelmshaven and Schillig Roads. On 4th May the ruling was made that No. 22 Squadron was to keep a minimum striking force of four Beauforts with torpedoes at Bircham Newton. The remainder of No. 22 Squadron aircraft were to be employed on minelaying. If available aircraft permitted the number of aircraft at Bircham Newton was to be increased to six. No. 815 Squadron was to be employed on minelaying only.

(b) Minelaying during the invasion of the Netherlands and the French campaign

A.M.
S.1636/I Enc. 78A

The Admiralty wrote to the Air Ministry on 4th May concerning the progress of the minelaying campaign. It had been hoped that some 200 mines would be laid during the April moon, and 200 during May and the ensuing months. In point of fact at the time of writing only about 160 mines had been laid, and as successes had been achieved(1), it was considered essential that the minelaying effort should keep pace with production. The present production rate of 200 per month, it was stated, was being stepped up to 400, and it was hoped that the production of parachutes and fittings would keep pace with this. As it was understood that both Bomber and Coastal Commands could lay mines on starlight as well as moonlight nights, and assuming that they could lay on two nights per week, the Admiralty considered that not less than three squadrons of minelaying aircraft would be necessary to keep pace with production, and requested that aircraft should be made available for the purpose; they also requested that when the production rate exceeded the rate of laying, more aircraft should be made available. The choice of areas for minelaying would depend upon information on the effectiveness of present laying, on enemy sweep operations and movements of shipping, upon reports by our aircraft as to whether the areas were suitable for laying, and on movements of our own surface vessels and submarines; new areas would be selected as a result of information received. In view of the invasion of Norway and Denmark, and the possible invasion of the Netherlands, the Admiralty attached the greatest importance to sustained effort in minelaying.

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- (1) Naval Intelligence had reported that from Foreign Press and other sources it was learnt that during April 11 ships had been sunk and 5 damaged by mines laid by Bomber and Coastal Commands. These ships were 1 Neutral damaged and 2 ships of unknown origin sunk; 1 train ferry sunk in the Great Belt and 2 damaged, and 8 German ships sunk and 2 damaged. One of the enemy ships sunk was known to be a troop transport, and a further 2 may have been transports. (N.I.D.1/1).

A.M.
S.1636/I
Min.80

A.M.
S.1636/I
Min.81

Ibid
Min.82

Ibid
Min.83

A.M.
S.1636/I
Encl.89A

A.M.
S.1636/I
Min.91

A.M.
S.1636/I
Enc.96A
CC/7016/16
Enc.211A
& 124A
C.C. File
7010/16
Enc.111A

The points raised in the Admiralty's letter were discussed in the Air Ministry. While appreciating the importance of minelaying operations the Director of Home Operations stated that he was unwilling to make any definite allocation of squadrons for the purpose. In the light of the results achieved, however, the Director of Naval Co-operation, believing that this form of anti-shipping warfare produced better results than bombing with smaller aircraft losses, advocated that Coastal Command Beauforts should be employed solely on minelaying, together with No. 812 squadron (Swordfish) of the Fleet Air Arm, then operating with Coastal Command. He further suggested that a request should be put to the Admiralty that No. 812 Squadron should remain on mining as long as possible, as efficiency depended largely on local knowledge. No. 815 Squadron, which had previously been engaged on minelaying, had been ordered to re-embark just as they were becoming used to local conditions. He thought that a forward minelaying policy would tend to dispel an invasion bogey, and when the march into the Netherlands began on 10th May he pressed for a return to minelaying as soon as possible. The Deputy Chief of Air Staff agreed that Beauforts should return to minelaying and suggested the use of as many Fleet Air Arm squadrons as were available, at the discretion of the C.-in-C. The Admiralty were informed that no satisfactory answer to their letter could be given in view of the existing land battle, but that the use of Hampden squadrons for minelaying would be reconsidered when they could be spared from operations with the land forces.

The Admiralty wrote again on 28th May stressing the great importance they attached to the prevention of the sailing of German ships from their North Sea and Baltic ports, and from the Norwegian ports then in their hands, considering the magnetic mine as one of the most important weapons to prevent any expedition sailing. (The evacuation of the B.E.F. from Dunkirk had already started). For this reason they urged that at least one Coastal Command and one Bomber squadron should be immediately and permanently allocated to minelaying.

Following this letter it was recommended that one Hampden squadron at least should be withdrawn from their existing operational undertaking of harassing enemy rail traffic, and transferred to minelaying. It would be a serious loss to the strategic offensive, but as the invasion bogey was looming large it was considered advisable. It was also suggested that this squadron should be put under the operational control of the A.O.C. No. 5 Group. Coastal Command was to be responsible for giving details of targets. A signal (X.247) to that effect was sent on 3rd No. 12 Squadron being chosen for the purpose.

When the Germans occupied the Netherlands, it was decided to extend minelaying areas to cover the Dutch coast. Coastal Command Operational Instruction No. 18 was issued on 17th May detailing three new areas, the estuary of the River Maas near the Hook of Holland⁽¹⁾, the Texel⁽²⁾ and IJmuiden⁽³⁾.

- (1) Code name for area Oysters. Mines were to be laid in water between 5 and 10 fathoms. Aircraft were to approach on NE and SW course following the coastline and the mines laid on a bearing of 045° across the mouth of the river (Coastal Command Operational Instruction No. 18).
- (2) Code name for area Limpets. This was a difficult area for laying owing to the prevalence of shallow water and shoals. Mines were to be laid in the main shipping channel, the Schulpengat, by the marker buoys at the Northern end. (Coastal Command Operational Instruction No. 18).
- (3) Code name for area Whelks. Area to be mined was semicircular with radius of one mile to the seaward of the position 52° 28' 00"N 04° 33' 06"E.

A.H.B.
II/K33

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Operational Instruction No. 22, issued on 29th May, created a further area, Terschelling Seegat in Boomkens Diep⁽¹⁾. On 4th June mining was extended to the Belgian Coast (A.P. 157) with the formation of a new area in the West Scheldt, off Flushing⁽²⁾. This was also regarded as a dumping ground for mines, if they could not be laid in other scheduled target areas. The first lays in the Maas and Texel were undertaken by Swordfish of No. 812 Squadron on 18th May when four mines were laid in the Maas and two in the Texel. This Squadron also laid the first mines off IJmuiden on 21st May, off Terschelling on 31st May and in the West Scheldt on 5th June. The other new area first planted in May was the subdivision of the Ems area⁽³⁾, mined by three Swordfish of No. 815 Squadron on 5th May. No. 22 Squadron laid their first mines in the Elbe⁽⁴⁾ on the night of 26/27 May.

Up to the end of May Coastal Command (including the Fleet Air Arm Squadrons) had laid 83 mines⁽⁵⁾; during the same period Bomber Command laid 180 mines. Because of

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- (1) Code name for area Mussels. The laying area was a narrow strip between Vlieland and Terschelling islands. Aircraft were to approach the Dutch coast South of Vlieland, and taking Vlieland lighthouse as the beginning of a run, mines were to be laid on a bearing of 028° true commencing 2 miles after the lighthouse, and continuing for 3 miles.
- (2) Code name for the area Flounders. This area was subdivided and finally defined by Coastal Command on 7th June, and known as Flounders Inner & Flounders Outer. Flounders Inner $\frac{1}{4}$ mile either side of line joining positions:-

51° 24' 30"N	03° 32' 40"E
51° 26' 30"N	03° 34' 00"E

Flounders Outer $\frac{1}{4}$ mile either side of line joining positions:-

51° 24' 10"N	03° 28' 10"E
51° 25' 15"N	03° 27' 00"E

- (3) Minelaying in this area was commenced at the request of the Admiralty (signal X1849), as it was believed that successes obtained from mining the main area would lead to diversion of traffic. This sub-area, and circle with radius of $\frac{3}{4}$ mile from centre at point 53° 33' N x 06° 04' E. was known as Xeranthemum 2. The code name was changed on 11th May (A.M. Signal X804) to avoid confusion, and the name Zinnius allotted to the area.
- (4) Code name for the Elbe was Eglantine. There were two laying areas:-
- | | |
|------------------------------|------------------------------|
| A. 54° 00' 00"N 08° 19' 36"E | B. 54° 04' 00"N 08° 17' 00"E |
| 53° 59' 36"N 08° 19' 00"E | 54° 04' 24"N 08° 16' 12"E |
| 54° 02' 36"N 08° 14' 48"E | 53° 59' 24"N 08° 07' 42"E |
| 54° 02' 12"N 08° 14' 00"E | 53° 59' 00"N 08° 08' 12"E |
- (5) 19 Mines were laid in April, of which No. 22 Squadron laid 13.
64 Mines were laid in May, of which No. 22 Squadron laid 12, and the remaining 58 mines were laid by Nos. 812 and 815 Fleet Air Arm squadrons.

SECRET

324

Admty.
NID 1/3

A.H.B.
II K/28
Enc.3A

A.H.B.
II K/28
Encs.4A
& 7A

Ibid
Enc. 10A

A.H.B.
IIK/28
Enc.20A

the difficulties of obtaining information the full results of this minelaying were not known. Such information as there was came principally from neutral countries, and with the German invasion of the West the sources of information covering the areas laid by Coastal Command were mostly cut off. The Naval Intelligence Summary issued on 5th June estimated that from all magnetic minelaying⁽¹⁾ 14 enemy ships including two mine-sweepers had been sunk and four damaged, 10 neutral ships sunk and one damaged⁽²⁾. It was stated on the report that it was not suggested that these were the only losses incurred. In addition to actual sinkings it was believed that the minelaying had caused considerable disruption in German shipping traffic. Naval Intelligence reported on 1st May that information had been passed through from Delfzijl that traffic on the Ems was at a complete standstill owing to mines laid in the Huibert Gat. German shipping in Delfzijl had been ordered to stay there until further notice, and it was expected that the Germans would begin sweeping operations to free their ships blocked there. Later reports confirmed that this stoppage lasted four days ending on 1st May and claimed that at least two German ships had been sunk, and that the flow of transports to the Ruhr was thrown out of gear. In their weekly Summary (N.I.D. 1/1) Naval Intelligence Division, besides referring to the stoppage in the Ems, state that on 3rd May the Kiel Canal was closed to neutral shipping, and that all German marine lights west of 12° 25'E. had been extinguished. A further tribute to the success of minelaying was reported on 2nd June namely that Finnish Insurance Companies had increased their rates on ships proceeding from Finland to Germany by 50% from 23rd April and that one Finnish Shipping Line had suspended all ships to Germany. There were no reports from the Elbe or Jade-Weser areas since these were not near any neutral territory.

On 2nd June the Admiralty wrote to the Air Ministry referring to the laying of "B" bombs (converted as floating mines) off Den Helder on the night of 31st May/1st June, against enemy Motor Torpedo Boats; it was requested that no more of these mines should be laid until further tests had been carried out to ascertain how long they remained live, as they might endanger our own naval forces operating in the areas concerned.

(iii) Anti-invasion Measures, June-October, 1940

(a) Defensive measures

A.M.
S.1636/I
Enc.101A

With the fall of France, and the possibility of invasion, the Admiralty brought forward a plan to lay mines at the

- (1) At the outset of the campaign our submarines laid mines in the Kattegat; this area was subsequently taken over by Bomber Command.
- (2) Of these losses those in areas covered by aerial mine-laying were estimated to be:-

German losses	9 sunk	3 damaged
Neutral losses	3 sunk	1 damaged

The exact tonnage of these losses was not known, but it was estimated as being well over 27,000 tons (N.I.D. 1/3). The only reports from areas mined by Coastal Command were those for the Ems, where it was estimated that 3 ships were sunk, including two minesweepers, and 1 damaged.

Ibid
Enc.103A

Ibid
Enc.105A

C.C. File
S7011/
12/12

entrances of our own ports to deny their use to the enemy. On 26th June this plan, together with a list of ports and suggested laying areas, was sent to the Air Ministry for consideration. This letter was forwarded to Coastal Command, as being the Command familiar with the areas in question, and the Admiralty were informed that the Air Ministry were making the administrative arrangements necessary to implement the plan at short notice. In their reply on 24th July Coastal Command stated that only one unit in the Command was capable of laying mines at that time, No. 812 (F.A.A.) as the Beaufort squadrons were on limited flying duties only while they were being fitted with new engines. Even when the Beauforts were again serviceable the number of aircraft available for the operation would be comparatively few, and in many cases would be situated at some distance from the ports concerned; they suggested therefore that the Admiralty should be approached to consider the use of any torpedo carrying Fleet Air Arm aircraft, suitably situated, to act in co-operation with the Command.

(b) Offensive measures

A.H.B.
IIk/33

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July

To counteract concentrations of shipping for a possible invasion further minelaying areas were instituted at the request of the Admiralty, and operations against Dutch and Belgian Ports continued.⁽¹⁾ On 26th June two new areas, one off Dunkirk⁽²⁾ and the other off Boulogne⁽³⁾ were detailed by Coastal Command (AP.203) and were mined on the same night by No. 812 Squadron. On 2nd July a general area between the East Scheldt and Maas Delta⁽⁴⁾ with four specific laying areas was instituted, (AP.299) and the first two of the sub-areas mined for the first time on the night of 3/4 July by aircraft of Nos. 812 and 825 squadrons, and the second time on 5th July. The fourth new area off Zeebrugge⁽⁵⁾ instituted on 5th July was first mined by No. 812 Squadron on 8th July.

In August Bomber Command requested that they should not have to lay mines during the moonlight period, but should

- (1) During June 1940 a subsidiary effort was made to foul the waterway up the Maas River by the use of small W mines laid by aircraft. This has been described in Chapter V (c) Page 159
- (2) The code name for this area was Clams, but was later changed on 14th October, 1940 to Cypress at the request of the Admiralty (C.C.File 7010/16 enc.191A). The area to be mined was in the Rade de Dunkirk between the meridians of 02° 15' 24"E and 02° 22' 12" E.
- (3) The code name for the area was Dabs but was changed on 15th October, 1940 to Dewberry. The area to be mined lay between the breakwaters in the approximate position 50° 44' 36"N. x 01° 34' 12"E.
- (4) The code name for this area in general was Newts, and the sub-divisions called Newts 1, 2, 3 and 4.

<p>Newts 1. A rectangle within the following positions</p> <table border="0" style="width: 100%;"> <tr><td>51° 49' 18"N</td><td>04° 03' 36"E</td></tr> <tr><td>51° 49' 51"N</td><td>04° 05' 06"E</td></tr> <tr><td>51° 49' 36"N</td><td>04° 05' 36"E</td></tr> <tr><td>51° 49' 09"N</td><td>04° 04' 00"E</td></tr> </table> <p>Newts 3. Rectangle enclosed by line joining positions</p> <table border="0" style="width: 100%;"> <tr><td>51° 39' 45"N</td><td>03° 43' 54"E</td></tr> <tr><td>51° 40' 09"N</td><td>03° 43' 45"E</td></tr> <tr><td>51° 40' 18"N</td><td>03° 45' 15"E</td></tr> <tr><td>51° 39' 56"N</td><td>03° 45' 15"E</td></tr> </table>	51° 49' 18"N	04° 03' 36"E	51° 49' 51"N	04° 05' 06"E	51° 49' 36"N	04° 05' 36"E	51° 49' 09"N	04° 04' 00"E	51° 39' 45"N	03° 43' 54"E	51° 40' 09"N	03° 43' 45"E	51° 40' 18"N	03° 45' 15"E	51° 39' 56"N	03° 45' 15"E	<p>Newts 2. Rectangle enclosed by line joining positions</p> <table border="0" style="width: 100%;"> <tr><td>51° 44' 32"N</td><td>03° 48' 54"E</td></tr> <tr><td>51° 45' 03"N</td><td>03° 48' 54"E</td></tr> <tr><td>51° 44' 58"N</td><td>03° 50' 24"E</td></tr> <tr><td>51° 44' 32"N</td><td>03° 50' 24"E</td></tr> </table> <p>Newts 4. Area enclosed by line joining</p> <table border="0" style="width: 100%;"> <tr><td>51° 35' 51"N</td><td>03° 35' 12"E</td></tr> <tr><td>51° 36' 24"N</td><td>03° 35' 12"E</td></tr> <tr><td>51° 36' 31"N</td><td>03° 37' 06"E</td></tr> <tr><td>51° 36' 03"N</td><td>03° 37' 06"E</td></tr> <tr><td>51° 35' 51"N</td><td>03° 36' 24"E</td></tr> </table>	51° 44' 32"N	03° 48' 54"E	51° 45' 03"N	03° 48' 54"E	51° 44' 58"N	03° 50' 24"E	51° 44' 32"N	03° 50' 24"E	51° 35' 51"N	03° 35' 12"E	51° 36' 24"N	03° 35' 12"E	51° 36' 31"N	03° 37' 06"E	51° 36' 03"N	03° 37' 06"E	51° 35' 51"N	03° 36' 24"E
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51° 36' 03"N	03° 37' 06"E																																		
51° 35' 51"N	03° 36' 24"E																																		
- (5) The code name for area was Barnacles. There were two areas to be mined.

<p>I. Rectangle enclosed by joining following positions</p> <table border="0" style="width: 100%;"> <tr><td>51° 23' 43"N</td><td>05° 11' 24"E</td></tr> <tr><td>51° 22' 33"N</td><td>03° 13' 18"E</td></tr> <tr><td>51° 20' 09"N</td><td>03° 09' 27"E</td></tr> <tr><td>51° 21' 21"N</td><td>03° 07' 36"E</td></tr> </table>	51° 23' 43"N	05° 11' 24"E	51° 22' 33"N	03° 13' 18"E	51° 20' 09"N	03° 09' 27"E	51° 21' 21"N	03° 07' 36"E	<p>II. Circular area with radius of 2 miles from position 51° 22'N 02° 58'E</p>
51° 23' 43"N	05° 11' 24"E								
51° 22' 33"N	03° 13' 18"E								
51° 20' 09"N	03° 09' 27"E								
51° 21' 21"N	03° 07' 36"E								

A.M.
S.1636/1
Enc. 132A

concentrate on bombing at that time. This request had to be refused after consultation with the Admiralty, and a small minelaying effort was ordered for that period of about six aircraft a night. From their own experience the Admiralty considered it essential to keep up consistent minelaying so that enemy sweepers should not have time to overhaul their gear, or their crew have a period of rest. An expression of the appreciation felt for the work of the minelaying squadrons was sent to the Air Ministry by the Admiralty on 18th August with the request that it might be passed on to the squadrons concerned. It was estimated that some 780 mines had been laid up to date, of which Coastal Command had laid approximately 260. They stated that information about results could not be obtained from all areas, but that reports from areas under the observation of neutral observers showed that important results had been achieved.

A.M.
S.1636/1
Enc.134A

C.C. File
7010/16
Enc.153A

Minelaying was temporarily suspended on 29th August on receipt of a signal from the Admiralty, who requested that no mines should be fitted until further notice, and that mines already issued should undergo a depot test. Naval ratings were sent on 7th September to test mines, and the commands were authorised to resume minelaying with mines fitted under the new tests.

Ibid
Enc.158A

C.C. File
7010/16
Enc.164B

In September a "Guide for Minelaying by Aircraft" was prepared by Coastal Command for the Air Ministry in which the policy of minelaying, the tactical limitations of the Magnetic mine, and the selection of targets were outlined. It was estimated that to that date over 100,000 tons of enemy shipping had been sunk by mines. In point of fact, postwar statistics reveal that only 58,000 tons had been sunk by R.A.F. laid mines up to the end of August 1940.

No.16 Group
ORB
Appendices
September

On 17th September the Admiralty found it necessary to suspend all minelaying operations in the North Sea and English Channel areas west of Flushing (Admiralty Signal 1929/17/IX) in order not to endanger operations by our own naval craft in these waters. Immediately prior to this, minelaying at the approaches to Le Havre⁽¹⁾ had been undertaken by No. 812 Squadron during the nights of 11th, 12th and 13th September, laying a total of 11 mines. This was part of the anti-invasion measures as there were considerable concentrations of barges and other small craft in the harbours⁽²⁾. With the limitation of target areas, minelaying was started in only one other new area in September, when a detachment of No. 42 squadron, operating under No. 15 Group, laid three mines off Lorient⁽³⁾ on 28th September. Similarly only one new area was promulgated in October, in the East Scheldt, off Terneuzen⁽⁴⁾. This area was planted for the first time on

-
- (1) Code name for the area was Anemones; first mined in accordance with Admiralty Signal XIII 11th September.
 - (2) A report from Admiral France to the German High Command shows that on 13th September 59 A. Barges, 20 Tugs and 19 Troop Transports were in Le Havre (NID.24/T.85/45).
 - (3) Code name for this area was Artichoke.
 - (4) Code name for the area was Juniper; it was divided into 3 areas.
 - Juniper 1. The Middlegat, mines to be laid in the main ship channel as defined by the port and starboard hand buoys above the line drawn 270° from No. 20 red buoy and below the line joining No. 28 red and No. 23 black buoy.
 - Juniper 2. The East Scheldt. Area enclosed by line joining following points:

51° 31' 06"N	04° 02' 00"E
51° 31' 01"N	04° 01' 06"E
51° 31' 06"N	03° 58' 09"E
51° 32' 01"N	03° 59' 03"E
 - Juniper 3. Terneuzen. The main ship channel as defined by the port and starboard hand buoys above the line drawn 200° from No. 9 black buoy, and below the line joining No. 12 black buoy and No. 14 red buoy.

C.C. File
7010/16
Enc.187A

15th October by Swordfish of No. 812 Squadron. Intelligence reports had shown that the enemy were making considerable use of the port of Antwerp, and that a large volume of traffic was moving through the South Beveland, and to a lesser extent, through the Terneuzen-Ghent Canals. 10 mines were laid in this area during the month.

(z) Technical developments of the mine

A.M.
S.1636/I
Enc.99A

A.M.
S.1636/I

C.C.
S.7010/16
Enc.141B

Developments with the mechanism of the mine itself had been proceeding, and when mining had been in progress for some weeks it was considered possible that the enemy might have devised a method of sweeping to counter the mines. The Admiralty, in order to keep a check on this, requested on 13th June that reconnaissance aircraft should take note of enemy sweeping formations, and the types of vessel and gear used, so that measures could be taken accordingly. They also stated that in future mines were to be fitted with a clicker, or periodic delay mechanism and/or a double acting firing mechanism, which should counteract any successful sweeping methods devised so far. On 14th July the Admiralty again wrote concerning the periodic delay mechanism for mines, which they said they considered to be of maximum value in areas where laying was likely to be observed, or where regular sweeping was undertaken; in other waters its value was not so great though unexpected losses in waters considered safe would have a valuable effect on enemy morale. It had been decided that as it was still necessary for the settings to be adjusted at the depot where the mine was prepared for use, a fixed proportion of all magnetic mines issued should have certain definite period delays(1); the resultant pool of mines issued to each Command was to be used indiscriminately for all operations, and specially earmarked mines would only be issued for particular operations. The Admiralty believed, however, that the best results would be obtained if settings were calculated for each particular operation and areas, and in order to achieve this, experiments were being made to obviate having to set the delay mechanism at the depot.

A.M.
S.1636/I
Enc.165A

C.C. File
7010/16
Enc.214A

Two modifications to the Magnetic mine Mark I were introduced in September, the IMP which detonated on impact and the TIM which detonated immediately if it landed on a solid surface, but did not detonate for six seconds if it landed in water. Developments were carried on with the period delay mechanism and on 17th December the Admiralty informed Coastal Command that in place of the existing mechanism a new one was to be fitted which could be adjusted on the stations. The policy of issuing 60% of all mines with ^{out} period delay mechanism was to be continued, and existing settings were to be used for all normal areas(2) with an increase of up to 6 periods delay when laying in narrow or regularly swept areas.

(1) Issue of mines was to be as follows:-

- | | | |
|-----|----------------|---------------------|
| (a) | No delay | 60% of mines issued |
| (b) | 1 period delay | 20% of mines issued |
| (c) | 2 period delay | 10% of mines issued |
| (d) | 3 period delay | 10% of mines issued |

(2) Normal adjustment of mines issued fitted with period delay mechanism were as follows:-

- | | |
|-----|----------------|
| 50% | 1 period delay |
| 25% | 2 period delay |
| 25% | 3 period delay |

(d) Mine supplies

C.C. File
7010/16
Enc.142B

Ibid
Enc.142B

Ibid
Enc.143A

Early in July No. 5 Group complained to H.Q. Bomber Command that the organisation of minelaying was chaotic, both in the matter of the supply of mines and in the passing on of technical and operational information. The complaint was passed on to Coastal Command on 27th July, who in turn on 30th July, referred the whole question of the direction and scale of effort, of minelaying and the supply of mines to the Air Ministry, with the request that the position should be reviewed in the light of the difficulties that had arisen. In their letter it was stated that the original position with regard to targets and supply had been laid down on 3rd March, but during the latter half of May, owing to the position in France, operations by units of Bomber Command had been suspended. On 3rd June instructions had been given (A.M. Signal X247) for one Hampden squadron to return to minelaying; this squadron was to be under the operational control of Bomber Command, but the details of targets were to be given by Coastal Command. This practice, it seemed, had fallen into abeyance, as the last time that the Admiralty had sent orders to Coastal Command for transmission to Bomber Command was 8th June; since that date it appeared that they had notified Bomber Command direct of their requirements. Coastal Command had no objections to this procedure, so long as they were notified of Bomber Command's targets to avoid overlapping. Originally it had been laid down that Coastal Command should accept responsibility for minelaying from the Elbe westwards, but owing to the grounding of the Beaufort squadrons it had been necessary to hand over the Elbe and Jade-Weser areas temporarily to Bomber Command. The Admiralty had intimated that in addition to Holland, Belgium and North East France, minelaying was to be extended to the rest of the Northern French Coast, and also to the West Coast as far south as, and including, Bordeaux. For these reasons they requested that the distribution of areas between the two Commands should be reviewed and the approximate scale of effort in each area stated, so that proper distribution of mines could be made accordingly. It was also stated that there was considerable confusion as to the responsibility for the supply and distribution of mines. The attitude taken by Bomber Command in their letter of 21st July had been that since Coastal Command controlled mining operations, they should co-ordinate the supplies between the Command and No. 5 Group; but as that was not the position, as seen from previous instructions, Coastal Command believed that the allotment of mines should be the responsibility of Air Ministry under the same organisation as bomb supplies. The present arrangements with regard to supply were, they considered, both uncertain and unsatisfactory, and Coastal Command had also to keep crews standing by for supplies that had not materialised. In view of the present supply position Coastal Command were of the opinion that it was not necessary to keep 3 Hampden squadrons on minelaying, unless it was intended to start mining the French ports immediately.

A.M.
S.1636/1
Enc.122A

A.M.
S.46368

Bomber Command also raised the question of supply and the number of squadrons to be kept available for minelaying with the Air Ministry in their letter of 1st August. They stated that as there was only a maximum of 70 mines a week available, of which Coastal Command received 18, there was not sufficient to keep 3 squadrons on minelaying in accordance with Air Ministry Instructions of 24th July and suggested that until a reserve was built up only one squadron should be reserved for minelaying. The Air Ministry agreed that only one squadron should be employed until such time as

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A.M.
S. 1636/1
Enc.123A

the supply of mines justified increasing the effort to the maximum of three squadrons.

S.1636/1
Enc.130A

On the main issues the Air Ministry issued a directive to both Commands on 9th August in which it was laid down that Bomber Command should have operational control of its own squadrons engaged in minelaying, while details of the areas to be mined should be given by Coastal Command in accordance with the instructions given on 3rd June. It had been arranged that the Admiralty should send all details of requirements to Coastal Command, who would pass them on to Bomber Command. The distribution of the limited number of mines available would be governed by the location of areas to be mined, and for this reason Coastal Command was to act as the mine distributing authority, receiving all demands for mines and regulating their distribution, in consultation with the Admiralty, and in the light of existing and projected operations.

C.C. File
7010/16
Min.146

To ensure that this scheme worked smoothly Coastal Command decided that one of their staff should visit the Admiralty from time to time, to check up on records, and to plan laying areas for the next month, so that the distribution of mines to the various aerodromes and to No. 5 Group could be made. A form was drawn up for a weekly return of mines held on stations, so that the position with regard to the stocks held in Bomber Command would be known.

S.1636/I
Enc.130A

The question of the provisioning of mines had not, however, been satisfactorily settled by the directive of 9th August, and the matter was brought up again soon after. Within Coastal Command itself the question was raised immediately after the issue of the directive in a minute dated 14th August by the Armament Officer, following a conversation with Air Ministry Staff. He pointed out that there were three groups of mines in use, the normal magnetic and clicker mines used by both Coastal Command and Bomber Command, the hydrostatic and the slight delay mine for shallow water basins, (that is the equivalent of a depth charge) used by Coastal Command only, and the soluble plug type used by Bomber Command only; the latter was a non-magnetic delay mine, fired by the dissolving of the plug, and not by the passing of a ship. Bomber Command requirements for this type were so vast that it was thought that they would have to be provisioned in the normal way as for bombs, though Coastal Command was the controlling authority for magnetic mines. The question was not taken up immediately but on 20th September the A.O.C.-in-C., Coastal Command wrote to the Air Ministry putting forward the points raised in this minute, and requesting guidance as to whether or not Coastal Command was to be responsible for the provisioning of magnetic mines only. Furthermore it was requested that the Admiralty should be asked to give estimates of the number of mines that would be supplied in the ensuing months, together with the approximate scale of effort required from both Bomber and Coastal Commands, and the probable number of mines required to be laid in each area.

C.C. File
7010/16
Min.148

C.C. File
7010/16
Enc.168A

A.M.
S.1636/1
Enc.165A

Ibid Mins.
166 & 171

Following conversations with the Admiralty, the Air Ministry decided that the question of mine distribution should be left in the hands of the Admiralty under the Director of Torpedoes and Mines, until such time as bomb/mine situation was clarified, and a C.A.S. decision given on policy. The Admiralty preferred that mines should

A.M.
S.1636/I
Enc.174

come from a central pool, rather than the possible alternative of the R.A.F. instituting their own filling establishment. Coastal Command should state their requirements to the D.T.M. who would allot the mines in consultation with the Admiralty. However, in accordance with the request for further information the Admiralty were asked to give details of the number of mines available and the scale of effort required.

C.C.File
7010/16
Enc.200A

On 24th October Bomber Command forwarded to the Air Ministry the minutes of a meeting held between representatives of Bomber and Coastal Commands and D.T.M. staff at the Admiralty, on the provisioning of mines and bombs. Provisioning, it was stated, was based on immediate requirements and not on any definite policy; it was considered that there should be a fixed policy for the different types of mines, and that the requirements of the different Commands should be co-ordinated. The old procedure had worked well when there was a limited number of one type of mine only, but with the expansion of minelaying it was considered that it would be more satisfactory if the R.A.F. requirements were handled by the Director General of Equipment. The mining Department believed that they should handle stores that came within the definition of mine, and that some other Department should deal with other types. For these reasons they advocated a review of policy. No immediate steps were however taken and a decision was not reached by the Air Ministry until 6th January, 1941 when a directive was issued in reply to Bomber Command's letter. In this it was stated that it was not practicable at the time to issue mines as an R.A.F. supply; Coastal Command was, therefore, to remain the controlling authority, though the whole matter would be reviewed later.

C.C.File
S.15171
Enc.5A

(iv) Limited Minelaying October - December 1940

(a) Admiralty requirements

A.M.
S.1636/II
Enc.2A

In their reply on 23rd November to the Air Ministry letter of 17th October, the Admiralty outlined a proposed minelaying policy for the ensuing months. They stated that the magnetic mining effort should be concentrated against the enemies' base ports⁽¹⁾ and the approaches thereto, and only when these requirements had been met should effort be expended on their lines of communication along the Dutch-Belgian and North French Coasts. Subject to alterations for operational reasons the bases had been classified into categories according to their

(1) German base parts were:-

- (i) The German and Danish ports serving Norway, and the equivalent ports in Norway and Sweden.
- (ii) The German North Sea ports.
- (iii) The French Atlantic Coast Ports.

relative importance, (1) and the initial effort to be expended on each area was given. It was pointed out that the more important an area was to the enemy the greater the effort would be to keep it open; it should, therefore, be assumed that mines laid in such areas would either be expended or swept in a comparatively short time, making it necessary for them to be replenished at frequent intervals; the more important the area the more frequent should be the laying. Because of the difference in size and shape of the areas it had not been easy to assess the necessary minelaying effort for each area, but as a lay of six mines endangered sufficient water to make its clearance necessary before traffic could move freely, 6 mines had been chosen as a unit for calculation. Based on this it was calculated that laying in the most important areas should be at a rate of one lay a week, that is 24 mines a month; (2) the total lay each month necessary to cover all recommended areas was calculated as 540 mines (3), which figure was double the best four weeks laying to that date. The Admiralty, it was stated, appreciated that the aircraft shortage and the many other calls made upon them, had prevented an increased scale of effort in the previous month, but they expressed the hope that as the position of both aircraft and crews improved, the Air Council would meet their requirements. The production of Mark I mines was at a rate of approximately 700 a week and if the conversion to T.I.Ms. and I.M.Ps. was not excessive all requirements should be met.

(1) Classification of ports was under the following headings:-

- A. Areas of greatest importance.
 - B. Important areas but not so important as A.
 - C. Unimportant areas.
 - D. Special areas which should only be mined if specially ordered.
- Ports under these headings were as follows:-

Classification A.

Baltic, chief ports including Kiel (responsibility of Bomber Command)		
North Sea	Elbe River	Jade-Weser River
	Ems River	Huibert Gat
Bay of Biscay	Brest	Lorient
	Gironde River	

Classification B

Baltic	Smaller ports and channels	
North Sea	Maas River (Hook of Holland)	
	Antwerp	
Bay of Biscay	Loire River	(St. Nazaire)
	La Pallice	(Pertuis d'Antioche)

Classification C

Baltic	The Belts	
North Sea	Terschelling Gat	Texel (Den Helder)
	Ijmuiden	Maas and East Scheldt Rivers
Bay of Biscay	Bayonne	

Classification D

Baltic	Kiel Canal	
North Sea	Haligoland	
Bay of Biscay	St. Jean de Luz	
North Sea & Channel	Flushing	Boulogne
	Zeebrugge	Le Havre
	Ostend	River Seine Mouth
	Dunkirk	Cherbourg
	Calais	St. Malo

(2) Scale of minelaying in the various classified areas was given as:-

- Class A - One lay of 6 mines per week or 24 mines per month
- Class B - One lay of 6 mines per fortnight or 12 mines per month
- Class C - One lay of 6 mines per month.

(3) Summary of requirements of mines in the various classified areas was:-

Class	Initial Lay	Monthly Lay
A.	72	336
B.	NIL	156
C.	6	48
D.	NIL	NIL
Total	78	540

No provision was made for mines in classification D as they were special operational areas, and not regular laying grounds.

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A.M. S.1636/II
Min.1

A.M. S.1636/II
Min.2

A.M. S.1636/II
Enc.5A

In view of the limitations of available minelaying resources the Admiralty's plan was regarded by the Air Ministry rather as an "ideal" minelaying programme than a possible achievement at that time, for it was estimated that it would require five squadrons with an initial establishment of 16 aircraft, engaged solely on minelaying, to fulfil the programme. There were two alternatives open to the Air Ministry to meet the programme with existing resources; either to continue to use Bomber Command aircraft as and when the strategical situation allowed, or to allocate squadrons to Coastal Command and relieve Bomber Command of minelaying altogether. The Director of Naval Co-operation recommended that three Bomber squadrons should be given to Coastal Command so that they might be entirely responsible for all minelaying operations; he estimated that with three squadrons and the existing Beaufort squadrons the Admiralty's programme could be fully carried out. The Deputy Chief of Air Staff commenting on this said "the effect of our mining has been an outstanding contribution to our war effort. Had we the means it might have already proved a decisive factor in the sea war. It may still do so", but while admitting this he deplored the further dispersal of "what remains of the miserable bombing effort of our colossal organisation". He suggested accordingly that economical minelaying was best achieved by the maximum possible lay on each trip; as the first twenty Manchesters and some of the first Stirlings were likely to be issued in a condition unfit for full operational employment in heavily defended areas, it had been suggested to the Expansion and Re-equipment Policy Committee that at least some of these aircraft could be used to form minelaying units for use in the more open ports in the Baltic, where opposition was not likely to be serious. If this scheme was approved in principle he considered that the possibility of meeting a large part of the mining requirements in this way should be investigated. These operations should provide a good test for the capacity of new types of aircraft under the easiest operational conditions, and be useful training for crews.

Before the question was settled the Admiralty wrote again, on 12th December, saying that when the Air Council had agreed to operate long range aircraft in defence of our trade in the N.W. Approaches, the Admiralty had agreed to a reduction in the numbers of long range bomber aircraft used on minelaying; in practice, however, minelaying by Bomber Command had virtually ceased(1). A memorandum on minelaying by the C.-in-C. Home Fleet, forwarded together with the Admiralty letter, stressed the importance of maintaining the scale of effort, especially against Lorient and Bordeaux (the bases for German and Italian submarines attacking shipping on our trade routes) and the Kiel Canal and its approaches (the Bismarck and Tirpitz were likely to come into commission, and U-boats used the approaches); minelaying was useful not only because of the casualties it inflicted on enemy shipping, but also as nuisance value since it led to the diversion of large quantities of material to equip sweepers.

(1) Admiralty figures of numbers of aircraft employed on minelaying:

	<u>Bomber Command</u>	<u>Coastal Command</u>
October	63 (61)	45 (45)
November	35 (31)	19 (19)
December (10 days)	7	12

The figures in brackets are the numbers of mines laid during the months in question, taken from Admiralty Mining statistics.

A.M. S.1636/II
Enc.8A

A reply to both the Admiralty letters was despatched on 26th December in which it was stated that as additional aircraft and crews became available the Air Ministry would give careful attention to the mining programme put forward by the Admiralty. When possible the present minelaying effort would be increased, though the scale of winter minelaying especially in distant areas, could not be compared with laying in the summer and autumn because of the adverse weather conditions; also Bomber Command aircraft were compensating for their small minelaying programme by attacks on submarine building yards in Germany and on enemy held bases. Consideration was being given to the use of new heavy bombers for the more distant areas, and as some of these aircraft could carry 3 to 5 mines each trip they should shortly prove a valuable addition to the minelaying effort.

A.M. S.4334
Enc.31A

The decision to use heavy bombers for minelaying had been taken by the Expansion and Re-equipment Policy Committee in their meeting on 19th December. Following this decision Bomber Command were informed that No. 7 Squadron (Stirlings) and No. 207 Squadron (Manchesters) were to undertake sea mining so long as they were equipped with aircraft unsuitable for normal bomber operations; this would enable Hampdens to be released for bombing operations. They were instructed to implement these decisions, until the squadrons were equipped with a mark of aircraft suitable for bombing duties, when the question would be reviewed.

C.C. File
S.15171 Enc.1A

The A.O.C. Bomber Command wrote to Coastal Command on 4th January to say that Stirlings and the first twenty Manchesters were to be used for minelaying, but that owing to the various modifications that had to be made, it might be weeks or even months before the aircraft could be operational. Stirlings would be able to carry five or six mines, but would probably carry only three normally, to give them the necessary range, and Manchesters when modified would be able to carry four mines. The A.O.C.-in-C., Coastal Command was still of the opinion that if Coastal Command were given one squadron of bombers they could carry out the Admiralty's programme fully, but the question was not opened again immediately.

Ibid Min.3

(b) Operations

A.M. S.1636/II
Enc.12A

It was announced by the Admiralty on 23rd December that minelaying in the North Sea and English Channel west of Flushing, which had been suspended on 17th September, could again be commenced in certain areas, and generally as soon as the latest device for rendering mines safe within a given period was available. The life of the standard magnetic mine was about a year, but the new sterilising device that had been developed would limit the effective life of the mine to six weeks, so that they could be used to harass the enemy, without endangering our own operations a short period after laying. It was hoped also that mines fitted with a steriliser would serve to confuse the enemy as to our intended operations, as the complete cessation of mining in any one area over a long period inevitably drew attention to that area. Lists of areas where standard mines, and where mines with sterilisers only could be used were given, (1) together with details

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- (1) Standard magnetic mines could be used in the River Seine (Rade de la Carosse) area, where mining had already commenced, and in two new areas, one off Dieppe and the other off St. Malo. Mines fitted with sterilisers could be used in following areas where mining had been previously undertaken:-

Flushing	Zeebrugge
Boulogne	Dunkirk
Le Havre	Calais
Cherbourg	

and in two new areas one off Ostend and the other off Morlaix.

of new areas to be mined. Mines with sterilisers did not, however, come into general use until April 1941.

As the Channel was closed to minelaying, targets for October and November were off the Dutch and North German coasts, all gardens between the East Scheldt and Ems being planted. In December Coastal Command commenced laying, in two new areas. A detachment of No. 812 squadron, operating with No. 15 Group from St. Eval, laid 7 mines off Brest⁽¹⁾; this area had previously been planted by Bomber Command in August and again in October. Other aircraft of No. 812 Squadron operating with No. 16 Group first laid mines in the mouth of the Seine on 8th December⁽²⁾. Areas had been adjusted from time to time for operational considerations such as the intensity of anti-aircraft barrage. The laying area at Brest had been modified in October for this reason, and in December the area covering the approaches to Lorient was also extended so as to avoid the barrage but still to cover both approach Channels to the port. By this time Coastal Command were able to say that "nowadays everyone treats Gardening in quite a nonchalant way, except that there are one or two gardens in rather sticky localities such as round the mouth of the Scheldt, and the gardens off Brest".

(c) Statistics for 1940

Admty. N.I.D.
Report 1/15

Up to the end of 1940 Coastal Command aircraft had flown 478 sorties on minelaying operations, and laid a total of 412 mines. Bomber Command during that period had laid a total of 765 mines. At the time the minimum results of casualties from mines laid offensively by the Navy and R.A.F. were thought to be 50 ships aggregating 108,860 tons. Figures now available from Lloyd's Shipping Branch and German records show that a total of 120 vessels of 111,163 tons were sunk and 11 vessels of 31,190 tons were damaged by mines of all kinds. Of this total, the following casualties were caused by mines laid from the air by Bomber and Coastal Commands:-

86 vessels totalling 82,983 tons sunk and 10 vessels totalling 17,070 tons damaged. Half these losses were inflicted by mines laid by Bomber Command in the Kattegat, the Belts and the western Baltic.

Admty. N.I.D.
T.85/45, T.235 &
235A/46
PG/32123 4 and 5
and PG/31745

The figures given in the Air Staff Memorandum No. 60 for minelaying from April to December 1940 (published in March of 1941) show Coastal Command as having only laid 354 mines. The discrepancies in these figures compared with the Coastal Command statistics were pointed out by the A.O.C.-in-C., Coastal Command in his letter to the Air Ministry dated 28th April 1941; he drew attention to the fact that the figures given in the appendix for Bomber Command, showing them as having laid mines

C.C. File
S.15171 Enc.60A

- (1) Code name for this area was Jellyfish. Mines to be laid in area between Chateau de Ertheaume and the Point de Toulinguet, (area as amended by AP/541 19th October) that is main area 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) The Code name for the area was Scallops. The area to be mined was a rectangle in the Rade de la Carosse formed by a line joining following points:

49° 29' 40" N	00° 03' 45" E
49° 29' 28" N	00° 03' 44" E
49° 29' 16" N	00° 04' 39" E
49° 29' 26" N	00° 04' 45" E

on the Dutch and Belgian Coasts, did not agree with the statements in the text, where it was stated that Bomber Command had mined all areas East of the Elbe and Coastal Command all areas to the West, with the exception of the Jade-Weser and Brest. It was known that Bomber Command had laid no mines off the Dutch, Belgian and French Coasts, or round the Dutch Islands in the period in question. Furthermore Bomber Command had been credited with sinking four ships off the Dutch Islands when in fact only Coastal Command had laid mines there, though this had not been shown. In addition to this Coastal Command had commenced minelaying operations in April when 19 mines were laid, although the tables in the Appendix showed their minelaying as commencing in May.

(v) Limited Minelaying, January - March 1941

(a) Position of Bomber Command

A.M. S.1636/II
Enc. 18A

Ibid Min. 19

Following a signal from the C.-in-C. Home Fleet (X.3300, 18th January) suggesting that minelaying shall be carried out in the ice-free channels in the Baltic, (including, as minelaying resources were limited, the laying of dummies by aircraft not fitted for carrying mines) the Chief of Air Staff gave a ruling on 20th January that sea mining was not among the tasks laid on Bomber Command by the new directive authorised by the Cabinet.

B.C. Files
S.23824/2
Encl. 121A

S.23746/II
Encl. 69A

A.M. S.1636/II
Encl. 20A

On 10th January Bomber Command had instructed No. 5 Group that sea mining was only to be undertaken for the training of crews, and, with Command permission, by up to 15 aircraft with trained crews on nights when the weather precluded bombing. By the directive of 15th January the only tasks other than their main objective (the bombing of oil installations), laid upon Bomber Command were attacking invasion ports, if invasion was imminent, and enemy naval units on specific instructions from the Air Ministry. This policy was, however, slightly modified by instructions sent to Bomber Command on 25th January. It was stated that sea mining had been deliberately omitted from the Bomber Command directive, but that at the discretion of the C.-in-C. minelaying could be undertaken in the training of inexperienced crews, in as far as it would assist in their preparation for normal bombing duties, by trained crews with Hampdens in weather unsuitable for bombing operations, and by Stirlings and Manchester, if the necessary modifications could be made before they were operationally fit for normal bombing duties.

C.C. File
S.15171 Minute
No. 18

Ibid.
Encl. 26A

This statement of policy aroused concern in Coastal Command, for the wording "training of inexperienced crews" was thought to be inadvisable, and it was considered that if minelaying was to be carried out efficiently it must be undertaken by experienced crews; it was decided, therefore, to press for the allocation of a Hampden squadron to Coastal Command in order that the Command might become solely responsible for all minelaying operations. Writing to the Air Ministry on 13th February the A.O.C. in C., stated that he was uneasy about the Bomber Command directive, especially as the Admiralty attached so much importance to sea mining. As Fleet Air Arm and Coastal Command aircraft could not lay mines further east than the Elbe, and as, under the new directive, the Bomber Command scale of effort would be further reduced, their monthly totals already showed signs of diminishing

A.M. S.1636/II
Minute No. 33

Ibid. Minute
No. 34

Ibid. Encl. 35A

effort,⁽¹⁾ it would appear that the R.A.F. would not be able to maintain the rate of minelaying required by the Admiralty programme. For this reason he requested that a Hampden squadron should be allocated to Coastal Command for minelaying duties, so that the scale of effort east of the Elbe might be maintained. If this was not possible he requested that Bomber Command's scale of effort should be increased. Commenting on this letter the Director of Naval Co-operation said that although a large scale minelaying operation was being planned, regardless of the directive, he considered the opportunity should be taken to press for a greater scale of effort by Bomber Command. It was decided, however, that in view of Bomber Command's other commitments it was unlikely that their scale of effort could be materially increased for some time and no allocation of a Hampden squadron was made. This decision was forwarded to Coastal Command on 5th March, when it was stated that the directive could not be amended, but that the situation would be kept under review.

(b) Operations

During the first three months of 1941 minelaying was directed principally against the German North Sea Ports, as sterilizers had not become available. Bad weather curtailed operations and comparatively few mines were laid. In addition to this No. 812 Squadron which had been responsible for most of the minelaying operations was ordered to re-embark in March, and was replaced by No. 816 Squadron, who did not undertake any mining operations until the end of the month.

No. 16 Group ORB
January
Appendices

No. 18 Group ORB
February &
March Appendices

C.C. File
MS.15176
Enc. 15A
C.C. File
S.15171
Encl.12A

Mines were laid off Dieppe⁽²⁾ for the first time on 9th January (in accordance with the Admiralty letter of 23rd December) by four Swordfish of No. 812 Squadron; a total of six were laid in the area during the month. Two operations against area in the Karmoyssund⁽³⁾ were also undertaken by No. 42 Squadron, one in February when five mines were laid, and one in March when four were laid. Intelligence reports later claimed that as a result of the mining off Haugesund in February a German trawler was sunk, an 8,000 ton tanker was damaged, and the German Ship Sardinien (4292 tons) was run ashore to prevent sinking⁽⁴⁾. The sound was closed to shipping for five days, and convoys had to pass to the west of Karmoy island. On 23rd January the Admiralty wrote to Coastal Command suggesting a new general minelaying area to include all waters, within the 10 fathom line, between the Elbe and the longitude of Terschelling, (5°30'E) in view of the considerable coastal traffic. This area covered the smaller laying areas in the Jade-Weser, Ems and Huibart Gat, though these were still regarded as individual targets. In addition to putting further strain upon enemy sweeping resources, it was thought that in event of being unable to lay mines in specific target areas because of enemy opposition, pilots could still plant their mines in this wider area to

(1) The number of mines laid by Bomber Command in the preceding months were:-

1940	August	148
	September	45
	October	61
	November	31
	December	46
1941	January	46

- (2) Code name for this area was Vineleaf. The area to be laid was within 4 mile of the position 49° 56' 5" N x 01° 04' 5" E. and could only be undertaken 3 hours either side of High Water.
- (3) The code name for this area was "Bottle" Mines were laid across Karmoyssund immediately South of the port of Haugesund. This area had first been mined in May 1940.
- (4) This was not confirmed by German records or Lloyds Casualty figures.

Ibid. Encl. 41A
No. 16 Group ORB
March Appendices
S.15171
Encl. 57A

useful purpose. This area⁽¹⁾ was finally authorised as a laying area, and also a dumping ground for mines when it was impossible to reach scheduled targets, on 27th March; the first mines planted in it were laid on 30th March by aircraft of No. 816 Squadron. This area was sub-divided⁽²⁾ on 22nd April to simplify records.

(c) Tactics

Ibid. Encl. 33A

On 28th February the Admiralty again wrote to Coastal Command referring to this previous letter of 23rd January and suggesting the possibility of laying mines by day, under suitable conditions of visibility, in the extended area off the Frisian Islands. It was also suggested that circumstances might arise when it would be possible to act upon reconnaissance reports and lay mines in the path of important enemy convoys.

Ibid. Encl. 38A

Replying to this letter on 24th March Coastal Command agreed that both proposed methods of minelaying offered a reasonable element of surprise, provided that when laying by day operations were undertaken with adequate cloud cover, to prevent detection both by passing shipping, and by enemy fighter patrols, based inland and operating wherever there were shipping movements along the coast. The suggestion of laying mines ahead of convoys was welcomed; such action had been taken on one occasion in February⁽³⁾ by Beauforts of No. 22 Squadron, but as considerable concern had been expressed at the time by the Director of Mining Operations, the operation had not been repeated. As a result of this letter the Admiralty on 22nd April requested that both proposals should be implemented at convenient opportunities.

Ibid. Encl. 58A

(vi) Anti-Shipping, April - June 1941

(a) Anti-Invasion measures

A.M. S.1636/II
Encl. 40A

On 4th April the Admiralty wrote to the Air Ministry about measures to be taken against ports which might be used by the enemy as bases for an expedition against this country. They considered that the main attack would be launched from ports between the Ems and Brest, as this would allow the enemy to make maximum use of air cover and would give good lines of communication. Other ports outside this area might be used for diversionary attacks, but they considered the major invasion ports⁽⁴⁾ would be in this area. This had also been indicated by the concentrations of shipping there in September 1940. The Admiralty considered that the only offensive action that could be taken against the majority of these ports was aerial minelaying, for which all but Calais were suitable, but this and some other Channel ports could be subjected to naval attack⁽⁵⁾. The scale of effort and the number of aircraft required to carry out the operation would be considerable for

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- (1) Code name for the area was Nectarines.
 - (2) The area was divided into 3 sub areas:-
 - Nectarines One - Between the meridians 5° 30' E and 6° 30' E
 - Nectarines Two - Between the meridians 6° 30' E and 7° 30' E
 - Nectarines Three - Between the meridians 7° 30' E and 8° 30' E
 - (3) Operation was on 26th February against convoy off Danish coast, other aircraft of the Squadron attacked with Torpedoes
 - (4) Major Invasion Ports listed by the Admiralty were as follows:-

Ems Estuary (Emden and Delfzijl)	Ostend
Den Helder)	Dunkirk
IJmuiden) Exits from Amsterdam	Calais
The Hook, principal exit from Rotterdam	Boulogne
The Scheldte Estuary	Le Havre
Antwerp	Cherbourg
Zeebrugge	Brest
 - (5) Naval action could be taken against:
 - Zeebrugge, Ostend, Calais, Boulogne, Le Havre, Cherbourg.

A.M. S.1636/II
Mins. 41 and 42

the short period of warning that invasion was imminent; it was considered that it would be to our advantage to mine not only the ports, but also the coastal routes, immediately, to inflict casualties on enemy shipping when it was being re-disposed. The Admiralty, it was stated, had already begun Surface craft minelaying activities, and while it was appreciated that the shortage of aircraft made it difficult to fulfil the earlier programme put forward by them, they requested that, should invasion appear imminent, a certain proportion of Bomber Command effort should be directed to minelaying; the details of the areas concerned were already in the hands of Coastal Command as they were the normal target areas. The question was discussed at the Air Ministry, the view being expressed that, in some cases at least, minelaying might produce better results than actual bombing of the invasion bridgeheads, which task had been laid upon Bomber Command by the Directive of 15th January, but no final decision was taken.

(b) Altitude minelaying

Ibid. Encl. 45A

A report on enemy parachute minelaying from high altitudes, over British ports, and the measures taken to combat the attacks, was sent by the Admiralty to the Air Ministry on 1st May, with the suggestion that such tactics might be adopted. It was stated that it had been the enemy practice to parachute mines into dock basins and narrow shipping channels, which acted as magnetic mines if they landed in water, but which exploded as bombs if they hit land. These attacks were likely to cause grave material damage and entailed keeping special look-out organisations in ports, and holding special sweeping gear in readiness in all areas. Hitherto the policy the Admiralty had adopted had been to lay mines well off shore, to prevent their recovery intact, but they were prepared to accept such a risk if similar tactics could be employed against major enemy-occupied ports.(1)

Ibid. Minutes
Nos. 46 and 47

The question was discussed in the Air Ministry, and it was pointed out that the Admiralty were satisfied that the mechanism of standard magnetic mine would stand up to the shock of a drop from high altitudes, but that if the policy were adopted it would not mean any increase in the minelaying effort. In their reply to the Admiralty on 9th May, the Air Ministry gave their approval in principle to the proposal; it was pointed out, however, that the two factors, the question of accuracy of minelaying which must necessarily be from 12,000 or 14,000 ft. over the heavily defended port areas, and the extent to which these areas could be penetrated without heavy casualties, made it necessary to leave the question of the tactical feasibility of the scheme to the discretion of the A.Os.C.-in-C. of the Commands concerned. The question was then referred to Coastal and Bomber Commands.

Ibid. Encl. 51A

The question had already been discussed at Coastal Command in the light of the Admiralty letter, and it had been pointed out that whereas German mines exploded when they hit land, English mines if they hit hard ground would break up, and if they hit soft ground would be recoverable; this point had been discussed with Admiralty officials who considered that the Germans were almost certainly aware of the mechanism of our mines. Inaccuracy in altitude minelaying was inevitable but

C.C. File
S.15171 Mins. 64
and 65

(1) It was suggested that altitude minelaying could be effectively used against the German ports - Hamburg, Bremen, Kiel and against the occupied ports - Brest, Lorient, Bordeaux, St. Nazaire, Nantes, Rotterdam.

A.M. S.1636/II
Enc.60A

as the chances of getting a mine even into the port area over targets such as Brest were small, and of getting them into the water were even smaller, the wastage of mines might be anything up to 75%. Following the Air Ministry letter the A.O.C.-in-C. wrote to the Air Ministry on 29th May and pointed out that as only 50% of the mines could be expected to land in the target area from 10,000 ft. the minimum height compatible with safety and as many of these would fall on land and be of no operational value, a great waste of effort would be incurred. If, however, a mine could be developed on the lines of the German one, that acted both as a mine or as a bomb, the operation might prove profitable. Similar opinions were expressed by Bomber Command though they gave the altitude compatible with safety as not less than 12,000 ft. and preferred that a mine should be developed that could be dropped without parachute or drogue.

A.M. S.1636/II
Enc.56A

The question was again taken up at the Air Ministry, where support was given to the suggestion of developing a mine that would act as an instantaneously fused blast bomb if hitting land; it was decided accordingly that a conference should be held with Admiralty representatives to discuss the use of anti-recovery devices. This conference was held on 1st July and it was decided that the development of a mine to meet Bomber Command's requirements for high altitude laying should be given priority, and that, as an interim measure, experiments should proceed to develop a device to make the standard magnetic mine function as either a mine or a bomb.

A.M. S.1636/II
Mins.57 and 58

(c) Operations

C.C. File
S.15171
Enc.63A

During the three months April - June Coastal Command's effort was directed entirely against the French ports, with the exception of two mines laid in the wide area between the Elbe and Terschelling. The principle target was Brest to prevent the movement of the enemy major naval units⁽¹⁾ in dock there. In April 43 mines were laid off Brest. A detachment of No. 22 Squadron had been sent to St. Eval for this task, and minelaying operations by aircraft under the control of No. 19 Group started on the night of 15/16 April. Losses over Brest were such that No. 19 Group wrote to Coastal Command on 28th April stating that as it was not possible to keep up the minelaying effort of four aircraft a night against Brest with aircraft of No. 22 Squadron, aircraft of No. 217 Squadron would also be put on the task, the rest of the squadron being used for rover patrols and day strikes against Merchant vessels.

C.C. File
S.15171 Enc. 71A

On 29th April the Admiralty announced that sterilisers for Mark I - IV Mines were available for issue. The sterilising coils gave a life of one or six weeks to minefields after the insertion of the coil in the mine. In order to ensure that the minefields would become safe after the prescribed period, it had been necessary to accept the fact that some mines would become ineffective in shorter periods especially if the water was at a low temperature. This meant however that the Channel and North Sea areas were again used for minelaying. On 3rd May Coastal Command commenced laying in one new area when Beauforts of No. 22 Squadron laid two mines off

(1) The battle cruisers Scharnhorst and Gneisenau and the heavy cruiser Prinz Eugen.

Cherbourg⁽¹⁾. This area and Brest were the principal targets during May though mines were also laid off Boulogne, Le Havre, and the mouth of the Seine; one area was also mined for the first time by Coastal Command on the night of 25/26 May off St. Nazaire⁽²⁾ by aircraft of No. 217 Squadron. In June all minelaying was directed against Brest, with the exception of two mines laid off Lorient⁽³⁾ on the night of 30th June/1st July by 217 Squadron, as the two battle-cruisers and the heavy cruiser were still in dock at Brest.

(d) Summary of operations

Lloyds' Shipping
and Adty. N.I.D.
Germans records
as given before

During the six months ending 30th June 1941, Coastal Command had laid a total of 201 mines with seven jettisoned, three of which were in the area between the Elbe and Terschelling subsequently authorised as a dumping ground. Of these 43 were laid by Swordfish squadrons and 158 by Beaufort Squadrons. (Nos. 22 and 217). During the same period, Bomber Command laid 507 mines, 60% of which were off Brest and other Biscay ports against the German major naval units in that area. The mines were laid by Hampdens of No. 5 Group. A total of 17 vessels of 23,604 tons were sunk and six vessels of 8,351 tons damaged by R.A.F. laid mines during the first half of 1941.

TOTALS

Figures for the first 15 months of aerial minelaying - April 1940 to June 1941.

MINES LAID⁽¹⁾

	<u>No.1 Area</u>	<u>No.2 Area</u>	<u>No.3 Area</u>	<u>No.4 Area</u>	<u>No.5 Area</u>	<u>Aircraft Casualties</u>
	The West Baltic, Belts, Sound and South Kattegat	Off Hauge-Sund and Oslo fjord in S.W. Norway	German and Dutch North sea Coasts	North coast of France	Off the Biscay Ports	
Bomber Command	479	17	244	4	528	41
Coastal Command	n11	13	396	76	128	17
Total	479	30	640	80	656	58

Ibid.

- (1) The code name for this area was Greenage. It was sub-divided into an Eastern and a Western area.

Greenage Eastern Area - bounded by lines joining positions:-

49° 41' 6" N 1° 35' 42" W
49° 40' 36" N 1° 35' 24" W
49° 40' 24" N 1° 36' 00" W
49° 40' 42" N 1° 36' 18" W

Greenage Western Area - bounded on West by meridian of 1° 40' 18" W on the East by the meridian of 1° 38' 36" W on the North by the parallel of 49° 41' 06" N

- (2) Code name for this area was Beech. The area to be mined was bounded on the West by longitude 02° 30' W. and on the south by latitude 47° 05' N.
(3) Code name for this area was Artichoke. The area to be mined lay to the North and East of a line joining the following points:-

47° 46' N 03° 35' W
47° 40' N 03° 35' W
47° 35' N 03° 30' W
47° 35' N 03° 10' W

The water in the area was less than 5 fathoms, but the area chosen was the only suitable one for laying without risk of detection.

- (4) Tables listing the Gardening areas and the monthly total of mines laid in each are given at Appendix XIII. Map XXI shows the location of the areas.

SECRET

341

ENEMY CASUALTIES(1)

	<u>SUNK</u>	<u>DAMAGED</u>
No. 1 Area	48 - 52,873	8 - 17,632
No. 2 Area	4 - 1,585	nil
No. 3 Area	36 - 37,919	1 - 7,699
No. 4 Area	6 - 9,757	1 - 90
No. 5 Area	9 - 4,453	nil
Total	103 - 106,587	16 - 25,421

(1) Appendix XIII also gives the monthly enemy shipping losses from air laid mines.

CHAPTER X

THE ATTACK ON AND DEFENCE OF FRIENDLY SHIPPING(i) Fighter Command in theSpring and Summer, 1940

A.D.I. (K)
Report No.
13/1946

Prisoners-of-war have reported that it was not until about a month before the outbreak of war that the German High Command made any serious attempt to create a specialized anti shipping organisation within the German Air Force. In the Spring of 1940 it was decided that the scope of the organisation then created should be expanded. At this time the forces at its disposal included a Gruppe of F.W.200s and several Gruppen of He.111s and Ju.88s as well as miscellaneous Coastal Reconnaissance units.(1) This decision was reversed almost as soon as it was made, and most of these units were taken away from the anti-shipping organisation to be used in the French campaign. In short, during the greater part of the Spring and Summer the attention of Germans and British alike was focussed on events in Norway, France and the Low Countries rather than the North Sea.(2)

With the termination of the Norwegian and French campaigns, the United Kingdom was faced with a new situation. The Germans now commanded a string of bases, extending from the Pyrenees to the North Cape, from which our shipping could be threatened, not only at almost every point round our coasts and in the North Sea, but over a substantial portion of the Atlantic. Moreover, the west coast ports could no longer be considered virtually immune from attack.

A.M.
S.3553,
min.23

To meet the new threat in the west it was necessary both to change the routeing of the Atlantic convoys and extend the area over which protection could be given by the Royal Air Force. Henceforth, instead of proceeding round Cape Clear and through St. George's Channel, the convoys would make for Bristol, Liverpool and the Clyde by way of the North Channel, between Ireland and Scotland. South of Bristol, traffic would, with certain exceptions, be by small coasters only.(3) Corresponding measures on the air side included the creation of new fighter Sectors and the development of bases from which long-range aircraft of Coastal Command and short-range fighters of Fighter Command could protect this shipping in the north-western approaches and the Irish Sea.

However, it would be some time before these arrangements could be completed. Meanwhile the added threat to shipping in general led to greatly increased demands on Fighter Command for protection in those areas where ground facilities already existed; and although since April the

FC/S.17517,
Pt.3. encl.104A,
141A,
FC/S.17517,
encl.13B
FC/S.21574,
encl. 1A

- (1) The duties of these last units included sea reconnaissance and torpedo-bombing. Subsequently some of them were turned into bomber units.
- (2) On April 10th the Air Ministry authorised Fighter Command to discontinue standing patrols over convoys at their discretion. Instead a flight was kept at "readiness" in the sector whose front a convoy was passing.
- (3) Originally it was proposed that the convoys should divide at a point to the north-west of Ireland, some of the ships going thence to the west-coast ports via the North Channel and others northabout round Cape Wrath to the east coast. Ultimately it was found more economical to restrict ocean convoys to west coast ports and provide "local" convoys northabout from Liverpool and the Clyde. Some fast ships (not in convoy) continued to be brought round Cape Clear.

FC/S.17517,
pt.3, encl.
140A
FC/S.20737,
encl. 5A

H.Q.F.C.,
Forms "Y"
Pt. 1.

policy pursued by Fighter Command and sanctioned by the Air Ministry had been to substitute aircraft held at "readiness" for standing patrols on every possible occasion, in practice it was found impossible to avoid devoting an unwelcome number of flying hours to this purpose. During the first three days of August alone, the Command received no less than nineteen separate requests from various naval authorities for protection of one kind or another; and the number of sorties flown for the protection of convoys or other shipping units went up to more than 3,200 in July, and only some 300 less in August.(1) An incidental pinprick was that some of these requests were made simultaneously to Fighter Command and the Fighter Groups, although the latter were not empowered to say, without reference to Command Headquarters, whether they could be met or not.

FC/S.20737,
encl. 9A

All this placed a heavy burden, not only on the flying personnel of the Command but also on the Commander-in-Chief and his staff, who sometimes found themselves called upon to decide between rival claimants whose cases they were not professionally qualified to judge.(2) A promise by the Admiralty at the end of August that in future requests would be made in a more regular manner was only a minor alleviation of these difficulties.

(ii) Autumn, 1940

H.Q.F.C. Forms
"Y", Pt. 1

However, as the battle of Britain went on, its focus shifted inland. The attention of attackers and defenders alike became concentrated more and more on objectives away from the coast, so that coastwise trade became relatively less important. Hence in September and October Fighter Command devoted only a few hundred sorties to the direct defence of shipping.

R.A.F.
Narrative,
"The Air
Defence of
Gt. Britain",
Vol.II, p.18

Yet this decline in the importance of coastwise trade was certainly no more than relative. If the number of sorties flown directly for the protection of shipping fell in September and October to a tenth of the figures recorded in July and August, this was not because the volume of traffic, or the value attached to it by the Admiralty, had declined in like proportion, but because at the height of the battle other demands on Fighter Command were so pressing that the provision of standing escort for convoys had clearly become impracticable, save in a few exceptional cases. The defence of the aircraft industry had long been the primary commitment of the air defences; now that the aircraft industry was directly threatened, shipping must take a back seat. This did not mean, however, that it would be left to occupy a back seat once the crisis had passed. That it would not seemed clear enough as early as the beginning of October, when the Admiralty announced that in the immediate future the volume of traffic proceeding northabout from west

FC/S.21574,
encl. 1A

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- (1) Moreover, these figures do not tell the whole story; for in the early stages of the Battle of Britain there were heavy attacks on shipping in the Channel, and it is impossible to say how many of the sorties flown to intercept enemy aircraft were attributable to these attacks and thus contributed to the defence of shipping.
 - (2) A number of Naval Liaison Officers were attached to headquarters, Fighter Command, but such a matter as this was not within their competence. Later a senior naval officer (the N.C.A.S.) was attached to the Command Air Staff.

to east would be substantially increased. The implementation of the decision to limit ocean convoys to the west coast, (1) the necessity of increasing stocks of household coal against the coming winter, and interference with rail traffic by air raid damage, had combined to produce a situation in which it would be necessary to add to the flow of shipping through those vulnerable areas off the east coasts of England and Scotland, in which fighter protection had long been considered especially desirable.

The effect of this change on Fighter Command was soon seen. During the week from October 13th to the 19th the number of convoys or other shipping units for which the Command was expected to provide some kind of protection rose to an average of 23 a day. To provide standing escorts on this scale would have been impracticable; and the Commander-in-Chief had taken the precaution of warning the Admiralty when the increase in traffic was first announced that only "fighter cover" could be supplied. As a rule this meant that fighters were held at readiness in the Sector off whose front a convoy stood, to meet any attacks which might be made on it. But the provision even of this degree of protection was not easy, nor was it likely to satisfy the naval authorities in every case.

Moreover, at this moment a fresh complication arose. During the third week in October the Air Staff decided, against the advice of the Commander-in-Chief but with governmental approval, to relegate three squadrons of Hurricanes to night duty. This meant that the force available for daylight operations would be correspondingly reduced - a proceeding which the Commander-in-Chief considered "dangerous and unsound". Hence he was anxious, first that the implications of this move should be clearly understood by the Naval Staff, and secondly to receive fresh guidance as to his future liability for the protection of shipping in relation to his other commitments.

Outwardly at least, his first point was met by a warning given by the Chief of the Air Staff to the Chiefs of Staff Committee on October 22nd. The Committee "noted with approval" the decision to withdraw the three Hurricane squadrons from the day-fighter force, and agreed to accept a consequent reduction in the scale of protection given to convoys off the east coast. But there was no real certainty that this act of abnegation would be followed by a practical reduction of the demands made by the naval Commander-in-Chief; and as it happened, the operation of a fresh factor was soon to produce the opposite tendency. (2)

In regard to his second point, on October 16th the Secretary of State for Air, in consultation with the Air Staff, had assured the Commander-in-Chief that if he considered it necessary to move some of his resources away from the east coast, he was free to do so "even at the expense of the convoys". The Secretary of State pointed out that the Air Staff had always recognized that in a situation such as now existed it would be impossible

Ibid., encl.
9A, 10A8

Notes of Conference held
18.10.40.
(D.H.O. Br.
Folder)

A.H.B.ID/2/243,
encl.21A-27A

Extract from
C.O.S.(40)
845
(S.2438/I)

A.H.B.ID/2/243,
encl.21A-23A

(1) See footnote (3). Page 343
(2) See pages 347-348.

to provide adequate protection for convoys on the south-east coast, and that the Admiralty had accepted this limitation.

This, of course, was before the decision to relegate the three Hurricane Squadrons to night duty; and moreover it was in connection with convoys between the Pentland Firth and the Nore, not "on the south-east coast", that difficulties were likely to arise. The Commander-in-Chief therefore asked on October 20th for further guidance, at the same time drawing the attention of the Secretary of State to the notification of increased northabout traffic which he had received from the Admiralty earlier in the month, and the terms of his reply.⁽¹⁾

Ibid.,
encl.25A

This request was considered by the Secretary of State and the Air Staff during the next fortnight. They came to the conclusion that, in the light of the proceedings of the Chiefs of Staff Committee on October 22nd, the Admiralty must be judged fully aware of the necessity to reduce the protection afforded to convoys off the east coast. Accordingly, the notification received earlier in the month was now to be regarded less as a request for increased protection, than as a piece of information furnished in the hope that the air defences would go on giving all the protection they could. On November 8th, therefore, the Secretary of State wrote to tell the Commander-in-Chief that his reply to the Admiralty had the Air Ministry's approval, but that so long as the protection of convoys remained practicable, it was essential that this protection should be given. Moreover, the protection of flotillas and minesweeping craft was also a commitment of the air defence, which must be met "so long as the situation permits".

Ibid.,
encl.26A

Ibid.,
encl.27A

That his declaration accurately reflected the relative importance attached by the Air Staff to the defence of the aircraft industry and the protection of shipping is not in doubt; but its shortcomings from the point of view of a Commander-in-Chief who had already differed from them on an important issue are obvious. What the Air Staff had in mind - and of this they made no secret - was that, as winter approached, the scale of the daylight offensive was likely to diminish. It might then be possible to do more for shipping, even with a reduced day-fighter force, than now seemed likely. Yet the fact remained that for the present the Commander-in-Chief was bound by a directive which made the defence of the aircraft industry his primary commitment. To discharge this task to the satisfaction of the Minister of Aircraft Production, the whole of his resources would scarcely have been too great. Only a few weeks ago he had been assured that, if he thought it necessary to divert squadrons from the protection of convoys to the defence of aircraft factories in the Midlands, he was at liberty to make this transfer. This directive had never been revoked; yet now he was informed that nevertheless he must not fail to protect an increasing number of convoys so long as it was practicable to do so. Clearly there was room for much misunderstanding here; and clearly, though he might be nominally free to disregard the claims of the naval Commander-in-Chief in favour of those urged by the Minister of Aircraft Production, he would risk incurring the Air Ministry's displeasure if his notion of the practicable should happen to differ from theirs. While it is difficult to see, therefore, what better guidance the Air Staff could have given at this juncture, it is also obvious that such guidance as this could only have been found

Ibid.,
encl.26A. 27A

(1) See Page 344.

quite satisfactory by a Commander-in-Chief who was sure that his mind was at one with theirs on all important points.

Nevertheless, from these exchanges a few facts did emerge. One was that the defence of the aircraft industry, by day and night, was still the first task of the air defences. After that - but how far after nobody quite knew - came the protection of shipping. Thirdly, the Air Staff agreed that this protection should generally be provided by means of "fighter cover" rather than standing escort. This, at any rate, was something to go on; and this last fact, incidentally, enables us to understand how it was that, although the demands of the naval authorities had already increased since the summer, and were about to increase still further, the effort devoted by Fighter Command to the direct protection of shipping remained during the next four months at an average of 425 sorties a month, as against 2,000 a month at the beginning of 1940 and 3,000 a month in July and August. (1)

H.Q.F.C. Forms "Y",
Pt.1

(iii) November, 1940

(a) The Resumption of Mass Attacks

Meanwhile a new factor had come into operation, which was bound to lead to an increase in the demands made on Fighter Command by the naval authorities, rather than their reduction. This was the resumption of attacks on shipping by enemy aircraft acting together in substantial numbers.

War Cabinet Weekly
Résumé

A.M.T.I.S. d. 2.11.40

H.Q.F.C. "Combats &
Casualties"

On the morning of November 1st, minesweeping trawlers off Dover were heavily shelled by enemy shore batteries. Early that afternoon shipping in the Thames Estuary, which included a convoy bound for London, was attacked by enemy aircraft: a merchant vessel of 1,317 tons was sunk, as were the East Oaze light vessel and a trawler. At about the same time drifters in the Straits of Dover were also attacked and one sank. The defences reported that the attacks had been made by some 50 Ju.87 dive-bombers, accompanied by other bombers and fighters, and that at least ten enemy aircraft had been shot down. ~~On~~ On the same day enemy aircraft attacked a corvette off Yarmouth.

War Cabinet Weekly
Résumé

This was the first attack on shipping by a substantial formation of enemy aircraft for many weeks. The Ju.87 had not been reported in action since August 18th. (2) There was therefore some ground for thinking that a new phase of the offensive had begun, and that further attacks of this nature might be expected.

Ibid.

D.S.N.E.; H.Q.F.C.
Forms "Y"

A.M.T.I.S. d. 8.11.40

This belief was soon confirmed. On the following day a convoy was attacked four times off Harwich. For the next few days only attacks by single aircraft or small formations were reported; but on November 7th Ju.87s were reported over the Thames Estuary and also off Portsmouth, and a convoy in the Barrow Deep was attacked several times in the forenoon and early afternoon.

(1) A table at appendix XVIII shows the estimated enemy effort against shipping the results that it achieved, and the number of sorties and proportion of the total daylight effort devoted by Fighter Command to the protection of shipping, month by month from November, 1940 to December, 1941. The figures for sorties flown by Fighter Command do not, of course, take into account the potential flying effort sacrificed by holding aircraft at readiness. (See also footnote (1) Page 353.)

(2) ~~Including the big ships.~~

(2) There is, however, some reason to believe that Ju.87s of St. K.G.2 may have taken part in an attack on a convoy off the North Foreland on September 29th.

A.M.T.I.S.
d. 9.11.40

H.Q.F.C.,
"Combats &
Casualties"

A.M.T.I.S.,
various dates

More attacks followed on the next day; and this time forces containing some 80 dive-bombers were reported. Further mass attacks on shipping were attempted on November 11th (1) and 14th. In the course of these operations heavy losses were inflicted on the enemy, notably on November 8th and 14th. (2) If any doubt still existed about the vulnerability of the dive-bomber in the face of adequate defences, this experience was calculated to dispel it; and it is notable that after the middle of November the Ju.87 was very seldom used in daylight on the Western Front.

Ibid., encl.27A

In the meantime the new offensive was disquieting, both to the crews of vessels and to those responsible for directing policy and operations. In the circumstances fresh demands for air protection were inevitable. On November 8th the Commander-in-Chief, the Nore, suggested that a standing patrol should be flown over the Barrow Deep whenever a convoy was entering or leaving it, for the double purpose of protecting the convoy and heartening the crews of the neighbouring light vessels. (3) So seriously did he regard the matter that, not content with making this suggestion by signal, he sent his Chief of Staff to Headquarters, Fighter Command to present his case.

C.I.D. Paper
No.D.P.R. 327

A.M. S.D.158(1)
(3rd Edn.),
paras.34-35

Now, what the Commander-in-Chief, the Nore was asking was really a great deal. Apart from the acknowledged wastefulness and relative inefficiency of standing escorts, there were special difficulties in the way of providing such an escort at the place in question. Regulations imposed largely for the benefit of the naval authorities themselves prohibited pilots, virtually on pain of being engaged by ships' guns, from approaching within 1,500 yards of a merchant vessel, or six miles of a warship, except in conditions which they could not fulfil in the case in point without putting themselves at a tactical disadvantage. (4) While a patrol of the kind asked for might or might not hearten the crews of the lightships, therefore, it was perhaps even more likely to dishearten the pilots of the aircraft making it.

FC/S.21574,
encl. 27A

Nevertheless, there was only one opinion about the importance of doing everything that could reasonably be done to safeguard the convoys; and the Commander-in-Chief at once drew the attention of the Air Officer Commanding No.11 Group to the importance attached by the Royal Navy to the Barrow Deep and its prompt defence. (5) At the same time the desirability that the ships should abstain from firing at their protectors was impressed upon the representative of the Commander-in-Chief, the Nore. However, so long as the restrictions imposed by S.D.158 remained in force, there was clearly little that he could do to mend the situation; and it was therefore necessary to remind the Air Officer Commanding No.11 Group that, notwithstanding the instructions he had just received to send his aircraft where the crews of ships could see them, they must continue to conform to the regulation which required them

Ibid., encl. 30A

- (1) Italian aircraft shared in this day's operations, although shipping was not the objective specifically assigned to them.
- (2) Nos. 17 and 74 Squadrons did particularly well, each on a single occasion claiming the destruction of at least fourteen and fifteen Ju 87s respectively. The total claims of the defences on November 14th amounted to more than a third of the enemy forces seen.
- (3) The Barrow Deep is a channel off the mouth of the river Crouch, through which convoys entering or leaving the Thames Estuary had to pass. Sinkings here were particularly undesirable since the wrecks impeded traffic, thus causing convoys to "string out" and become more vulnerable.
- (4) These regulations were contained in the document known as S.D.153, and are thus denoted in references below. They were supplemented by an Admiralty message dated March 8th, 1940 which authorised ships to "engage by day and night any aircraft not recognised as friendly which approach within range of ships' guns".
- (5) The A.O.C. No.11 Group had already taken steps to counter the new offensive.

A.I.1(K)Report
No. 884/1940
H.Q.F.C. "Combats &
Casualties"

C.S.2433, encl.54A

FC/S.21574, encl.33A

to keep at least 1,500 yards away from merchant ships and out of range of A.A. fire from escort vessels.

Ibid.,
encl. 35A.

This was not very satisfactory; but here the matter rested for the present. Meanwhile Air Chief Marshal Dowding was invited to attend a conference at the Air Ministry whose purpose was to discuss measures for the protection of ocean convoys in the north-western approaches, but which might afford an opportunity of raising some points of more immediate interest to Fighter Command. The Staff at Headquarters, Fighter Command had already drafted a letter asking the Air Ministry to clarify their attitude to the whole matter. In view of the forthcoming conferences, it was decided that for the moment this letter should be held back.

(b) The Conference of November 12th

The protection of convoys in the Barrow Deep and off the east coast was important; but it was not the only urgent problem that confronted the Naval and Air Staffs. It was at least equally necessary to consider the protection, not only against submarines, but also against an aerial threat that included the F.W.200 very long-range bombers which had begun to operate from Bordeaux, (1) of the traffic which approached the west coast from the Americas, Africa, and the Mediterranean by way of the North Channel.

A.M. S. 7168,
encl. 18A

The vital nature of this task was clear. The Director of Home Operations went so far as to say that in comparison the shipping that passed along the east coast was "sheer trash". The trade-route through the north-western approaches was, he urged, the "single strand" which still connected the United Kingdom with the outer world: if it were severed, the war was lost. What had been done, and what remained to be done, to ward off this disaster?

A.M. S. 3553,
minute 25

Ibid.,
min. 23

To answer these questions, it is necessary to go back to the end of June. Approval had then been given to a scheme which visualized the formation of new Fighter Sectors in the north-west and of a new Fighter Group with its headquarters at Preston. By the middle of November these arrangements were not yet complete, although the development of the new Sectors was being hastened. When in being the scheme would throw "the umbrella of the eight-gun fighter" over the greater part of the waters between the Rhinns of Islay and Lands' End. (2).

Ibid.

So far, so good; but it was also necessary to consider the protection of the shipping during its passage through that part on the zone of action of the German long-range-bomber force which the short-range fighter could not reach. Careful timing could ensure that part of this dangerous area was traversed at night; but the Air Staff calculated that it would still be necessary to give long-range fighter escort to convoys within 150 or 200 miles of the outer end of the North Channel. To do this, at least three squadrons of long-range fighters would be needed.

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- (1) At that time the Air Staff estimated the effective radius of action of the F.W.200 at 1250 miles, and of the Ju.88 and He.111 at 777 miles.
 - (2) To cover the whole of these waters it would have been necessary to base short-range fighters in Eire. The scheme made provision for this to be done if circumstances should make it possible; but these circumstances were never to arise. (See also Page 360)

A.M.
S. 7168,
encl. 2A

The problem facing the Air Staff in November was to find these three squadrons, and also persuade the Admiralty, if they could, to route the shipping so that it would be within range of the German long-range-bomber forces for the shortest possible time before coming under the protection of these long-range fighters, which would be based in the Hebrides or Ulster.

Ibid.,
encl. 14B

The route which would have suited the Air Staff best was impracticable because of the limited endurance of some of the ships. On this point, therefore, a compromise was reached.

Ibid.,
encl. 1A

As for finding the three squadrons of long-range fighters, the position on the date of the conference was that Coastal Command possessed five such squadrons.(1) Half a squadron was already at Aldergrove and available for the purpose envisaged. Of the remaining four-and-a-half squadrons, one was required for essential duties at Sumburgh; another could hardly be spared from St. Eval, where its duties included providing escort for the fast vessels (not in convoy) which were still being routed south of Ireland. This left half a squadron at Thorney Island, near Portsmouth, and a squadron each at Dyce and Bircham Newton. These two-and-a-half squadrons had various duties, of which the most important was to share with Fighter Command squadrons the task of protecting coastwise trade, especially off the east coast and above all in the dangerous area between the Tay and the Pentland Firth.(2)

Ibid
encl. 14B

On the assumption the the protection of trade between the Tay and the Pentland Firth could be done by Fighter Command alone, the Air Staff suggested that the three squadrons of long-range squadrons needed in the north-west should be made up by adding to the half-squadron already at Aldergrove the two-and-a-half squadrons from Dyce, Bircham Newton, and Thorney Island. The naval authorities agreed that it might be possible to route convoys closer inshore across the mouth of the Moray Firth, so as to bring them within range of short-range fighters.

Ibid.,
encl. 14B
and 18A

Ibid., encl. 1A

The Air Staff recognized that the removal of these squadrons from their present bases was open to objection; but they argued that the ocean convoys were so much more important than the traffic off the east coast, that to move at least the squadrons at Dyce and Bircham Newton from east to west was the only realistic policy. Eight vessels with an aggregate tonnage of 113,307 tons had been bombed and hit to the west and north-west of Ireland between October 26th and November 9th. This was a threat to the "lifeline" which must not be ignored.

Ibid.,
encl. 14B

The Naval Staff did not accept this argument. They considered the coaster traffic off the east coast "of the first importance"; many ships had been sunk in the Moray Firth; and while they would welcome more protection by short-range fighters in that area, and would consider altering the convoy route to facilitate it, they did not agree that the withdrawal of all the long-range fighters could

- (1) Another was due to be formed shortly and the long-term programme provided for two more.
- (2) This stretch of coast was a source of special anxiety because of the shortage of aerodromes near it and the enemy's fondness for attacking shipping there at dusk.

be accepted. The Officer Commanding-in-Chief, Coastal Command, for his part, was opposed to the withdrawal of any of the long-range fighters from Dyce or Thorney Island, (1) but believed it might be possible (though he thought it inadvisable) to spare a few from Bircham Newton.

After discussion a compromise was reached: it was decided that half a squadron should be moved from Bircham Newton to Aldergrove, so that at any rate one whole squadron out of the three postulated by the Air Staff would be assured. Any move of long-range fighters from Dyce must await the Admiralty's decision regarding the feasibility of re-routeing convoys across the Moray Firth. (2)

(c) Difficulties of Fighter Command and Proposals for their alleviation.

Clearly these proceedings provided no solution to Fighter Command's problems; indeed, their tendency was to increase them. Should the Admiralty find it possible to re-route convoys across the Moray Firth so that they could be protected by short-range fighters, the fighter force in north-east Scotland would have to be strengthened. In the meantime the demand for close protection in this area was so insistent that, even as it was, the Command was forced to agree to the partial resumption of standing escorts where the route was already within range. (3) And there was a hint of further demands to come in a remark by the Fifth Sea Lord to the effect that a standing escort was often more acceptable to ships' crews than the holding of aircraft at readiness.

FC/S.21574,
encl. 52A

A few days after the conference, therefore, the Commander-in-Chief despatched the letter already drafted, in which he asked the Air Ministry to clarify their policy with respect to the protection of shipping. He pointed out that the request by the Commander-in-Chief, the Nore, for close protection in the Barrow Deep, like a number of other requests which he had received from naval authorities, was incompatible with the provisions of S.D.158. He expressed his earnest desire to afford every possible protection to shipping; but asked that the Admiralty and Merchant Navy should be invited to recognize the practical limitations of the fighter force by abandoning either their claim to close escort or else the privilege of opening fire at aircraft which approached ships without convincing the crews that they were friendly. He suggested that the clarification desired might take the form of approving a scheme which had already been partially adopted in his Command. Under this scheme three degrees of fighter protection for shipping were recognized namely:

Ibid.,
min. 54

Ibid.,
encl. 52A

- (1) "Close escort". This would be given only in special cases and by prior arrangement. In these circumstances the aircraft would not be required to stay outside the 1,500-yard limit.

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- (1) His reason for wishing to retain the half-squadron at Thorney Island was that he needed it for offensive operations.
 (2) Another decision made at this conference was to increase the initial equipment of the long-range fighter squadrons from sixteen aircraft to twenty "as soon as possible".
 (3) The Command was asked to pay special attention to the period just before dusk, when even a small escort would be of value in countering the attacks by single aircraft which often occurred at that time.

(2) "Protection". This would mean the allocation of specified fighter units for the defence of given shipping units during a stated period. The fighters would be either at "readiness" or on patrol, not necessarily in the immediate vicinity of the shipping and in any case not within 1,500 yards of it, unless engaging the enemy.

(3) "Cover". This would mean that the position of the shipping would be noted and provision be made to intercept any enemy aircraft that might approach it, just as if it were an objective on land.

Other provisions of the scheme were that protection in any form would only be given within 40 miles of the coast or the nearest Royal Air Force aerodrome; (1) and that, in the absence of special arrangements for protection at dusk or dawn, it would be confined to the period between sunrise and sunset. Finally, it was suggested that Masters and crews should enter into an undertaking never to open fire on an aircraft without making an attempt to recognize it as hostile, and should also undertake that when they were within 40 miles of the coast they would hold their fire in any case until the aircraft was within 1,500 yards.

These proposals were still under consideration by the Naval and Air Staffs when, on November 25th, Air Marshal Douglas succeeded Air Chief Marshal Dowding as Commander-in-Chief. At his first meeting with his Group Commanders on November 29th, the new Commander-in-Chief referred to the difficulties that confronted them in this connection. While leaving it to them to make the best arrangements they could, he urged them to consider the merits of standing patrols flown over the coastline off which stood the shipping to be protected.

(d) Summary of Fighter Operations

Meanwhile, as a result of the policy of holding aircraft at readiness rather than flying standing patrols, the number of sorties actually flown for the direct protection of shipping remained low. In November only 402 sorties were devoted to this purpose; but this figure, of course, takes no account of the large number of sorties flown against the mass attacks of November 1st, 2nd, 7th, 8th, 11th and 14th, or the potential flying hours lost through holding aircraft at readiness. Yet, despite this contribution, the unpleasant fact remained that during the month eleven merchant vessels were sunk through the action of enemy aircraft within 40 miles of the coast, and another seventeen damaged. (2) Moreover, of the 92 occasions on which attacks occurred or imminent attacks were reported, 81 were in daylight. These were disquieting figures in view of the reliance which was apt to be placed on "the umbrella of the eight gun fighter", even near its rim.

(iv) December, 1940 to February, 1941

Nevertheless, no substantial increase in the amount of direct protection given to coastwise shipping could be expected so long as the defence of the aircraft industry remained the primary task of Fighter Command, and the place

(1) This was the existing practice.
 (2) In this context "damaged" includes injury to ships' crews.

Ibid.,
min. 63

Ibid.,
encl. 72A

H.Q.F.C.,
Forms "Y",
Pt. 1

War Cabinet
Weekly Résumé

H.Q.F.C. Forms
'Y', Pt.1

Group Forms
540, appendices

War Cabinet
Weekly Résumé

A.D.I.(K)
Report No.13/
1946, para.35

Ibid., paras
4 and 31

to be assigned to this secondary task was vague. The form of fighter cover which consisted mainly in holding aircraft at readiness to meet attacks on convoys continued to be given; but the highest number of sorties flown for the direct protection of shipping in any one month between December, 1940 and February, 1941 did not exceed 504.(1) Understandably enough, the tendency of the Fighter Groups at this time, especially in the south, was to regard the protection of shipping as a subject of little interest except when it resulted in engagements with the enemy.

These efforts were not a very generous response to the appeals made by the naval authorities in October and early November; and the Naval Staff would doubtless have protested at their meagreness if the conditions of early November had persisted. In fact those conditions did not persist. The mass attacks of the opening phase were not repeated after November 14th: thereafter attacks were made only by aircraft operating in small numbers, and the scale of effort declined sharply. In December only four merchant vessels were sunk by enemy aircraft within 40 miles of the coast, and in January only two. In February this figure rose to ten, of which seven were sunk in daylight. In none of these three months did the total number of attacks reported amount to more than two-thirds of that recorded in November.

So far as coastwise trade was concerned, then, these three months were something of a lull, though far from a complete one. After a brisk but expensive start, the new offensive seemed at the beginning of February to be doing no more than run under its own momentum. Prisoners-of-war from the anti-shipping organization have described the attitude of the German High Command to their concerns at this stage as "hesitant"; and this hesitancy, if indeed it existed, is not altogether surprising. This arm of the Luftwaffe had yet to prove itself: even its advocates admit that its early successes were due more to the unpreparedness of its victims than the soundness of its methods.(2) An attempt to defeat the opposing air defences by daylight attack had failed in the previous autumn. The night offensive had been under way for several months and showed no sign of producing decisive results. A renewal of the daylight mass attacks on shipping which had begun the offensive in the preceding summer had brought substantial losses. If, in these circumstances, a determined bomber offensive against shipping was logically the next step for the Luftwaffe to take, still it was hardly one to be taken without mature consideration.

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- (1) A table appended to H.Q.F.C. Form 540 for December, 1941 gives much higher figures than this for January and February (776 and 1020 daylight sorties, against 350 and 443 quoted at appendix XVIII to this volume). The table gives month-by-month figures for the whole of 1941. The source of these figures is not stated, although they appear to be based on returns from individual squadrons. In many cases they differ widely from those contained in the day-to-day returns of the Command (Form Y, Pt. 1) and the monthly reports on the subject prepared at Headquarters, Fighter Command from April onwards. As the compilers of these monthly reports had every inducement to make them as accurate as possible, and must have had access to all the material used by the compiler of the table, their authority and that of the Command Forms "Y" have been preferred.
- (2) According to prisoners-of-war, one of the chief shortcomings of the defence was the scarcity of anti-aircraft weapons in merchant vessels and the lack of protection for gunners where they were provided.

A.D.I.(K)
Report No. 13/
1946, paras.
31-34

(v) The Battle of the Atlantic

(a) The Opening of the Battle

Nevertheless it began to be apparent towards the end of February and early in March that a new phase of the offensive was beginning. Although there was no resumption of the mass raids on coastwise shipping which had occurred during the first half of November, attacks by single aircraft or small numbers of aircraft became markedly more frequent. Daylight attacks off the Naze and in the waters extending northwards to Orfordness and southwards to Ramsgate were particularly numerous; attacks were also reported elsewhere off the east coast, at the western end of the English Channel, and off the west coast. Sinkings within 40 miles of the coast increased from two in January to ten in February, of which seven were in daylight. Moreover, these signs were accompanied by a vigorous offensive by submarines and aircraft against shipping in Atlantic waters. Simultaneously, a substantial part of the German night effort began to be devoted to minelaying and attacks on ports. Finally, information was received which led the Air Staff to believe that the Germans might be about to increase their anti-shipping force by 200 or 250 aircraft at the expense of their night-bomber force.(1)

To this period belongs, then, the opening of the struggle which soon came to be called the battle of the Atlantic: a struggle on the one hand to sever, and on the other to retain, the communications of the United Kingdom with the outside world. That this battle would have to be fought eventually had long been almost certain: the problem for the defenders was to make a correct choice of the moment at which they must begin to concentrate their energies upon it, even to the exclusion of other tasks.

(b) Changes in Allied Strategy and Deployment,
February, 27th to March, 12th, 1941

In the opinion of H.M. Government, the menace of the U-boat and the F.W.200 had grown so great that this moment had now come. At a meeting of the Chiefs of Staff Committee on February 27th, over which he presided in his capacity as Minister of Defence, the Prime Minister announced a decision to give "absolute priority" to the protection of shipping in the north-western approaches.

In consequence of this announcement, the Chiefs of Staff reached at this meeting and another held later in the day, a number of decisions which affected the air defences more or less directly. Among the most important of these decisions were:

- (1) To move a substantial number of naval escort vessels (sloops and A.A. destroyers) from the east coast to the north-western approaches.

A.D.I.(K) Report
No.13/1946,
paras.35-40

FC/S.23680, encl.
17A; A.D.I.(K)
Doc.No.676, etc.

- (1) About this time a formation called Fliegerführer Atlantik was set up to co-ordinate air operations against shipping in conjunction with the German Navy. According to prisoners-of-war the forces at its disposal in the Spring of 1941 comprised a Gruppe of F.W.200s, two Gruppen each of Ju.88s and He.111s, and a Gruppe of He.115 seaplanes - about 180 aircraft altogether. Some of these units were occasionally diverted to other purposes. But it is known (although these prisoners did not say so) that other units, hitherto used mainly for the bombing of land targets, now began to be used on frequent occasions against shipping. See also Vol.III Chap.II Section (11).

- (2) To expedite work on the aerodromes under development in Northern Ireland and the Hebrides, if necessary by using service labour.
- (3) To strengthen the forces available to Coastal Command in those areas by various means, including the transfer of squadrons from the east coast and the assumption by Bomber Command squadrons of some duties previously discharged by Coastal Command squadrons.(1)
- (4) To provide 200 Bofors guns and crews as anti-aircraft weapons for merchant ships, withdrawing 100 from A.A. Command and finding the rest from immediate production.
- (5) To give the Admiralty all the machine-guns and crews it could use for this purpose, as fast as it could take them up.

FC/S.21574,
encl. 119A

The effect of certain of these measures was to provide additional escort and protection for convoys in the north-western approaches, at the expense of those off the east coast. It was therefore necessary that Fighter Command should supply additional "watch and ward" for the latter; and on February 28th the Air Staff drew the attention of the Command to this need and directed that it should be met, even, if necessary, at the expense of the daylight offensive, the training programme, and the immediate ability of the Command to repel mass attacks in the south-east. At the same time they mentioned the possibility that measures which were being taken to stimulate the "turn-round" of shipping at certain ports on the west coast might induce the enemy bomber force to pay special attention to those ports.

Ibid.,
encl. 132A

In accordance with these directions, the Commander-in-Chief instructed the Fighter Groups to devote a higher proportion of their effort than hitherto to the protection of shipping and ports. In particular, they were to pay special attention to the night defence of Bristol, Liverpool, Manchester, the Clyde, Hull and the Port of London, and to the protection of shipping between Southend and Aldeburgh and in certain other areas and conditions which had proved particularly dangerous in the past.(2) The system by which fighter protection might take the form of "escort", "protection" or "cover" according to circumstances would continue: but "escort" was to be given more generously than hitherto in the more vulnerable areas, and if "protection" rather than "escort" was given in areas where attacks were likely to be delivered without adequate warning, the fighters giving it were to be kept airborne while there was any risk of attack.

FC/S.21574,
encl. 145A

The decisions of February 27th were confirmed and amplified on March 6th by a directive issued by the Minister of Defence. In consequence of this directive,

- (1) As part of this plan, the long-range fighter squadron at St. Eval was to go to northern Ireland and that at Dyce to Wick. (See pages 350-351.)
- (2) Such as the Aberdeenshire coast (especially at dusk); St. George's Channel and the Bristol Channel; and the coasts of East Anglia and Scotland at dusk and during the night. Patrols at "last light" and in moonlight and G.C.I. interception were recommended for trial as means of dealing with dusk and night attacks.

the Air Staff wrote formally to the Air Officer Commanding-in-Chief, Fighter Command on March 9th, informing him that his primary task was no longer the defence of the aircraft industry, but that of the Clyde, the Mersey, and the Bristol Channel, and calling upon him to make such changes in the deployment of his resources as this alteration might render necessary.

Accordingly, a number of changes were made in the deployment of fighter squadrons and A.A. weapons during the next few weeks, which had the effect of strengthening the defences of the west coast ports, largely at the expense of other parts of the country. With respect to fighter defences, the day defences of the Bristol Channel were strengthened by bringing into operation two single-engined fighter squadrons which had been forming and training for some time past at Filton and Pembrey; (1) those of the Mersey by moving a newly-formed squadron from Acklington to Speke. (2) No addition was made to the daylight strength of the Prestwick Sector, covering the Clyde, as the neighbouring Turnhouse Sector was considered adequately strong. (3)

As for night squadrons, no addition was made to the force in the neighbourhood of the Bristol Channel, which was considered adequately protected by the squadrons already disposed to cover the approaches to the Midlands. The Mersey had hitherto been protected only by two squadrons of single-engined night-fighters; to supplement these, it was now arranged that a flight of Beaufighters, operating from Digby, should reinforce the Ternhill Sector as required. (4) Finally, for the night defence of the Clyde, arrangements were made for No. 600 Squadron, equipped with Beaufighters and Blenheims, and hitherto divided between Turnhouse, Prestwick and Catterick (where one flight was training) to be re-disposed between Drem and Prestwick. (5)

With respect to A.A. defences, orders were given between February 28th and March 12th for 81 heavy A.A. guns to be moved to the west coast ports. Of these, 58 were to come from other parts of the country and 23 from March production. At all the port areas concerned the defences were to be increased, and in every case but one the additions would be substantial, although only at Liverpool would they bring the number of guns up to the planned strength. (6)

H. Q. F. C.
Orders of Battle
d. 23 & 30.3.41
H. Q. F. C. Form
"Y", Pt. 1

H. Q. F. C. Order
of Battle d.
16.3.41

A. H. B. ID/2/267,
encl. 6A

- (1) These were Nos. 118 (Spitfire) and 316 (Hurricane) Squadrons. Orders were given early in March for their advancement to be hastened, and they went into the line between March 23rd and 30th.
- (2) No. 315 (Polish) Squadron, equipped with Hurricanes, moved on March 13th.
- (3) Strictly speaking, Prestwick was not yet a separate Sector, although it was to become so in April. In the middle of March there were four day fighter squadrons in the Turnhouse Sector, (Nos. 602, 603, 43 and 607) of which one (No. 602) was at Prestwick. For location of sections, see Appendix XVI.
- (4) No. 29 Squadron (Beaufighters and Blenheims) was already based in the Digby Sector.
- (5) This weakened the force potentially available for the night defence of the Tyne and Tees. To compensate for this, No. 68 (Blenheim) Squadron, which was forming and training at Catterick, was ordered to maintain at least one aircraft at readiness each night.
- (6) The planned strength, actual strength early in March, and increases now ordered, were as follows:

Area	Planned Strength	Actual Strength	Increase
Clyde	112	67	19
Liverpool	96	84	12
Bristol	80	36	28
Avonmouth			
Swansea	48	18	18
Port Talbot			
Llanelli	64	52	4
Cardiff			
Barry			
Newport			

A.M.
S.3562/I,
encl. 68A-72A

Where light A.A. was concerned it was necessary, on the other hand, to reduce the number of weapons at the Clyde, in order to find barrels for installation in ships. The balloon defences of the ports, which approximated closely to the planned strength, were reviewed, but up to the middle of March no decision to increase them was reached. In addition steps were taken to improve radar cover over the Irish sea and the gun defences of radar stations in all parts of the Kingdom.

A.H.B.ID/2/267,
encl. 6A.
A.H.B.ID/2/267,
encl. 5A

In regard to the armament of merchant ships, it was arranged that the air defences should surrender 40 light A.A. weapons in March and 110 weapons be found from March production. During the period up to March 12th, seventeen weapons were installed in ships; in addition the First Lord of the Admiralty announced on March 11th that 1,050 multi-barrel U.P. weapons and 15,000 P.A.C. projectors were on order, and that 1,300 P.A.C. projectors had already been fitted in merchant ships.

Ibid.,
encl. 6A

Measures which concerned the air defences less directly were the raising of Coastal Command's strength in northern Ireland from 56 to 96 aircraft; the move of two Blenheim squadrons of Bomber Command, Nos.114 and 107, to Thornaby and Leuchars, where they would operate under the control of Coastal Command; and the issue of a new directive to Bomber Command which gave priority to objectives concerned with submarines and F.W.200 aircraft. Mention has been made already of the decision to move a number of naval escort vessels from the east coast to the north-western approaches; and to the intention to hasten the "turn round" of ships in port. Arrangements were also made to accelerate repairs to damaged ships. Attempts to hasten the completion of aerodromes in northern Ireland and the Hebrides came up against various difficulties and some of the aerodromes were not ready for many months.

A.H.B.ID/2/266,
passim

(c) Further Measures and Proposals

(i) The Shipborne Fighter

The effect of these measures was to increase the protection that could be given to shipping in the north-western approaches against surface, submarine, and aerial attack, and to ports on the west coast against the last of these dangers. To some extent, this was done at the expense of shipping and land objectives elsewhere.

C.O.S.(41)
130; W.P.
(41) 59

The Naval and Air Staffs, however, were not satisfied that these measures alone were adequate for the purpose envisaged. In the previous November the Air Staff had estimated the size of the long-range fighter force that would be needed to protect shipping in the north-western approaches at a minimum of three squadrons.(1) Since that time, different strategic concepts on both sides had added to the magnitude of the threat and multiplied the concern with which it was viewed. True, the resources of the defender had grown, too; and a recent decision to add the Beaufighter to the equipment of Coastal Command would give that Command a long-range fighter which was capable of dealing with the fastest German bombers then in service. But it now appeared that, even with several squadrons of Beaufighters, to protect the convoys whenever and wherever they were threatened would be impossible, not only because the number of Beaufighters likely to be available was

C.O.S.(41)
75th Mtg.
(annex)

C.O.S.(41)
130

(1) See Page 349.

inadequate, (1) but because some of the areas where attack was possible were out of reach. Nor was it to be expected that static anti-aircraft weapons mounted on the unstable platform of a ship at sea would ever provide a complete defence. What other means of protection remained?

Ibid.,

In the opinion of the Air Staff the answer to this problem was the shipborne high-performance fighter. In the words of a note submitted by the Chief of the Air Staff to the Chiefs of Staff Committee on March 3rd:

"I am convinced that neither shore-based aircraft in the numbers that we can hope to provide in the next six to nine months nor gun armament can secure our shipping in the Atlantic against the scale and type of long-range air attack that we must now expect The only method of protection likely to be effective is the shipborne high performance fighter operating from specially converted ships which must accompany every convoy in the danger area. I urge that these ships should be given the highest possible priority".

C.O.S. (41)130;
C.S. 8955,
encl. 3A

A.H.B. ID/2/267,
encl. 5A

This suggestion was not a new one. As a result of the consideration which it had already received from the Naval and Air Staffs, three ocean boarding vessels were already being fitted with catapults for launching aircraft and the possibility of equipping other vessels of more than 4,000 tons to carry catapult fighters was being examined. This exploratory work now received fresh impetus, with the result that on March 11th the First Lord of the Admiralty was able to announce that four ocean boarding vessels with the necessary modifications were expected to be in service within a few weeks, and that 20 sets of rocket take-off gear had been ordered for installation in merchant vessels then under construction. "We feel," he added, "that the aim should be 200 such vessels."

A.H.B. ID/2/
266, passim

During the next few weeks there was much discussion of this figure and also of the number of aircraft and pilots required for the project. At one time it was suggested that as many as 600 fighters would be needed; while there were strong arguments in favour of embarking two pilots in each modified ship. Eventually it was agreed that, as a start, 50 merchant vessels of approximately 9,000 tons should be modified in such a way as not to interfere with their ability to carry cargo, and that only one pilot could be spared for each. In addition to the pilot, each vessel would carry one Hurricane aircraft, Mark I; a small maintenance crew; and a supply of spares. It would be equipped with rocket take-off gear, and with radar and R/T equipment which would enable the pilot to be directed towards an approaching enemy aircraft by a controller in the ship, who would be a naval officer and would be called a "Fighter Directing Officer".

(1) It was calculated that at least eight squadrons would be needed to maintain a continuous escort of four aircraft for one convoy or independent vessel throughout the hours of daylight in summer at an average distance of 420 miles from base. On most days there were four convoys (to say nothing of six to ten vessels not in convoy) in the danger zone, so that continuous patrols would have required a force at least two or three times as great as the whole Beaufighter programme for Fighter and Coastal Commands up to September 1941, which stood at 13 squadrons.

Aircraft, pilots, maintenance personnel and spares were to be provided by the Royal Air Force, which would also train the Fighter Directing Officers. With minor exceptions, the remaining personnel and facilities would be provided by the Royal Navy and the Ministry of Shipping.

Admiralty Paper
D.E.M.S./C.I.C./
91/53;
C.S.8955,
encl. 13A

These 50 "Catapult Aircraft Merchant Ships", or CAM ships, would ply their normal trade and fly the red ensign. In addition, there would be the vessels which the Admiralty had already adapted or begun to adapt to carry catapult fighters of the Fleet Air Arm. These, together with the auxiliary aircraft carrier Empire Audacity, would fly the white ensign and would operate continuously in the danger area, accompanying outward-bound and inward-bound convoys in turn. Thus, some convoys would enjoy the protection for part of their voyage of two or more ships each capable of catapulting at least one aircraft; and in this case a co-ordinating control would be exercised by the vessel carrying naval aircraft or, if there were none, by whichever CAM ship might be designated by the Commodore of the convoy.

Obviously, once an aircraft had taken off, it could not return to the ship: at the end of his patrol the pilot would either bale out, alight on the sea, or make for an aerodrome on land.

M.S. F.U. Form 540

D.O.O.(0,2) Paper No.
W.2298 d.1.5.41
(M.S.F.U. Form 540,
appendix)

A.H.B.ID/2/266,
encl. d.8.5.41

Report by F/Lt.
Linney d.27.1.42
(M.S.F.U. Form 540,
appendix)

In accordance with this programme, the Merchant Ship Fighter Unit began to form at Speke early in May, 1941 under the Command of Wing Commander E. S. Moulton-Barrett. The new unit was placed in No.9 Group, Fighter Command. Its establishment comprised a headquarters and practice flying flight at Speke; two mobile erection parties; and 50 ship detachments to provide for the needs of the 50 merchant vessels which were expected to be in service by September. Sixty Hurricanes were made available for conversion early in May. It was intended that ultimately there should be 200, of which 50 would be held at a pool on the far side of the Atlantic. In August, 1941 an organisation for this purpose was set up at Dartmouth, Nova Scotia.

Report by W/C
Passmore d.2.6.41
(M.S.F.U. Form 540,
appendix)

Postagram M.S.F.U. -
No.9 Group d.3.6.41

M.S.F.U. Form 540

Ibid.

Ibid.

Report by Sector
Int. Officer, Speke,
no date (M.S.F.U.
Form 540, appendix)

The new unit carried out its first trial launch from a merchant vessel on May 31st, when a Hurricane piloted by Pilot Officer H. J. Davidson was launched from S. S. Empire Rainbow at Greenock and landed at Abbotsinch. The occasion only just escaped being disastrous, for the aircraft swung badly to port and one wing touched the water; but this was due to the human factor and not to any defect in the method. Further trial launchings were made without mishap, and early in June crews began to go to sea on operational service.(1) Despite the many practical and administrative problems involved in this marriage of two elements, the scheme worked well, although it was not until November 1st that a pilot of the unit came into contact with the enemy. On that day Flying

- (1) The first crews embarked were Flying Officer A.R.M. Cambell (pilot), Sub-Lieutenant O.H. Pope (Fighter Directing Officer), Corporal Banner and Aircraftmen Bragg, Wrightson and Smith in S.S. Empire Moon; and Pilot Officer H. J. Davidson (pilot), Sub-Lieutenant D. E. Wilson (Fighter Directing Officer), Corporal Wolfenden, Leading Aircraftman Howarth and Aircraftmen Chambers and Burgess in S.S. Empire Rainbow.

M.S.F.U.
Form 540,
S9660, encl. 86B

Officer G. W. Varley, flying a Hurricane launched from S.S. Empire Foam, intercepted a Focke-Wulf 200 some 650 miles west of Achill Head. The enemy aircraft disappeared in a bank of cloud before it could be engaged, and at the end of a patrol lasting nearly two hours, Flying Officer Varley baled out from 3,000 feet and was picked up by the destroyer H.M.S. Broke after being in the water for about four minutes. No further interceptions by pilots of the Merchant Ship Fighter Unit were recorded in 1941.(1)

M.S.F.U. Form
540 and
appendices

A.M.
C.S. 8955,
encl. 92B

A.M.
C.S. 8955, encl.
101A; C.S. 8955/
II, encl. 3A

Report by Lt.
Everett d.
18.8.41(M.S.F.U.
Form 540,
appendix)

The developments for which the Admiralty alone was responsible proceeded on a parallel course. The first trial launch from a merchant vessel conducted under naval auspices was at Bangor Bay, near Belfast, on May 17th, when a Hurricane was successfully launched from S.S. Michael E., the first merchant ship to be equipped with the type of launching gear which became standard in the CAM ships. By the end of the first week in June the four fighter catapult ships Pegasus, Springbank, Maplin and Ariguani, flying the white ensign, were all in service and the first operational flight from one of these ships had taken place.(2) On August 3rd Lieutenant (A) R. W. H. Everett, R.N.V.R., flying a Hurricane I of No. 804 Squadron catapulted from H.M.S. Maplin, attacked a Focke-Wulf 200 some 400 miles south-west of Cape Clear, and saw it go into the sea.

Thus it is fair to say that by the winter of 1941 the plan of putting high-performance aircraft into modified or converted merchant ships had proved its utility. In relation to the air defences its main significance lies, however, in the fact that it represented a substantial diversion of men and material from the direct defence of the United Kingdom and coastwise trade.(3)

A.H.B.ID/2/266,
passim

(2) Bases in Eire

A further requirement of the Naval and Air Staffs was the establishment of bases in Eire. Their views had the concurrence of the General Staff; and in March the Chiefs of Staff presented to the War Cabinet a memorandum in which they declared that the increased protection required for Atlantic trade could "only be given by operating our naval and air forces from bases in Eire nearer to the area of enemy attack".

The memorandum went on to outline more precisely what would be involved. Clearly, not merely anchorages for ships, but also aerodromes, an air defence system, and troops to defend all these things, would be needed; so that, as the Secretary of State for Dominion Affairs pointed out in commenting on the proposals, something approaching a military occupation would be entailed. To obtain the consent of the Eireann Government to such a measure would clearly be a matter of great difficulty; and it proved impracticable to give the Chiefs of Staff the facilities for which they asked.

W.P.(41) 59

W.P.(41) 64

M.S.F.U.
Form 540
and appendices.

- (1) The unit remained in existence until early in September, 1943, when the changed strategical and tactical situation led to its disbandment. Offshoots were opened at Archangel and Gibraltar in 1942 and towards the end of that year the pool in Canada was closed. To the credit of the unit must go a number of successful interceptions on various convoy routes in 1942 and 1943, and a deterrent effect throughout its life which cannot be precisely assessed but was certainly important.
- (2) The sortie was uneventful and the pilot landed without mishap in Ireland.
- (3) For fighter Command the formation of the Merchant Ship Fighter Unit meant, in broad terms, the sacrifice of two fighter squadrons.

(3) Further addition to A.A. defences in the West

We have seen that, as an immediate consequence of the directions given to the Air Officer Commanding-in-Chief, Fighter Command at the end of February and early in March, orders were issued for the addition of 81 heavy A.A. guns to the defences of west coast ports. At the same time some light A.A. weapons were taken from the Clyde and elsewhere for installation in merchant vessels.

A.H.B.ID/2/267,
encl.10A;
C.O.S.(41)
99th Mtg.

At a meeting of the Chiefs of Staff Committee on March 10th, the First Sea Lord again drew attention to the great importance of the west coast ports; and in order that there should be no doubt that the defences of these ports were adequate and disposed to the best advantage, the Air Officer Commanding-in-Chief, Fighter Command, who was present, thereupon undertook to send officers to visit the ports and report on the situation after consulting the local Commanders. It was agreed that if the reports of these officers disclosed a need for further action, the matter should be reviewed.

C.O.S.(41)216
(annex)

The main conclusion which emerged from the visits of these officers was that the heavy A.A. defences of the west coast ports ought to be substantially increased. In two cases the raising of the planned scale of defence as recommended, and in every case it was urged that the actual strength of the defences should be brought up to the planned scale without delay. The detailed recommendations submitted by the Air Officer Commanding-in-Chief, Fighter Command on March 21st were as follows:

<u>Area</u>	<u>Scale Already Approved</u>	<u>Scale Now Proposed</u>	<u>Guns in Position or under order to move</u>	<u>Increase needed to meet new proposals</u>
Clyde	112	144	88	56
Liverpool	96	112	96	16
Bristol	80	80	68	12
Avonmouth				
Swansea	48	48	36	12
Port Talbot				
Llanelly	64	64	56	8
Cardiff				
Barry				
Newport				

Total increase required:

104 guns

Ibid.

The Commander-in-Chief proposed to find the sixteen additional guns required for Liverpool by withdrawing eight each from Slough and the Derby-Nottingham area; similarly, he proposed to strengthen the defences of Swansea and Cardiff at the expense of other parts of Wales. But the greatest number of guns he could find in this way was 28. This would leave 76 more to be found; and these could not be taken from other parts of the country without seriously weakening the defence of areas which were still important. Already 58 guns had been withdrawn from such vital centres as Birmingham and Sheffield; and the Commander-in-Chief considered it highly desirable that these reductions should be made good as soon as possible. He therefore urged that,

for the time being, all heavy A.A. resources from production should be allocated, without exception, to the air defences.(1)

The importance and urgency of this claim was indisputable; but against it had to be weighed the requirements of other theatres of war, of ports abroad and customers in other countries. For this reason the Chiefs of Staff Sub-Committee on the Allocation of Active Air Defences, whose duty it was to consider the Commander-in-Chief's proposals, while endorsing his plan for the reinforcement of the west coast ports, qualified their support of his claim to a monopoly of production by a reference to other needs. In practice this meant that, as in the past, the proportion of total production to be allotted to the air defences would be a matter for decision from time to time by the Chiefs of Staff, in the light of the advice tendered by the Sub-Committee. Subject to the approval of the Chiefs of Staff, the air defences were already due to receive 68 guns out of April production; and it was expected that their allocation for May would be about the same.

C.O.S.(41)216

A.M. S.6456/I,
encl. d. 31.3.41
(unnumbered)

C.O.S.(41)
119th Mtg.

These recommendations were approved by the Chiefs of Staff Committee on April 2nd. The final allocation to the air defences out of April 2nd production amounted to 72 guns (including four dual-purpose guns) so that only four guns would have to be found from other areas in addition to the 28 which the Commander-in-Chief already proposed to find in this way.

(vi) Fighter Operations, March to December, 1941

Meanwhile the Fighter Groups were responding vigorously to the new instructions given to them early in March.(2)

FC/S.23680,
encl. 4A

War Cabinet
Weekly Résumé

FC/S.23680,
encl. 5A

Ibid.,
encl.4A

The number of sorties flown in daylight by the whole of Fighter Command for the direct protection of shipping in February was 443. This was eight per cent of the total defensive effort of the Command by day. In March the corresponding figure rose to 2,103 sorties, or eighteen per cent of a total which was more than twice that recorded in the previous month. At the same time the enemy also increased his effort and in March sank 21 merchant vessels within 40 miles of the coast in daylight, as against seven in February.(3) Qualitatively, this was the zenith of the German offensive against coastwise shipping: besides the 21 vessels sunk in daylight, three were sunk at night, while by day and at night another 32 and twelve respectively were damaged. By exploiting weather conditions which were often unfavourable to our fighters, the enemy made the task of the defence extremely difficult; and a disturbing feature of the month's activity was that about one fifth of all the attacks recorded were delivered while fighters were close to the ship attacked, and a few whilst it was actually being escorted.

Clearly, then, it behoved the fighters to do more and better. They responded by devoting 7,876 sorties, or 49 per cent of the total defensive effort in daylight, to the direct protection of shipping in April. Several squadrons in No.10 Group each spent more than 1,000 hours of flying time

C.O.S.(41)
99th Mtg.

- (1) It had been agreed by the Chiefs of Staff on March 15th that overseas demands for A.A. guns would have to take second place; but this suggestion went much further.
- (2) See Pages 355 and 356.
- (3) An analysis of each month's operations and results is at appendix XVIII.

War Cabinet
Weekly Résumé

FC/S.23680,
encl. 10A

Ibid.,
encl. 14A

on the protection of shipping during this period of 30 days. That these efforts were not made in vain is demonstrated by a sharp drop in sinkings from 21 in March to ten in April; for although the other defensive measures taken may claim some of the credit for this, it would be unreasonable to deprive the fighters of a substantial share.⁽¹⁾ It is also significant that, whereas less than a fifth of the attacks reported in March occurred at night, in April this proportion rose to more than a third. "You will be glad to hear," said Air Marshal Douglas in a letter to the Chief of the Air Staff, "that for once the Navy is quite pleased with Fighter Command."

Ibid.,
encl. 10A

But if the situation at the end of April gave some ground for satisfaction, it gave none for complacency. Far too many attacks were still being made on ships which were actually being escorted or had fighters close at hand; while the number of occasions on which German aircraft were able to approach a convoy without detection by the air defences bore witness to the enemy's luck or skill in exploiting the weak links in the radar chain. The remedy for the second of these ills was obvious; and it was hoped that the addition of new radar stations and the modernisation of others during May would provide it. In regard to the first, it was suggested that the more careful routeing and shepherding of convoys would make it easier for fighters to keep them under observation; and that measures should be taken to enable ships to draw the attention of patrolling fighters to the whereabouts of enemy aircraft.

FC/S.20350,
encl. 1A-13A

Ibid.,
encl. 28A

FC/S.20350,
encl. 40A

Ibid., encl.
31A, 46A,
min. 42

Ibid., encl.
52A, 57A

Ibid., encl.
60A, 63A

The obvious way of arranging for this information to be given was to fit R/T into ships and allow them to transmit to the fighters on a pre-arranged frequency. Such an arrangement had been suggested in July, 1940; but at that time Fighter Command dismissed it as impracticable. In December of that year, however, they authorised No.14 Group to carry out trials in conjunction with the Commander-in-Chief, Rosyth, on condition that transmissions were limited to the passing of information and that no attempt was made to control the fighters.⁽²⁾ These trials were carried out between December, 1940 and February, 1941; but they were inconclusive, and since the Admiralty was anxious that the matter should be pursued, it was decided early in March that further trials should be made. As a result, it became clear early in April that the scheme was practicable, and the suggestion was then made that it might be extended to escort vessels accompanying convoys in the Irish Sea as well as off the east coast from Rosyth to the Nore. Nevertheless

A.D.I.(K)
Report No.13/
1946, para.34

FC/S.20350,
min. 19-24

- (1) Most of the senior officers of the Luftwaffe who have been interrogated about the campaign against shipping have, however, agreed in stating that the turning point was "the Allied decision to armour-plate gun positions on merchant vessels".
- (2) There were strong objections to the scheme on the ground that it would cut across the principle which placed the control of all active elements of the air defences in the hands of the A.O.C.-in-C., Fighter Command. Hence when the scheme was ultimately adopted, it was necessary to emphasize that the R/T sets in the ships were for passing information not for controlling fighters. This objection did not apply to the CAM ships (see pages 358-360 above) which operated outside the area normally covered by the air defences, and carried Fighter Directing Officers trained by Fighter Command.

certain operational, as well as technical, problems still remained to be solved. A conference to discuss these was held at the Air Ministry on May 17th, at which agreement was reached between the Admiralty, the Air Ministry and Fighter Command on the principles to be observed; but it was not until the middle of June that a detailed plan could be worked out and the necessary instructions issued to the various naval and air formations concerned. Even then equipment of the escort vessels with R/T sets still remained to be done; and progress in this respect was slow.

No appreciable advantage, therefore, was derived from this scheme in May, or indeed for some months to come. On the other hand, radar cover was substantially improved and a rather smaller proportion of attacks were delivered without warning than in April. In this month Fighter Command's effort reached its peak, with 8,287 sorties, which was slightly more than half the total defensive effort in daylight. The German effort declined substantially and sinkings in daylight fell from ten to seven. The tendency towards night attacks which had been noticed in April was intensified, considerably more than half the attacks reported in May being made under cover of darkness or twilight.

In June the Command devoted a still higher proportion of its defensive effort to the protection of shipping⁽¹⁾, although the number of sorties flown was smaller in the absolute, the defensive effort as a whole being somewhat reduced in conformity with the alterations in strategy which followed the re-deployment of the Luftwaffe in preparation for the campaign in the east. Again the German effort declined; but the decline was by no means proportionate to the general reduction of his offensive on the western front; and it was estimated that in June seventy per cent of his whole offensive effort by day went into operations against shipping. Only three merchant vessels were sunk in daylight, as against seven in May, but the number of daylight attacks reported showed no appreciable decrease, and attacks at night were both more numerous and more successful. By the end of June only five naval escort vessels had been fitted with R/T, so that the gap in the defences which made it possible for ships to suffer attack while fighters were close at hand was still unbridged. Furthermore, although four new radar stations came into service towards the end of June and the equipment of others was substantially improved, about a third of the attacks reported occurred without previous warning. The waters off the east coast between Berwick and Cromer were the scene of more than half the attacks recorded within the area for which Fighter Command were responsible; in addition, nine attacks were reported off the west coast of Scotland, in positions which short-range fighters could not reach because, although they were all within 40 miles of the shore, there were no aerodromes in that part of Scotland suitable for high-performance fighters.⁽²⁾

In view of the rise in the number of attacks made at night, attempts were made in June to give increased fighter

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- (1) For Fighter Command Order of Battle, see Appendix XVII.
 - (2) These nine attacks are not included in the figures at Appendix XVIII. The practice throughout has been to include only attacks in areas within 40 miles of the coast and of a Royal Air Force aerodrome. For another aspect of this question see Air Defence of Great Britain Vol.IV Part I, paragraphs 27 - 32.

Ibid., encl.
66B, 72A

Ibid., encl.
83A, 84A

Ibid., encl.
100A, 101A,
min.101

FC/S.23680,
encl.26A

War Cabinet
Weekly Résumé

FC/S.23680,
encl.39A

War Cabinet
Weekly Résumé

FC/S.23680,
encl.39A

Ibid.,
encl.39B

Ibid.,
encl. 39A

protection to convoys after dark, sometimes even by means of standing escort, although the feasibility of this method had always appeared doubtful. It was found that the presence of a standing escort at night conferred little benefit and tended to embarrass the A.A. defences of the convoys. Fighter Command therefore recommended early in July that fighter escorts always be withdrawn at night and that after dark the convoys rely on their A.A. weapons and on the protection given indirectly by night fighters in their attempts to intercept the aircraft responsible for the attacks. Recent experiments in the technique of night interception at low altitudes might make this form of indirect protection more effective in the future.

War Cabinet
Weekly Resume

Ibid., also
FC/S.23680,
encl. 10A

In July only one merchant vessel was sunk in daylight within the area covered by Fighter Command and only one damaged. During the remaining five months of the year four vessels were sunk in daylight, and the average number damaged each month was three, as against seventeen during the first six months of the year. Since the percentage of all daylight attacks which failed rose from 53 in the first half of the year to 73 in the second, it seems clear that this change was not due solely to the reduction in the scale of attack which accompanied the opening of the campaign in the east, nor to the enemy's deliberate preference for night attacks. It can therefore be claimed that by the end of the summer a combination of improved A.A. defences and resolute fighter action, in conjunction with the other measures taken, had gone far to answer the problem of protecting coastwise trade by day. At the same time it must be observed that this result had been achieved by efforts which would hardly have been feasible if heavy attacks on land objectives by the Germans had continued.

FC/S.23680,
encl.49A

War Cabinet
Weekly Resume

FC/S.23680,
encl.49A

FC/S.23680,
encl.58A,65A,
70A;
FC/S.27005,
encl.7B, 13A

There remained the problem of protecting ships at night and, above all, at dusk. In July 68 attacks between 30 minutes after sunset and 30 minutes before sunrise were reported; seven merchant vessels were sunk and 20 damaged. In the remaining five months of the year these attacks were neither so numerous nor so destructive; nevertheless 23 ships were sunk or damaged during the night phase in September and 25 in November, while in no month did this figure fall below thirteen. At the height of summer, darkness is a relative term; and in spite of the arguments which had recently been advanced in favour of withdrawing fighter escorts at dusk, in practice this was not always done. But neither direct protection, nor improved A.A. defences, nor new methods of interception provided a complete answer to the problem; and for the rest of the year attacks at dusk, especially off the coasts of Northumberland, Durham and East Anglia, continued to cause anxiety. Furthermore, as winter approached, new methods of attack, in daylight, under cover of weather conditions which often hampered fighters, together with the introduction of the Do.217 bomber and a threat of increased torpedo-bomber activity in the future, all helped to remind the defenders that the battle was not yet over.

365(a)

(vii) E-boat operations and air countermeasures - May 1940 to June 1941

(a) Introduction

War Diary of
F. d S.
Admty F.D.S.
X/237/48

When the war broke out, the Germans had two flotillas of E-boats in commission each consisting of eight boats. The 1st Flotilla was based at Pillau and the 2nd Flotilla at Swinemunde. Both were engaged in operations and exercises in the West Baltic. Later in September 1939 the 2nd Flotilla moved to Kiel from where they made anti-submarine sorties into the Kattegat while the 1st Flotilla was sent to Wilhelmshaven to be employed on escort duties with the German minelaying force engaged in laying defensive minefields in the Heligoland Bight. These duties continued until the end of 1939 and no contacts were made with any British forces.

During the whole of January and February 1940 both flotillas underwent docking, refit and various trials. For the first half of March they were completely immobilised by very extensive ice off the whole of the North German coast line and were not fully operational until the end of March.

For the invasion of Norway early in April 1940 the 2nd Flotilla, after accompanying the German landings in Oddense, formed part of the Skagerrack Defence Force against British submarines and were based in Southern Norway. The 1st Flotilla carried out escort duties up the west coast of Norway and were ultimately based at Bergen. Such employment lasted until the middle of May 1940 and again no contacts were made with British forces.

ibid

The Senior Officer E-boats commenting on these operations stated that the use of E-boats as sub-chasers and for escorting slow transports was not in accordance with their designed purpose and much damage had resulted from the misuse of their engines. Both flotillas were withdrawn from Norway and by 20 May the 1st Flotilla of four boats was at Borkum followed a few days later by the arrival of the 2nd Flotilla of five boats at Den Helder newly acquired after the invasion of Holland. It is from this date that their offensive started against British shipping. Their torpedo attacks and minelaying were done in the dark hours but initially they left harbour well before dusk and returned in broad daylight.

(b) Early air measures against E-boats

H.Q.C.C.
Narrative
for
15 May 1940

On 13 May the Admiralty expressed concern about the possibility of E-boats operating from German North Sea ports to attack our shipping at dusk. Coastal Command pilots on routine reconnaissance patrols were therefore warned to keep a special look-out for these craft. At a meeting held on the same day a joint Admiralty/Air Ministry conference placed on Coastal Command the responsibility for Home Defence against enemy motor torpedo boats or E-boats as they were called henceforth. (1)

(1) The German name for these craft was Schnell-boote and their individual distinguishing number was prefixed with the letter S. Hence also the head of this force was known as the Fuehrer der Schnell-Boote shortened into F. d S.

SECRET

365(b)

Two specific anti-E-boat air patrols were instituted on 14 and 16 May to cover the East Coast shipping route against attacks. (1) One of these extended across the North Sea from the Tyne and Humber to longitude 5°E and the other was coast-wise 60 miles off shore between the Forth and the Wash. Both were performed at dusk and were in combination with a routine dusk patrol extending from the Straits of Dover along the Belgian and Dutch coasts up as far as the Texel (called Patrol Dutch) which had been instituted on 1 April against enemy minelaying craft.

The first sighting of E-boats occurred on 20 May when three Ansons of No. 48 Squadron on Patrol Dutch attacked eight E-boats off the Texel with 100 lb. bombs and machine gun fire. No damage was inflicted on the enemy and G/48 Squadron was shot down by their flak. On the following morning a search was made in this vicinity by two Blenheim aircraft who sighted a total of seven E-boats. However, a strike force of three Hudsons escorted by three Blenheim fighters despatched to attack failed to locate them.

On 23 May the offshore patrol between the Forth and the Wash was discontinued and in lieu was instituted a night patrol between Calais and the Hook of Holland to intercept any E-boats who might operate against our shipping sailing between England and the continent. This was known as Patrol Hook and was done at hourly intervals each night during the moon period. (2) Sightings of E-boats were made on the nights of 23, 24 and 25 May followed by further sightings on 25 and 26 May by Patrol Dutch. Attacks were carried out on all occasions except the 26 May but no damage was inflicted.

Meanwhile the two E-boat flotillas had moved their operational bases to the Hook of Holland and Rotterdam respectively. Their first success came on 28 May when the small ship Abukir (Br.) - 694 tons was sunk to the north of Dunkirk. This was followed the next night by the sinking of H.M. destroyers Grafton and Wakeful in the same neighbourhood. Believing that E-boats were using the port of Ymuiden an air raid was carried out on the night of 29 May by six Coastal Command Beauforts but in fact no E-boats were based in this port until much later.

On 28 May, when Coastal Command began full scale support for the evacuation of the B.E.F., a patrol Shamrock was introduced. This was a continuous patrol by three Ansons from Detling airfield off the Belgian coast between Nieuport and Zeebrugge to give early warning of E-boats. It was replaced on 30 May by a similar patrol called Thistle. (3) Night patrols were intensified and on 31 May the Hook patrol was replaced by a continuous patrol with reconnaissance flares to the northeast of the evacuation channel. (4) Fleet Air Arm target towing aircraft and Ansons of Coastal

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- (1) Forms Green CC/G1/14/5 and CC/G1 and 2/16/5.
 - (2) Forms Green CC/G1/23/5 and CH/G7/23/5.
 - (3) Thistle was continuous line patrol during daylight by three Ansons in company between positions 5117N x 0252E and 5130N x 0238E.
 - (4) The evacuation channel lay between lines drawn from Dover to Dunkirk and North Foreland to Ostend. The flare patrol was done along latitude 5130N between longitudes 0200E and 0320E.

H.Q.C.C.
Narrative for
20 & 21 May

H.Q.C.C.
Narrative for
May 1940

365(c)

Command were used for towing the flares and were accompanied by a second aircraft carrying 250 lb. A/S bombs. E-boats were sighted on the first night of the patrol and an attack was made. A direct hit was estimated at the time but is not confirmed by German sources.

In spite of the enormous amount of shipping of all sizes engaged in the great evacuation operation, the 1st and 2nd Flotillas operating from the Hook of Holland had remarkably few successes. None of the transports and ferrying craft were hit and of the warships in attendance only the French destroyer Sirocco and the two armed trawlers Argyllshire and Stella Dorado were sunk - all on 1 June.

War Diary of
F. d S.

On 11 June the 2nd Flotilla went to Boulogne and were attacked that night in harbour by six Hudsons of Coastal Command and eleven F.A.A. aircraft. One boat was damaged by splinters and the C.O. killed with several crew wounded. Leaving the damaged boat behind, the rest of the flotilla returned to Rotterdam until better flak defence could be provided. This was done and the flotilla became based at Boulogne from 18 June. Operations were conducted against our south coast traffic but only resulted in the sinking of three independently routed vessels on the 19 and 24 June.⁽¹⁾ Towards the end of June the 1st Flotilla was transferred to Cherbourg and a third flotilla was in process of forming at Rotterdam.

ibid

During July E-boat operations continued exclusively against our south coast shipping. Their torpedo sorties rose and in addition some 40 sorties were devoted to minelaying along the coastwise route. Appendix XXI shows the monthly effort by Coastal Command, the nature of E-boat operations and vessels sunk by their torpedo attacks. It is impossible to distinguish mining casualties as E-boats, U-boats and the G.A.F. were all laying fields in close proximity to each other.

Torpedo successes occurred on the 4, 11 and 24 July against single ships but on the 26th they got into a convoy off Shoreham and sank three vessels with no loss to themselves. Air attacks on E-boats at sea were occasionally made but inflicted no damage. This lack of result is easily understood against such fast and highly evasive targets. New methods of attack and new weapons were constantly being tried including depth charges, various types of bombs and even bunches of steel arrows dropped in large numbers in the hope of causing casualties among E-boat crews.

Air attacks were made at frequent intervals during July and August on ports thought to contain E-boat bases but the scale of attack on each occasion was seldom above six aircraft and in fact no damage was ever inflicted on the E-boats. Such attacks were made on Ymuiden, Amsterdam, Den Helder, Ostend, Boulogne and Cherbourg.

August saw a falling off in offensive sorties as E-boats were used extensively in rescuing airmen shot down in the Channel during the incessant air combats of the Battle of

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- (1) Roseburn (Br.) - 3,103 tons on 19 June off Dungeness
Albuera (Br.) - 3,477 and Kingfisher (Br.) - 276 tons on
24 June between Beachy Head and Dungeness.

SECRET

365(d)

War Diary of
F. d S.

Britain. Towards the end of the month the 2nd Flotilla were moved back to Ostend and the new 3rd Flotilla became operational on four boats from Rotterdam.

These two flotillas totalling 13 boats were henceforth used entirely against our east coast convoys and concentrated their operations along the stretch off East Anglia between Southwold and the mouth of the Humber. During September 1940 they attacked three convoys in this area and sank seven merchant ships. Thereafter their success fell away to one ship in October, none in November and two in December. During October the 1st Flotilla was withdrawn from Cherbourg and sent to Norway where it remained until the end of the year.

Under the stress of providing increased reconnaissance patrols against invasion and in defence of coastwise shipping against G.A.F. attack, Coastal Command's specific anti-E-boat patrols slackened after July 1940 and ceased altogether during the last quarter of the year. Naval escort to the east coast convoys was, however, gradually strengthened and by November the E-boat War Diary records the fact that it was becoming difficult to penetrate the protective screen. It was on the 19th of this month that the E-boats sustained their first loss in action when S.38 was sunk by destroyer action to the east of Lowestoft. (1)

Sporadic air attacks continued to be made up to the end of 1940 on the ports used by E-boats but, except for damage inflicted on one E-boat in Ostend on the night of 7/8 September, no loss or interference with their operations was caused.

At the opening of 1941 the E-boat disposition was:-

1st Flotilla	-	4 boats	-	Rotterdam
2nd Flotilla	-	3 boats	-	Ostend
3rd Flotilla	-	4 boats	-	Ostend/Boulogne

Operations were conducted entirely off our east coast and were based on reports from G.A.F. reconnaissance as to the positions of our shipping. No success occurred in January but four ships and the destroyer Exmoor were sunk during February. Reinforcements of new boats were reaching the flotillas and by 1 March the 1st Flotilla with seven boats were based at Ymuiden, the 2nd Flotilla had five boats at Ostend and the 3rd Flotilla of six boats moved to Rotterdam. Sorties were stepped up smartly and several east coast convoys were attacked during March 1941 resulting in nine ships totalling 20,361 tons being sunk with no loss to themselves.

April sorties were on a reduced scale and devoted more to minelaying on the inner channels in order to force convoys further to seaward. Only three ships were sunk and one damaged by torpedo attack. During May all three flotillas ceased operations for major refit and engine replacements in German yards. A fourth flotilla, which had been forming for some months, was completing its training at Wilhelmshaven.

(1) Prior to this first positive kill, the E-boats had lost three of their numbers on mines, whether German or British laid is not certain. S.32 off Dungeness on 21 June, S.23 near Smiths Knoll on 11 July and S.37 eastward of Orfordness on 11 October.

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Early in June the three refitted flotillas moved to Baltic bases in preparation for the invasion of Russia and the still non-operational 4th Flotilla was sent to Rotterdam. No shipping loss occurred during May, June and July and the few sorties made during the latter month by the 4th Flotilla were on minelaying.

No. 16 Group
O.R.B.

The sharp rise in E-boat attacks during March 1941 had started Coastal Command into a resumption of anti-E-boat patrols designed to catch them at dusk setting out from their bases and at dawn when returning to them. These patrols were in addition to the standard anti-shipping flying which was carried out along the enemy held coast between Borkum and Cherbourg. The anti-E-boat patrols were located across the southern part of the North Sea between East Anglia and the Netherlands. By June 1941 they had crystallised into standard dawn and dusk flying under the name of Pirbo 1, 2, 3 and 4, shown on Map No. 1. The 267 sorties were not very productive, there being only eight attacks in March and three in June - all harmless to the E-boats. Equally ineffective were the occasional bombing attacks on E-boat bases in Ostend and Ymuiden. Such specifically assigned attacks ceased after June 1941 and were not resumed until 1944.

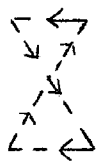
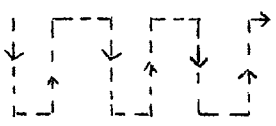
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GLOSSARY OF TERMS AND ABBREVIATIONS

APPENDICES No. I to No. ~~XXX~~XXI

GLOSSARY OF TERMS AND ABBREVIATIONS

- S/M = Submarine. This word is used exclusively in reference to our own submarines.
- U/B = U-boat, either German, Italian or Japanese. i.e. enemy submarine.
- A/U = Anti U-boat. Throughout the narrative this contraction is used in preference to A/S (anti-submarine) to avoid confusion with anti-shipping and to specifically indicate action against U-boats. Coastal Command adopted the use of "A/U" from 1943 but both terms were used in Admty. e.g. A/S Warfare but Director of the A/U Division.
- Ship recce. = Reconnaissance directed to locate enemy surface vessels of all types.
- Ship strikes = Offensive action against enemy surface forces, i.e. anti-shipping.
- Cross over patrol = A type of patrol, generally by one aircraft, designed to intercept a vessel whose course, speed and direction of advance are known within reasonable limits. 
- Parallel track Search = A search by several aircraft each flying along parallel tracks spaced twice or thrice visibility distance from each other. In due course visibility distance became effective A.S.V. range. Used to locate forces of which the nature, position, course and speed are unknown.
- Box patrol = Flying along the sides of a square or rectangle so that the sea contained in the area is covered by the visibility or the A.S.V. range from the aircraft.
- Line patrol = Flying along a designated line like a sentry on his beat. It can be performed by one aircraft or a number at set intervals of time.
- Creeping line ahead patrol = A line patrol which advances after each line is completed. 
- A.S.V. = Airborne radio-location of ships; literally Air to Surface Vessel.
- R.D.F. = Radio Direction Finding. It originally described the location of aircraft in the air from ground stations. It soon included the location of ships from ground stations and from other ships.
- Radar = All types of radio-location. It was introduced soon after the entry of U.S.A. into the war so as to standardise allied nomenclature.
- R/T = Radio telephony.
- ASDIC = Under water location of diving U/Bs by surface craft. Literally Allied Submarine Detector Investigation Committee which was the body engaged in developing this discovery between the two World wars.
- D.C. = Depth charge. Heavy charge in a light casing fitted with hydrostatic fuze.

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A/S bomb = Anti-submarine bomb. Medium charge/casing ratio with delay fuze.

S.A.P. bomb = Semi armour piercing for use against armoured naval units.

G.P. bomb = General purpose bomb for use against merchant ships and light naval craft.

V/S = Visual signalling.

W/T = Wireless telegraphy.

D/F fix = The position of the author of W/T transmissions obtained by cross bearings.

P.R.U. = Photographic reconnaissance unit.

P.D.U. = " development "

P.I.U. = " interpretation "

Met. Sorties = Sorties carried out by aircraft fitted with the necessary instruments to report meteorological conditions in the area flown through.

A.S.R. = Air Sea Rescue.

G.R. = General reconnaissance. G.R. squadrons mean squadrons trained to work and fight over the sea. It was first used in this respect in 1935 to replace the previous term "Coastal Reconnaissance". Ref. Vol. I pp. 12 footnote (1).

Nickel raids = The dropping of propaganda leaflets.

Tonnages Tonnage of merchant ships is given in gross registered tons.
Tonnage of warships, where given, is in deep load displacement tons.
One displacement ton equals 1.54 gross registered tons.

I.E. = Initial Establishment of aircraft.

I.R. = Initial Reserve of aircraft.

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APPENDIX I

COASTAL COMMAND

ORDER OF BATTLE

10th September 1939

No. 15 Group

Mount Batten	No. 204 Sq.	Sunderland
Pembroke Dock	No. 210 Sq.	Sunderland
Pembroke Dock	No. 228 Sq.	Sunderland
Warmwell	No. 217 Sq. (Part)	Anson
Aldergrove	No. 502 Sq. A.A.F.	Anson
Carew Cheriton	No. 217 Sq. (Part)	Anson

No. 16 Group

Bircham Newton	No. 42 Sq.	Vildebeeste
Bircham Newton	No. 206 Sq.	Anson
Thorney Island	No. 22 Sq.	Vildebeeste
Thorney Island	No. 48 Sqn. (Part)	Anson
Detling	No. 500 Sq. A.A.F.	Anson
Detling	No. 48 Sq. (Part)	Anson
Guernsey	No. 48 Sq. (Part)	Anson

No. 18 Group

Sullom Voe	No. 201 Sq.	London
s.s. Manela		
Invergordon	No. 209 Sq.	Stranraer
Invergordon	No. 240 Sq.	London
Thornaby	No. 220 Sq.	Anson
Thornaby	No. 608 Sq. A.A.F.	Anson
Leuchars	No. 224 Sq.	Hudson
Leuchars	No. 233 Sq.	Anson
Montrose	No. 269 Sq.	Anson
Dyce	No. 612 Sq. A.A.F.	Anson

Establishment, Strength and Average Daily availability
during September 1939

	I.E.	I.R.	Strength	Average daily Availability
6 Flying-boat Squadrons	36	12	59	21
13 G.R. Squadrons	206	70	239	150
Totals	242	82	298	171

References. { C.C. Location Statement.
A.M./S.38173 Part III - Establishments and strengths
of Metropolitan and Overseas Sqdns.
(A.M. Daily Strength Return. Vol.I.

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APPENDIX 1 (continued)

Aircraft	Squadron Establish- ment 1.E. 1.R.	Economical True speed at 2000 feet	80% RANGE and Endurance in still air	Bomb load with normal tankage	Gun Armament
ANSON Landplane	18 6	114 Knots 25 gals. per hour.	510 sea miles 4.5 hours	2 - 100 lb.	1 fixed front gun .303" Vickers gas operated 1 rear gun .303" Lewis in hand operated turret.
VILDEBEESTE Landplane	12 4	82 Knots 25 gals. per hour.	370 sea miles 4.3 hours	8 - 100 lb. or 4 - 250 lb. or 2 - 500 lb. or 1 - 18in. torpedo	1 fixed front gun .303" gas operated. 1 rear gun .303" Lewis on rocking Pillar.
HUDSON Landplane	18 6	165 Knots 71 gals. per hour.	990 sea miles 6 hours	10 - 100 lb. or 4 - 250 lb.	2 fixed front guns .303" Browning 2 rear guns .303" Browning in Boulton Paul Turret.
LONDON Flying boat	6 2	86 knots 120 gals. per hour.	450 sea miles 5.2 hours	8 - 250 lb. or 4 - 500 lb.	1 - .303" Lewis gun in Nose on ring mounting 1 - .303" Lewis gun in Centre on ring mounting 1 - .303" Lewis gun in Tail on ring mounting
STRANRAER Flying boat	6 2	92 Knots 55 gals. per hour.	660 sea miles 7.2 hours	4 - 250 lb. or 2 - 500 lb.	
SUNDERLAND Flying boat	6 2	137 Knots 130 gals. per hour.	1,700 sea miles 12.4 hours	8 - 250 lb. or 4 - 500 lb.	1 front gun .303" Vickers Gas operated in Frazer Nash turret. 2 Centre guns .303" Vickers Gas operated, one on either side of fuselage on Linear Mountings. 4 Tailguns .303" Browning in Frazer-Nash turret.

Coastal Command

Order of Battle

1st November, 1940

Heston

Photographic Reconnaissance Unit

Spitfire/Hudson

No.15 Group H.Q. Plymouth

St.Eval

No.217 Squadron

Anson/Beaufort

"

No.236 Squadron (Part).

Blenheim F.

"

"B" Flight P.R.U.

Spitfire/Hudson

Mount Batten

No.10 Squadron R.A.A.F.(Part)

Sunderland

Pembroke Dock

No.209 Squadron (Part)

Lerwick

Carew Cheriton

No.321 Squadron Dutch

Anson

Aldergrove

No.502 Squadron (Part)

Anson/Whitley

"

No.224 Squadron (Part)

Hudson

"

No.48 Squadron (Part)

Anson

"

No.236 Squadron (Part)

Blenheim F.

Limavady

No.502 Squadron (Part)

Whitley

Hooton Park

No.48 Squadron (Part)

Anson

Oban

No.210 Squadron

Sunderland

"

No.10 Squadron R.A.A.F. (Part)

Sunderland

"

No.201 Squadron (Part)

Sunderland

Stranraer

No.240 Squadron

Stranraer

"

No.209 Squadron (Part)

Lerwick

Port Ellen

No.48 Squadron (Part)

Anson

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APPENDIX I (continued)

No.16 Group H.Q. Chatham

North Coates	No.22 Squadron	Beaufort
" "	No.812 Squadron F.A.A.	Swordfish
Bircham Newton	No.206 Squadron (Part)	Hudson
" "	No.235 Squadron (Part)	Blenheim F.
" "	No.500 Squadron (Part)	Anson
Detling	No.500 Squadron (Part)	Anson
"	No.53 Squadron	Blenheim G.R.
Thorney Island	No.59 Squadron	Blenheim G.R.
" "	No.235 Squadron (Part)	Blenheim F.

No.18 Group H.Q. Pitreavie Castle

Sullom Voe	No.201 Squadron (Part)	Sunderland
"	No.204 Squadron	Sunderland
"	No.700 Squadron F.A.A. (Part)	Walrus
Sumburgh	No.248 Squadron	Blenheim F.
Wick	No.42 Squadron	Beaufort
"	No.269 Squadron	Hudson
"	"A" Flight P.R.U.	Spitfire/Hudson
Dyce	No.612 Squadron (Part)	Anson
"	No.254 Squadron	Blenheim F.
Leuchars	No.233 Squadron	Hudson
"	No.224 Squadron (Part)	Hudson
"	No.320 Squadron Dutch	Hudson (Still training)
Thornaby	No.220 Squadron	Hudson
"	No.608 Squadron	Anson/Botha
Stornoway	No.612 Squadron (Part)	Anson

Iceland

Kaldadarnes	No.98 Squadron	Battle
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<u>Gibraltar</u>	No.202 Squadron	London
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Establishment, Strength and Average Daily Availability during November

	<u>I.E.</u>	<u>I.R.</u>	<u>Serviceable</u>	<u>U/S</u>	<u>Average Availability</u>
7 Flying Boat Sqdns	36	15	33	25	14
22 G.R. and Fighter Sqdns	402	14	366	98	187
	438	29	399	123	201
1 $\frac{1}{2}$ F.A.A. Sqdns	12	-	10	2	9
<u>TOTALS</u>	450	29	409	125	210

No. 1 P.R.U. of Total establishment 15.
 (Air Ministry Operational Squadron States Vol.2.
 (Air Ministry Daily Strength Vol.4.
 (Coastal Command Location Statement

References

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APPENDIX I (continued)

Coastal Command

Order of Battle

15th June, 1941

<u>Benson</u>	No.1 Photographic Reconnaissance Unit	Spitfire/Blenheim
<u>No.15 Group H.Q. Liverpool</u>		
Aldergrove	No.254 Squadron	Blenheim F.
"	No.233 Squadron	Hudson
"	No.143 Squadron	Beaufighter
Limavady	No.502 Squadron	Whitley
"	No.224 Squadron	Hudson
"	No.221 Squadron	Wellington
Nutts Corner	No.120 Squadron (forming)	Liberator
Lough Erne	No.209 Squadron	Catalina
"	No.240 Squadron	Catalina
Hooton Park	No.48 Squadron (Part)	Anson
Oban	No.210 Squadron	Catalina
Port Ellen, Islay	No.48 Squadron (Part)	Anson
Bowmore, Islay	No.119 Squadron	C. and G. flying boats
Iceland	No.98 Squadron	Battle/Hurricane
"	No.204 Squadron	Sunderland
"	No.269 Squadron (Part)	Hudson
"	No.330 Squadron Norw. (forming)	Northrop
<u>No.16 Group H.Q. Chatham</u>		
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 G.R.
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
"	Nos.404 and 407 Sqns. R.C.A.F. (forming)	Blenheim F.
<u>No.18 Group H.Q. Pitreavie Castle</u>		
Sullom Voe	No.201 Squadron (Part)	Sunderland
Wick	No.269 Squadron (Part)	Hudson
"	No.220 Squadron	Hudson
"	No.612 Squadron	Whitley
"	No.1406 Met. Flight	Spitfire
"	"C" Flight P.R.U.	Spitfire/Blenheim

APPENDIX I (continued)No.18 Group (continued)

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	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 G.R.
"	"B" Flight P.R.U.	Spitfire/Blenheim
Pembroke Dock	No.10 Squadron R.A.A.F.	Sunderland
Carew Cheriton	No.236 Squadron (Part)	Blenheim F.

No.200 Group, Gibraltar

No.202 Squadron	London/Catalina/ Swordfish
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West Africa

Freetown	No.95 Squadron	Sunderland
Bathurst	No.200 Squadron	Hudson

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 Sqdns.	65	7	45	19	17
26 G.R. and Fighter Sqdns.	495	25	408	110	281
2 F.A.A. Sqdns.	560	32	453	129	298
	18	-	16	2	7
TOTALS	578	32	469	131	305

3 Met. Flights of total I.E. 5 + 3 I.R. and 2 P.R.U. Flights of total I.E. + 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 + 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.

APPENDIX II

PLANS FOR ATTACK ON VARIOUS CLASSES OF AIR OBJECTIVES IN GERMANY

Air action open under the restrictions imposed by policy agreed with the French. Purely military objectives as far as possible not involving loss of civil life

1. W.A.7 (a) Attack on German fleet in Wilhelmshaven roadstead.
(Ships in dockyard not to be attacked).
2. W.A.12 Attack on German fleet at sea.
3. W.A.4 (a) Attacks on: (i) Rail communications of German Army massing in Western Germany.

(ii) Communications of forces in Siegfried Line.
4. W.A.4 (b) Attacks on German army advancing through Holland and Belgium.
5. W.A.14 Dropping of propaganda.
(i) Reconnaissance flights over Germany.
(ii) Night reconnaissance flights over Ruhr.
6. W.A.5 (b) Attacks on German canal system.

Air action NOT open under the above restrictions.

1. W.A.5 (a) Attacks on the German War Industry.
2. W.A.1. Attacks on the German aircraft industry.
3. W.A.5 (c) Attacks on the German Oil resources.

APPENDIX III

SIGHTINGS AND ATTACKS ON U-BOATS - Sept. 1939 - JUNE 1941AND THE ADMIRALTY ASSESSMENT COMMITTEE

The following are the records of sightings and attacks on U/B's during the period September, 1939 - May, 1940. (1)

<u>Month</u>	<u>U/B's Sighted</u>	<u>U/B's Attacked</u>	<u>Situation</u>
Sept. 1939	27	23	Mostly near our coasts in the North Sea and S.W. approaches.
<p>N.B. Many of the U/B's claimed as sighted in September were exceedingly doubtful because pilots and crews at that time had only a vague idea what a submarine looked like even when fully surfaced. Many of the so-called attacks were made on doubtful objects such as swirls, patches of foam, oil tracks and objects reported as periscopes.</p>			
Oct. 1939	12	11	of which 8 were in the North Sea.
Nov. 1939	5	5	all of which were on passage routes out of the North Sea and round north Scotland.
Dec. 1939	7	7	all of which were on passage routes in No. 18 Group's area.
Jan. 1940	6	4	of which { 3 were round north Scotland { 1 was in the inner S.W. { approaches.
Feb. 1940	15	11	all of which were on passage routes in No. 18 Group's area.
March 1940	7	6	all of which were on passage routes in No. 18 Group's area.
April 1940	16	12	all of which were on passage routes in No. 18 Group's area.
May 1940	7	6	of which 6 were on the passage routes in No. 18 Group's area.

The reasons why No. 15 Group sighted so few U/B's though flying exclusively on A/U escort and single sorties are:-

- (1) Convoys were given close escort. Any U/B attacking would do so submerged and was not detected by aircraft.
- (2) The vast majority of single sorties were in answer to S.O.S. signals from ships already torpedoed, in which case the U/B had already made itself scarce.

(1) From CC/S.7590/19/Stats. 19th Feb. 1946 and Admty. Monthly Anti-Submarine Reports.

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APPENDIX III (continued)

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- (3) When on the surface in their operating areas the U/B's maintained a very efficient look-out by at least 3 men armed with excellent binoculars and in normal visibility invariably sighted the aircraft first.
- (4) Aircraft were still painted in colours designed to meet aerial combat and not to hinder ship look-outs.
- (5) (Inexperienced U/B crews passed through No.18 Group's area first and acquired caution against aircraft by the time they reached No.15 Group's area.
- (6) Due to distances involved and shortage of aircraft it was impossible in No.15 Group to organise or consistently maintain A/U sweeps and patrols in the areas where U/B's were operating. On the other hand in No.18 Group's area the passage routes were circumscribed and had to pass through focal areas to the north of Scotland. The necessities of accurate navigation on this part of the passage required the U/B's to spend time on the surface for astronomical sights.

The Admiralty Assessment Committee on results of attacks on U/B's

In order to co-ordinate and standardise the judging of attacks on U/B's, whether by surface craft, aircraft or our own submarines, the Admiralty set up a U-boat Attack Assessment Committee composed of members whose duties or experience brought them in contact with Submarine warfare or the intelligence concerning it. This Committee examined the reports of all attacks on U/B's and assessed the results from evidence collected from every possible source. It commenced weekly sittings from the beginning of the war. Representatives from the R.A.F. were asked to participate on 18th October, 1939.

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and 41A

The assessments were divided into the categories of known sunk, probably sunk, serious damage which might have caused subsequent foundering, serious damage which probably necessitated the U/B's immediate return to harbour, slight damage, insufficient evidence of damage, no damage, no evidence of the presence of a U/B and definitely non-sub.(1)

Of the 85 attacks on U/B's carried out by Coastal Command aircraft between September, 1939 and May 1940:-

- (1) U-55 was sunk. Shared between H.M. Ships Fowey and Whitshed and Sunderland Y/228 Squadron.
- (2) 4 U/B's, (of which 2 were shared with H.M. Ships) were judged to have sustained damage compelling an immediate return to harbour.
- (3) 8 U/B's were assessed as "Possibly slightly damaged".

-
- (1) Regarding the first three categories, the committee's findings during the war were remarkably accurate when compared after the war with the German records of losses. The work of checking the damaged categories with enemy records has not yet been completed.

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APPENDIX III (continued)

A/U Statistics - September 1939 - June 1941.

Month	Effective hours on Convoy escort	Effective hours on Convoy Support and Northern Transit area	A/C lost on A/U tasks	U-boats			Hours on other tasks i.e. Ship recce. Anti-Invasion and Bombing Sorties	U-boats		
				Sighted	Attacked	SUNK		Sighted	Attacked	SUNK
1939 Sept.	1,138	839	1	21	18	-	5,590	6	5	-
Oct.	1,396	685	6	5	4	-	2,090	7	7	-
Nov.	1,038	914	1	2	2	-	2,800	3	3	-
Dec.	1,154	1,314	1	3	3	-	2,600	4	4	-
1940 Jan.	1,025	1,762	4	5	3	<u>U.55</u> shared	2,340	1	1	-
Feb.	1,310	1,762	4	15	11	-	2,080	-	-	-
March	2,800	2,027	2	7	6	-	2,350	-	-	-
Apr.	3,318	1,332	1	9	7	-	3,980	7	5	-
May	4,098	1,719	-	5	4	-	5,310	2	2	-
June	3,990	2,117	1	12	12	-	6,570	1	1	-
July	3,356	1,204	1	2	2	<u>U.26</u> shared	7,340	4	4	-
Aug.	3,437	1,284	2	10	8	-	5,620	6	6	-
Sept.	3,428	965	4	5	5	-	6,000	1	1	-
Oct.	2,337	928	2	5	4	-	4,350	5	4	-
Nov.	1,790	869	7	3	2	-	4,670	2	0	-
Dec.	1,443	702	3	3	3	-	4,180	1	0	-
1941 Jan.	1,445	912	7	4	1	 	2,860	1	1	-
Feb.	1,398	995	6	3	3	-	2,620	1	0	-
March	2,079	1,360	9	9	5	-	3,980	-	-	-
Apr.	2,221	1,596	8	4	2	-	5,150	4	3	-
May	2,017	2,362	7	9	5	-	7,650	4	4	-
June	2,063	2,645	1	20	15	-	6,110	6	3	-
Total	48,281	30,293	78	161	125	 two shared	96,240	66	54	Nil

Table compiled from Group O.R.B. Appendices, Squadron Forms 540 and A.O.C. in C's Monthly Summary of War Work - A.H.B. File ITH/66.

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APPENDIX IV

DEPTH CHARGE DEVELOPMENT

CC.
S.8423/1/
Arm.
Part 1.
Encl. 1A

As early as September, 1939, members of Coastal Command Staff⁽¹⁾ were thinking about depth-charges for aircraft. The project had the full backing of the A.O.C.-in-C. and on September 18th, 1939, a letter from H.Q. Coastal Command gave permission to No.15 Group to carry out trials with sand filled depth charges. At the same time experiments were initiated in the Torpedo Development Unit at Gosport.

Ibid.
Encl. 1B

On 28th November, 1939 a report was rendered from the Torpedo Development Unit at Gosport giving an account of the trials carried out during October and November. These trials were in conjunction with the Mining Department of H.M.S. Vernon and consisted in dropping, from a Wellesley aircraft, specially adapted Naval 450lb. depth charges. In all, eleven D.C's were dropped from heights varying between 350 feet and 70 feet at speeds ranging between 170 knots and 70 knots. Dummies were used at first and notes on their behaviour led to the adoption of an optimum height and speed of 70 - 100 feet and 70 - 80 knots. The last two drops were made with live depth charges and were successful.

Ibid.
Encl. 1A

This experimental success encouraged a thorough investigation into the possibilities of using depth charges from Coastal Command operational aircraft and it was thought that Sunderland aircraft would prove the most suitable. The co-operation of H.M.S. Vernon and R.A.E. Farnborough was obtained and a letter embodying the proposed action was sent to No.15 Group from H.Q. Coastal Command on 22nd December, 1939.

Ibid.
Encls.
2A-12A

No.15 Group instructed Mount Batten to carry out these investigations and No.204 Squadron (Sunderlands) were detailed to take action keeping in close co-operation with H.M.S. Vernon at Portsmouth and H.M.S. Defiance, the torpedo depot, at Plymouth.

Ibid.
Encls.
17A-20A

Resulting from continuous trials, modifications and adaptations radical alterations were made in the design of the Naval depth charge and full scale dropping trials were carried out on 16th April, 1940, by a Sunderland of No.10 Squadron who had replaced No.204 Squadron at Mount Batten. These trials were still made with dummies and were to decide the best shape of the depth charge to ensure consistent behaviour in the air while dropping and on impact with the water. The trials on 16th April, were considered successful but further experience was necessary to perfect the nose and tail units which were to give the best ballistic results.

Ibid.
Encl. 23A

Ibid.
Encl. 25A

A conference was held on 24th April at No.17 Group Gosport to review the progress made, and to consider the future in the light of a decision by the Air Council not to pursue the question of dropping depth charges from aircraft. However the A.O.C.-in-C. Coastal Command was particularly interested in this type of warfare and he obtained the sanction of the Air Council to continue the investigations.

(1) Inspired by Air Commodore I. T. Lloyd.

APPENDIX IV (continued)

Ibid.
Encl. 34A
Ibid.
Encl. 43A.
45A.

Accordingly further tests were arranged on a more ambitious scale. 12 dummy charges fitted with primers only and 12 live charges were to be used. However, before this trial could be carried out, preliminary drops to test the new nose and tail fittings on 3rd May revealed unsatisfactory air ballistics and further modifications were necessary. These being effected, one Sunderland of No. 10 Squadron proceeded to Calshot and on 4th June, 1940 carried out the much delayed full scale live trials.

Ibid.
Encl. 46A.

The conclusions were that depth charges, suitably faired could be carried and set safely in Sunderland aircraft and had no adverse aerodynamic effect; that charges could be expected to operate successfully provided they were released from low heights up to 100 feet.

S.8423/1/
Arm.
Part II
Encl. 4A.

Acting on these successful results H.Q. Coastal Command issued an order to No. 15 Group on 24th June 1940 that eight completed Mark VII depth charges were to be transferred immediately to Mount Batten for use in No. 10 Squadron in place of A/S bombs. One aircraft carried four D.C.'s which were to be released in a stick with at least 30 yards separating the individual charges, and the depth settings in the sequence 100 feet: 150 feet: 100 feet. Two aircraft carried 2 D.C.'s each plus 4 - 250 lb. bombs. In this case the D.C.'s were set at 100 feet depth and released singly between an altitude of 50 - 100 feet followed by an A/S bomb attack at between 300 - 500 feet altitude.

A Sunderland of No. 10 Squadron carrying two D.C.'s was the first aircraft to use this weapon on operations. The pilot dropped them on a suspicious patch of oil on 6th July 1940 and both functioned correctly.

Ibid.
Encl. 9A.

In spite of local differences of opinion regarding the depth setting, this was standardised at 100 feet for single shots and the 100 feet and 150 feet sequence for stick release. (100-150-100-150).

The first attacks on U/Bs by Sunderland aircraft using D.C.'s took place on 31st July, and the 16th and 27th August. The attack on the 16th August by J/210 Squadron severely damaged U.51 and with further apparently damaging attacks on U/Bs in September 1940 the new weapon was considered to have justified itself.

Ibid.
Encl. 19A.
to 29A.

It was, however, only possible to arm flying boats with this Mk. VII depth charge owing to the limitations of land based aircraft's bomb bays and doors. During October drops were made from a Beaufort aircraft but at speeds over 140 knots the depth charge broke up on hitting the water. This was successfully overcome up to speeds of 180 knots by using a parachute or drogue on the depth charge but the logical development was towards a slightly smaller and more robust weapon which could be carried by all types of Coastal Command aircraft.

This end was pursued in the subsequent months accompanied by specially designed pistols and safety devices and resulted in the Mk. VIII D.C. for use in the R.A.F. on all types of aircraft. It was more elongated and had a fully faired nose and tail though only weighing 250 lbs. It came into general use in April and May 1941.

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APPENDIX V

SUMMARY OF THE GERMAN ACCOUNT OF THE CRUISE OF THE
"BISMARCK" AND "PRINZ EUGEN"(1)

The objective of the Bismarck and Prinz Eugen was to gain the Atlantic so as to operate against British supplies in conjunction with the battle-cruiser group already at Brest. The main task on this cruise was to destroy the enemy's shipping capacity but to engage enemy warships only so far as was necessary for the achievement of the main task and as could be done without too great risk. Having executed the task, the force was to put into a west coast French port to replenish ammunition and consumable stores. If long repairs or revision of plans were necessary, to return to home waters if possible. The operation was given the covering name of "Rheinübung" (Rhine exercise).(2)

19th May

The two ships assembled off Arcona with the escort of destroyers, mine sweepers and small escort vessels. At 1125 hours the formation proceeded on the requisite courses for the Great Belt.

20th May

During the forenoon, when in the Kattegat near the Swedish coast, the formation was flanked by the Swedish mine laying cruiser Gotland. The C.-in-C. Fleet in the Bismarck signalled the German Admiralty that the presence of the formation had probably thus been betrayed.

At 1600 hours the formation passed the minefield off the Skaw and thereafter the two heavy ships proceeded westwards escorted only by three destroyers. At dusk the force passed through the gap in the minefield off Kristiansund South.(3)

21st May

Shortly before 0700 hours, the German "Y" Service decoded a W/T signal from a British source which instructed aircraft to look out for two enemy warships escorted by three destroyers.(4)

This confirmed the suspicions of the C.-in-C. Fleet that the British were aware of his departure. Shortly after 0700 hours, four unidentified aircraft were sighted to the westward. In view of the decoded signal they were thought to be British.(5) At 0900 hours the force entered Kors Fjord and proceeded to Grimstad Fjord where the Bismarck anchored at about 1000 hours in a position off the entrance to Fjosanger Fjord. The Prinz Eugen came to anchor slightly further to the north in Kalvenes Bay and refuelled to capacity from the tanker Wollin. At 2000 hours the force weighed and proceeded out of Grimstad Fjord, northeastwards along Hjelte Fjord and out into the open sea at 2200 hours. At midnight, course was set due North.

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- (1) Compiled from Adty. PG/20418 and Adty. N.I.D.24/X18/46, both held in the Admiralty.
 - (2) The participation of the battlecruiser group at Brest did not take place as the damage sustained from bombing and torpedo attacks could not be put right within the required time. Supply ships were stationed at various positions in the Atlantic in advance of the date of sailing.
 - (3) See Map XVI, for the track of the cruise.
 - (4) This signal was R./G1/21/5. T.O.O. 0515/21.
 - (5) In point of fact they were not.

APPENDIX V (continued)22nd May

At 0510 hours, when in the latitude of Kristiansund North, the destroyer escort was dismissed and the two heavy ships proceeded alone. The weather during the day became more and more favourable to an unseen break out and the C.-in-C. Fleet signalled his intentions to use the Denmark Straits route.

23rd May

The weather was now ideal for the purpose being misty and raining with a slight southwesterly wind and visibility limited to 400 metres. At 1250 hours the firm ice line was reached which necessitated an alteration of course to the south-west before again attempting a westerly course. At 1811 hours icebergs were sighted between snow showers and the boundary of firm ice again encountered. Once more a southerly course had to be taken to disengage from this danger.

At 1922 hours a shape was momentarily sighted in the mist astern which proved to be a British cruiser. Soon afterwards it was realised that two British cruisers were shadowing the force. Shots were exchanged at 2044 hours, but thereafter the British ships were content to shadow at extreme visibility range using their R.D.F. equipment. In spite of alterations of course and speed under cover of smoke screens and snow showers it was impossible to shake off this relentless watch.

24th May

At 0545 two fresh enemy units were sighted to port. These were the Hood and Prince of Wales.⁽¹⁾ Fire was opened at 0553 hours at a range of approximately 29 kilometres. After a hit on the Hood by Bismarck at 0601 hours the British ship was torn apart in an extraordinarily loud explosion with a heavy black cloud of smoke. When this cleared away the Hood was seen to be sinking by the stern. The Prinz Eugen, who had some narrow escapes from heavy projectiles during the action, claimed hits on the Prince of Wales while the Bismarck sustained two severe hits from this ship. One, in compartments XIII and XIV, put No. 4 Dynamo out of action and caused a water leak into No. 2 Port boiler room; the other, in the bow compartments XX and XXI, damaged the forward oil fuel tanks and caused a severe water leak reducing the ships' speed to 28 knots.

At 0800 hours the C.-in-C., Fleet made a report to Germany in which he described the action and stated his intention of putting into St. Nazaire and ordering the Prinz Eugen to carry out cruiser war.⁽²⁾ Owing to poor W/T conditions this signal was not finally received in Germany until 1340 hours and gave the first intimation of any damage having been suffered by the force. As the log of the Bismarck was never recovered, it is impossible to give the precise reasoning leading up to this decision by the C.-in-C., Fleet but it was probably taken because the C.-in-C., felt he must carry out his orders to put the force in a position to threaten Atlantic trade. At this time the effects of the oil fuel leakage and water in the bow compartment were not serious.

On receipt of this signal, both Home Group Commands took steps to safeguard the approach of the battleship.⁽³⁾ Group North, in case the

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- (1) Thought by the German ships to be H.M.S. King George V.
 - (2) At this time the distances involved were:-
 - (a) Direct to St. Nazaire - 1,700 miles and if hauling off into the Atlantic at least 2,000 miles.
 - (b) Return to Bergen - 1,150 miles.
 - (c) Return to Trondheim South of Iceland 1,300 miles.
 - (d) Return to Trondheim North of Iceland, 1,400 miles.
 - (3) Various local dispositions of destroyer escorts, U/B patrol lines and air support with reconnaissance.

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APPENDIX V (continued)

C.-in-C., Fleet should decide, contrary to the plan reported up to date, to return to the Norwegian Coast and Group West in aid of the arrival in St. Nazaire which was estimated to be from the morning of the 27th May.

During the afternoon C.-in-C., Fleet instructed C.-in-C., U/B.s to form a line of U/B.s to the south of Greenland through which he intended to draw the pursuit. As a precaution, C.-in-C., U/B.s placed another line of U/B.s in the mouth of the Bay of Biscay for similar use later in the journey. All these U/B.s were in position by the morning of the 25th May.⁽¹⁾

In the meantime collision mats had been spread over the shell holes in the bow which, although they controlled the water leakage in, could not altogether prevent the oil fuel leakage out. The worsening sea conditions at 1300 hours forced a further reduction to 24 knots to avoid displacing these collision mats and at 1420 hours the Prinz Eugen was instructed to maintain the southerly course while Bismarck attempted to draw off the pursuit by altering away to the west taking advantage of rain squalls. If successful the cruiser was to proceed independently and carry out cruiser war in the Atlantic. This manoeuvre was put into practice at 1540 hours but twenty minutes later the Bismarck reappeared astern of the Prinz Eugen having found a British cruiser on the starboard flank. At 1814 hours the ruse was tried again and, this time, was successful. The two ships had now parted company for good.

Though successful in ensuring an unseen get-away for the Prinz Eugen the Bismarck was unable to shake off her shadowers even in the gathering darkness of the more southerly latitudes and deteriorating visibility conditions of weather. The oil fuel leak now made its presence felt in the discussions on immediate policy which were held in the flagship and at 2056 hours the C.-in-C., Fleet signalled that because of the fuel situation he was steering a direct course for St. Nazaire and that he could not shake off the shadowing units owing to their excellent radio detection gear. The former prevented the drawing of the pursuit over the U/B line and the latter enabled an air attack to be launched at extreme range from H.M.S. Victorious. At 2238 hours the first aircraft attacks developed from the port side but scored no success.

25th May

Shortly after midnight a second wave of aircraft from the Victorious made their attacks and a hit by one 18 inch torpedo was gained amidships on the starboard side at 0028 hours. The hit was on the armoured belt and the effect was negligible. However, as the result of increasing the speed to 27 knots, steaming on zig-zag courses and of manoeuvres to avoid torpedoes, the collision mats used as caulking in bows tore away and the bow compartment reflooded. The other leaks in the dynamo and boiler room became worse compelling the abandonment of No. 2 port boiler room. Speed again had to be reduced, this time to little more than 20 knots.

It was noted in Bismarck that since 2234 hours the shadowing ships were only reporting the presence of one battleship which indicated that the Prinz Eugen had successfully broken clear away. The last shadowing report intercepted by German shore stations was at 0213 hours and it was concluded by the German Admiralty correctly that the British had lost all contact after this time.⁽²⁾ C.-in-C., Fleet in the Bismarck however, was still under the impression at 0700 hours that he was being reported by shadowing ships though the reason for this is not clear.

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- (1) For positions of these U/B lines see Map XVI.
(2) The last firm contact was at 0225 hours. Confused R.D.F. plots continued until about 0300 hours but false echoes were being obtained among the shadowing ships themselves.

APPENDIX V (continued)

A long signal was sent by him between 0912 and 0948 hours recapitulating the events and arguments which had decided him to take the direct route to St. Nazaire. It was the D/F fix of this signal coupled with the alteration of course to 160° reported at 0225 hours by H.M.S. Suffolk which enabled the British Admiralty to be fairly sure that, despite losing touch at about 0300 hours, the Bismarck was definitely making for a Biscay port.

The seriousness of the situation was appreciated by the Naval War Staff and Group Command West was instructed to take all possible measures for protecting the approach of the Bismarck while Marshal Goering ordered Fliegerfuhrer Atlantic and Air Fleet 3 to fly as far as possible to meet her and provide escort into the intended port. The measures adopted included strong air support by bomber formations out to 14°W, reconnaissance formations out to 15°W and long range light reconnaissance out to 25°W; the line of five U/B.s in the mouth of the Bay was reinforced by two more U/B.s on the morning of the 27th May; and three destroyers were in readiness to meet and escort the battleship from the outer Bay into port. A signal embodying these dispositions was sent to the Bismarck at 1932 hours. During the remainder of the day the weather continued to get worse with a rising westerly wind and sea.

26th May

In the morning the wind and sea were still increasing. A signal from Group Command West informed C.-in-C., Fleet that the weather conditions in the Bay forbade the use of St. Nazaire and it would be impossible for torpedo defence vessels to lie alongside if the ship went to La Pallice so that it was necessary for Bismarck to proceed to Brest.

At 1030 hours the Bismarck sighted a Catalina flying boat and, soon after, the interception service decoded a signal from the aircraft reporting the position, course and speed of the ship. The range of this sighting - 600 miles from U.K. - seems to have surprised the German staff. Thereafter the ship was shadowed by Coastal Command and Fleet Air Arm aircraft for the remainder of the daylight hours. The fuel situation was becoming critical and C.-in-C., Fleet sent a signal at 1903 hours asking for fresh supplies.

At 1730 hours H.M.S. Sheffield sighted and commenced to shadow the Bismarck and between 2055 and 2115 hours air attacks were pressed home by torpedo-carrying Swordfish from H.M.S. Ark Royal resulting in two torpedo hits. One hit was amidships on the armoured belt and did no damage but the other was right aft and crippled the steering gear in compartment II. This disastrous hit sealed the fate of the ship. The Bismarck became "not under control" in the heavy sea way with the wind increasing to storm strength. It was impossible to keep on a course and she described circles of her own accord. All attempts failed to seal the leaks in the compartment or to put the steering gear into working order.

The German Naval Staff now realised that the position was hopeless. The battlecruisers in Brest could not make a sally on account of defects and damage received from aerial attacks during the previous months; the heavy weather precluded the use of the destroyers and the range was too great to provide air support other than long range reconnaissance with very light bomb loads. The line of U/B.s together with all available U/B.s in the Bay area were directed into the combat area; even U/B.s without torpedoes were sent in so that they might effect rescue work. Ironically enough at 2000 hours the King George V and Ark Royal, both unescorted and on steady courses, passed within easy torpedo range of U.556 but the U/B was returning from Atlantic operations and had no torpedoes left.

Only a few more signals were received from the Bismarck. At 2140 hours the ship was reported out of control, at 2325 hours that she was surrounded by enemy light naval forces, at midnight that the ship's armour and engines were in good order but it was still impossible to steer, a weather report was made in the morning watch of the 27th and finally at 0710 hours a request that a U/B should be sent to take over the war log. This attempt was made by U.556 but it was in vain.

APPENDIX V (continued)

27th May

At 0307 hours units of the German Air Force⁽¹⁾ took off in an attempt to protect the Bismarck. 27 bomber and 6 reconnaissance aircraft reached the scene of action at about 1000 hours. A destroyer and an aircraft carrier were located by individual aircraft and attacked without success. A second wave of 45 bombers took off at 1537 and a third of 50 aircraft at 2009 hours but effected nothing. A fourth wave took off at 0400 hours on the 28th May. Units of this wave located and shadowed the returning heavy units of the British Fleet off Ireland but their sporadic attacks were unsuccessful. Other units of this wave located and attacked two destroyers to the southward of the main force hitting and sinking one of them.⁽²⁾

The U/B.s in the combat area failed to attack any British unit owing to the heavy weather and poor visibility. After the Bismarck had sunk some survivors were picked up by British ships before they left the scene, three were rescued at 1930 hours by U.74 and the meteorological ship "Sachsenwald" secured two more during the night of the 28th/29th. Although gratefully appreciated, the efforts at rescue on the part of the Spanish cruiser Canarias were unsuccessful.

THE "PRINZ EUGEN"24th May

To go back to 1814 hours on the 24th May - after the Prinz Eugen had parted company, her Commanding Officer devoted his whole attention to a speedy and safe replenishment of fuel stocks. An exchange of signals with Group Command West as to the whereabouts of all the oil supply ships resulted in a decision to use the Spichern and Esso Hamburg which were stationed to the west of the Azores. Course was accordingly shaped to the southward.⁽³⁾

25th May

The day was uneventful. Weather overcast with partial fog. During the night Group Command West informed Prinz Eugen that two reconnaissance ships Gonzenheim and Kota Pena had been ordered to join forces with the cruiser and the rendez-vous position was given for P.M. on the 27th.

26th May

At 0606 hours the Spichern was sighted. Oiling took place during the day and by 2155 hours the Prinz Eugen was full to capacity. Instructions were received from Group Command West to operate against British HX convoys west of 35°W and to use the Gozenheim and Kota Pena as reconnaissance ships. The Prinz Eugen proceeded to the southern part of the convoy area before working back to the northwestward in order to meet the "Kota Pena".

27th May

The Kota Pena was met. Signals were received from Group Command West which indicated that the British were commencing a hunt for the cruiser. Accordingly the Commanding Officer proceeded further south abandoned the idea of operating against HX convoys.

(1) The following forces took part:- Long range reconnaissance planes of K.G.40, the naval co-operation squadron No. 406, and all air worthy planes of K.G.606, K.G.28 and K.G.100.

(2) H.M.S. Mashona.

(3) See Map. XVI.

APPENDIX V (continued)

28th May

The Prinz Eugen met the Esso Hamburg and took in lubricating oil and fresh water. During the day instructions were signalled from Group Command West for the operational area to be shifted further south still to latitudes between the Canary and Cape Verde Islands and that independently routed ships were the objectives as it was considered unwise to count on the absence of heavy ships from convoy escort. Only short signal messages were to be sent by Prinz Eugen and these as infrequently as possible. All this coincided with the opinion of the cruiser's Commanding Officer.

29th May

The Kota Pena was again met and fresh instructions as to area and duties given to her and the Gonzenheim. However, at this very hour, an inspection of the engines showed trouble in the main cooling water pump and damage to the starboard propeller, sustained in the Denmark Straits ice, causing bad turbine vibrations which made extensive operations out of the question and an immediate return to a repair port necessary.

The Commanding Officer chose Brest but in order not to afford the slightest clue to his whereabouts he did not report the damage nor his intention to make for Brest. Not until safely past longitude 15°W did he propose to break W/T silence.

30th May

The voyage eastwards was started at high speed and continued uneventfully in hazy weather all the 30th May.

31st May

At 0700 hours the course, which up to now had been directed for Cape Finisterre, was altered to the middle of the Bay and at 0810 hours, when about 600 miles out from the French coast, a short signal was made to Group Command West giving position, destination and reason. Much surprised, Group Command West made immediate arrangements for Prinz Eugen's arrival and directed her to landfall off St. Nazaire and then continue northwards along the coastal route to Brest. Two destroyers were sent out to meet her and alternative arrangements prepared for her reception at either St. Nazaire, La Pallice or Le Verdon at the mouth of the Loire.

The weather conditions - showers, poor visibility and strong southerly winds were very favourable for an unseen approach especially as the German Command had noted a marked limitation in British air reconnaissance since the 28th May.

1st June

At dawn the weather was still overcast and raining with a strong north easterly wind. At 0600 hours three Heinkel aircraft met the Prinz Eugen for A/A escort and five minutes later the two destroyers joined up in position 4600 N x 0420 W to provide anti-submarine escort⁽¹⁾. The journey up the coastal route was uneventful in very poor visibility conditions and at 1525 hours the destroyer escort was replaced by sperrbrecher (mine sweepers)⁽¹⁾ in the approaches to Brest and harbour was entered at about 1730 hours. The cruiser was safely dry docked by 1930 hours.

(1) The W/T signals exchanged while effecting these meetings were D/F-ed by the British Admiralty.

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APPENDIX VI

RE-EQUIPMENT PROGRAMME FOR COASTAL COMMAND APPROVED BY 47TH MEETING
OF THE DEFENCE COMMITTEE (OPERATIONS) OF THE WAR CABINET
4TH DECEMBER, 1940

SHORT TERM PROGRAMME

- (a) One G.R. Squadron of Wellingtons fitted with L.R.A.S.V. Mk. II
One T.B.R. Squadron of Beauforts
One Long range fighter Squadron of Beaufighters

In addition the establishments of the five existing long range fighter Squadrons to be increased by four aircraft each (equivalent to $1\frac{1}{2}$ squadrons)

- (b) The Admiralty agreed to lend pilots and ground personnel from the Fleet Air Arm to assist the formation of above Squadrons.
- (c) 57 P.B.Y. flying boats are due to reach U.K. from U.S.A. by the end of April, 1941. They will be used to:-
1. Re-equip five of the existing flying boat squadron (four in U.K. and one at Singapore) and to raise the establishment of these squadrons from six to nine aircraft.
 2. Form one new flying boat squadron of initial establishment nine aircraft
 3. Allocate three P.B.Y. flying boats to the training squadron.

MEDIUM TERM PROGRAMME

Of the 100 new Squadrons due to form by June, 1941, 15 are allocated to Coastal Command.

These 15 squadrons exclude the aircraft necessary to increase the establishments in (a) and (c) above.

APPENDIX VIICOMMITTEE ON COASTAL COMMAND REPORT

We were appointed, as the result of a letter, dated 30th January, 1941, addressed by the First Lord of the Admiralty to the Secretary of State for Air, to consider the best means of giving effect to Conclusion (b) of the Meeting of the Defence Committee (Operations) held on 4th December, 1940. This conclusion reads as follows:-

- (b) Agreed that Coastal Command should remain an integral part of the Royal Air Force, but that for all operational purposes it should come under the control of the Admiralty.

2. Copies of the First Lord's letter and of the reply to the Secretary of State for Air are attached as annexures (1) and (2) respectively,

3. We have held two meetings, the first on 13th February, 1941, and the second on 25th February, 1941. We have discussed fully the problems arising under the headings (a) to (f) of the First Lord's letter and now submit the following report.

4. We recommend that operational control of Coastal Command by the Admiralty shall be on the basis of the following memorandum which has been agreed by the Committee:-

- "(a) Coastal Command, while remaining an integral part of the Royal Air Force, will be under the operational control of the Admiralty.
- (b) Until it is practicable to bring the A.O.C.-in-C. and his Headquarters staff nearer to the Admiralty,
 - (i) They will remain in their present headquarters, at Northwood. The A.O.C.-in-C. will be provided with a room in the Admiralty if he so wishes.
 - (ii) The Air Ministry will provide a Coastal Command Liaison Section for duty in the Admiralty. This section, which will be in charge of an officer of the rank of Group Captain or above, will undertake liaison between the Admiralty and the Coastal Command. It will work with the Naval Staff and will be responsible inter alia for keeping the Admiralty informed on all matters affecting the operational strength and dispositions of Coastal Command forces.
- (c) Operational control of Coastal Command will be exercised by the Admiralty through the A.O.C.-in-C. Coastal Command.
- (d) Subject to the over-riding operational authority of the Admiralty referred to above, the A.O.C.-in-C. will normally delegate the day-to-day detailed conduct of air operations to the Coastal Command Groups, who will be responsible to him for meeting the air requirements of the Naval Commanders-in-Chief.
- (e) In the event of any operational difficulty arising which cannot be resolved locally by Commanders-in-Chief, it will be referred to the Admiralty who will make a decision in consultation with the A.O.C.-in-C. Coastal Command.

5. The suggested establishment for the Coastal Command Liaison Section, referred to in the preceding paragraph, is given in Annexure (3).

6. We are agreed that Coastal Command resources should not be diverted to other services without the express concurrence of the Admiralty, except as a result of a decision of the Defence Committee.

7. In his letter of 30th January, 1941, heading (f), the First Lord pointed out that there were various matters affecting Coastal Command which

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APPENDIX VII (continued)

the Admiralty would wish to keep under constant review, and on which they would wish to express opinions. He suggested that to meet this requirement, a Joint Admiralty-Air Ministry Standing Committee should be set up working under the Chairmanship of the A.O.C.-in-C. Coastal Command.

8. Most of the matters mentioned by the First Lord are already the subject of regular inter-departmental discussion on existing Air Ministry Committees. We feel that the suggested joint Admiralty-Air Ministry Standing Committee might lead to some duplication of effort and that it would be better to form a joint Admiralty - Coastal Command Committee. (The Fifth Sea Lord, A.C.N.S.(H), or A.C.N.S.(T), would attend meetings of the Committee as required and in particular, those at which the A.O.C.-in-C. Coastal Command was in the Chair.) Such a Committee could keep under review items (i) to (xiv) of heading (f) of the First Sea Lord's letter and any recommendations which it might wish to put forward should be passed to the appropriate Air Ministry Committees for consideration. A list of these Committees on which the Admiralty is already represented is attached as Annexure (4). We recommend that in future the Admiralty should also be represented at the Ministry of Aircraft Production.

9. Ad hoc meetings between representatives of the Air Ministry and the Admiralty should also be arranged on the representation of either department from time to time to consider matters for the discussion of which no special Committee already exists.

(Sgd.) T. S. V. PHILLIPS (Chairman)
Vice Admiral, V.C.N.S.

(Sgd.) A. T. HARRIS
Air Vice Marshal, D.C.A.S.

(Sgd.) G. C. C. ROYLE
Vice Admiral
5th Sea Lord.

(Sgd.) A. DURSTON
Air Cdr. D.O.N.C.

(Sgd.) S. GRAHAM SMITH (Secretary).

19th March, 1941.

ANNEXURE (1) - TO REPORT TO COMMITTEE ON COASTAL COMMAND

SECRET

January, 30th 1941

My dear Sinclair,

Since the meeting of the Defence Committee (Operations) on the 4th December last, my advisers and I have given much thought to the best means of giving effect to the conclusion then reached that, whilst Coastal Command should remain an integral part of the Royal Air Force, for all operational purposes it should come under the control of the Admiralty.

The question has also been explored by the Chiefs of Staff of the two Services, and I gather that sufficient progress has now been made to enable me to propose that a small Admiralty-Air Ministry Committee should be set up to discuss the transfer of operational control on the following basis:-

- (a) The Admiralty will have complete operational control of all aircraft in Coastal Command.
- (b) In addition to the general control to be exercised through the Naval Staff at the Admiralty, the Scheme should provide for the exercise of local operational control by Naval Commanders-in-Chief at Home through the Combined headquarters, as soon as this can be arranged.
- (c) Coastal Command resources should not be diverted to other services without the express concurrence of the Admiralty.
- (d) The Commander-in-Chief, Coastal Command, should remain at Coastal Command Headquarters (at Northwood), but he should have an office in the Admiralty if he wishes.
- (e) A Royal Air Force Liaison Officer, of rank not lower than Air Commodore, with a suitable staff, should be installed in the Admiralty to constitute a "Coastal Command Section". This Section would work with the Naval Staff and be responsible for keeping the Admiralty informed of the operational strength and dispositions of the Coastal Command, and also for passing all orders from the Naval Staff to the Coastal Command.
- (f) As the Admiralty are responsible for operational control they would wish to keep under constant review and express their opinion on the following:-
 - (i) Numbers of aircraft.
 - (ii) Types of aircraft.
 - (iii) Equipment of aircraft.
 - (iv) Scales of reserves.
 - (v) Formation of Squadrons.
 - (vi) Types of weapon.
 - (vii) Numbers and training of aircrews.
 - (viii) Methods of patrol, escort and search.
 - (ix) Anticipated expansion of Coastal Command.
 - (x) Proposed dispositions of newly formed squadrons.
 - (xi) Allocation of aircraft and aerodromes.
 - (xii) Methods of protection of trade from air or submarine attack.
 - (xiii) Requirements for effective reconnaissance.
 - (xiv) Methods of perfecting attacks on ships.

The Admiralty suggest that this requirement can best be met by setting up a joint Admiralty-Air Ministry Standing Committee, working under the Chairmanship of the Commander-in-Chief, Coastal Command.

I propose that all the matters in the foregoing paragraph, and any others that arise, should be considered by a small joint Admiralty-Air Ministry

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Committee under the Presidency of the V.C.N.S. with the Fifth Sea Lord as the other Admiralty Member. The Committee would have powers to co-opt other Members of the Staffs of the two Services as necessary. If you agree, would you nominate two Air Ministry members for this Committee.

If you agree, I should like the Committee to get to work at once; I particularly wish the arrangements for the transfer of operational control to be in force before Navy Estimates are taken about the end of February.

Yours sincerely,

(Sgd.) A.V. H. ALEXANDER.

ANNEXURE (2) TO REPORT OF COMMITTEE ON COASTAL COMMAND

A.O. 1135/41

Air Ministry,
Whitehall, S.W.1.
3rd February, 1941

SECRET

Dear First Lord,

Thank you for your letter of the 30th January. I will not at this stage comment on the detailed proposals which it contains, for I welcome the idea of an early meeting of representatives of the Naval and Air Staffs to consider how, in accordance with the decision of the Defence Committee (Operations), the operational control of the Coastal Command can best be exercised by the Admiralty; and, within that compass, the freer and wider their discussions, the better.

I agree that the meeting should be held under the Chairmanship of the Vice-Chief of the Naval Staff, and I have appointed Air Vice-Marshal Harris, Deputy Chief of Air Staff, and Air Commodore Durston, Director of Operations (Naval Co-operation), as the Air Staff representatives.

Yours sincerely,

(Sgd.) ARCHIBALD SINCLAIR.

The Rt. Hon. A. V. Alexander, M.P.

ANNEXURE (3) TO THE REPORT OF THE COMMITTEE ON COASTAL COMMAND

PROPOSED ESTABLISHMENT FOR COASTAL COMMAND LIAISON SECTION - ADMIRALTY

- (a) 1 Group Captain. Senior R.A.F. Officer on the Naval Staff in charge of Coastal Command Liaison Section, Admiralty.
- (b) 1 Wing Commander. This officer, apart from understudying the Group Captain in charge of the Coastal Command Liaison Section, would be responsible for having available all the particulars in regard to the administration of Coastal Command.
- (c) The four Coastal Command Liaison Officers and their assistants, already established in the Admiralty, should work under the Direction of the Group Captain in charge of the Coastal Command Liaison Section and be responsible for keeping him up-to-date with all current operations.
- (d) Clerical assistance will also be required.

ANNEXURE (4) TO THE REPORT OF THE COMMITTEE ON COASTAL COMMAND

AIR MINISTRY COMMITTEES ON WHICH ADMIRALTY IS REPRESENTED

Expansion and re-equipment (Policy) Committee.
Release of Technical Information Committee.
Glider Weapon Committee.
Torpedo Design Committee.
Bombing Committee.
Air Fighting Committee.
Air Training Corps Committee.
Bombing Targets Committee.

APPENDIX VIII

C.A.F.O. 835 - COASTAL COMMAND - EXERCISE OF OPERATIONAL CONTROL BY THE ADMIRALTY

(A.0283/41 - 24.4.41.)

The following arrangements have been agreed between the Admiralty and the Air Ministry, for implementing the decision of the Government that Coastal Command, whilst remaining an integral part of the Royal Air Force is, for all operational purposes to come under the control of the Admiralty.

2. (a) Until it is practicable to bring the Air Officer Commanding-in-Chief, Coastal Command, and his Headquarters staff nearer to the Admiralty they will remain in their present Headquarters and the Air Ministry will provide a Coastal Command Liaison Section for duty in the Admiralty. This Section, which will be in charge of an officer of the rank of Group Captain or above, will undertake liaison between the Admiralty and the Coastal Command. It will work with the Naval Staff and will be responsible inter alia for keeping the Admiralty informed on all matters affecting the operational strength and dispositions of Coastal Command forces.

(b) Operational control of Coastal Command will be exercised by the Admiralty through the Air Officer Commanding-in-Chief, Coastal Command.

(c) Subject to the over-riding operational authority of the Admiralty referred to above, the Air Officer Commanding-in-Chief will normally delegate the day-to-day detailed conduct of air operations to the Coastal Command Groups who will be responsible to him for meeting the air requirements of the Naval Commander-in-Chief.

(d) In the event of any operational difficulty arising which cannot be resolved locally by Commander-in-Chief, it will be referred to the Admiralty, who will make a decision in consultation with the Air Officer Commanding-in-Chief, Coastal Command.

(e) Coastal Command resources will not be diverted to other services without the express concurrence of the Admiralty, except as a result of a decision of the Defence Committee.

(f) A Joint Admiralty-Coastal Command Committee will be set up to keep under review such matters as numbers; types and equipment of aircraft scales or reserves, formation of squadrons; types of weapons; numbers and training of aircrews; methods of patrol, escort and search; expansion of Coastal Command; proposed dispositions of newly formed squadrons; allocation of aircraft and aerodromes; methods of protection of trade from air or submarine attack; requirements for effective reconnaissance and methods of perfecting attacks on ships. Recommendations by this committee will, as far as practicable, be considered by one of the existing inter-departmental committees.

(g) Ad hoc meetings between representatives of the Admiralty and Air Ministry will be arranged, on the representation of either department, to consider matters for discussion of which no special committee already exists.

3. The transfer of operational control of the Coastal Command to the Admiralty, in accordance with the arrangements described above, took effect on 15th April 1941.

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APPENDIX IX

MEMORANDUM DRAWN UP BY THE C.N.S. AFTER WRITTEN CONSULTATION
WITH A.O.C.-IN-C. TO REPRESENT THE AGREEMENT REACHED AT A
MEETING AT ADMIRALTY ON 23 AUGUST 1942

- (a) That C.A.F.O. 835/1941, Paragraph 2 (c) must not be interpreted that Coastal Command Groups are under the operational control of the Naval Commander-in-Chief.
- (b) That, as the best results can only be obtained in the conduct of an operation when the Air and Naval Officers are actually working along-side each other, all operations except those in paragraphs(c) below, whether of a day-to-day nature or otherwise, will normally be conducted by the local Commands in the manner set out in paragraph 2 (c) of C.A.F.O.835, any necessary naval or air reinforcements being provided by the Admiralty or C.-in-C. Coastal Command.
- (c) On those occasions when it is necessary for the Admiralty to signal that they have taken over control from the Naval Commanders-in-Chief concerned, operations will be conducted by the Admiralty and Coastal Command Headquarters.
- (d) When any air reinforcements are being sent to or air forces are being withdrawn from any Group, the Admiralty will be informed in sufficient time to obtain the reactions of the Naval C.-in-C. concerned. It is appreciated that there must be day-to-day minor adjustments in aircraft operations to meet the needs of one Group from the resources of another. In these cases Headquarters Coastal Command would endeavour to ensure that the A.O.C. the Group concerned is informed in sufficient time for the Naval C.-in-C. to make representations if any Naval requirements are duly prejudiced.

H.Q. C.C. O.R.B. August 1942. Encls. 6 of B. of A.
Also C.C. S.7033/1 Encls. 9A, 11A, 12A, 14A, 15A, 16A.

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APPENDIX X

THE HISTORY OF THE DEVELOPMENT OF THE LEIGH LIGHT

Prior to the provision of a type of A.S.V. which would detect a surfaced U-boat, operations at night were unprofitable. When such a type was being developed in the latter half of 1940 it was apparent that, to be of any value, the contact must be illuminated at night for identification or attack purposes. In addition, the contact as shown on the A.S.V. screen disappeared in the confused "sea returns" at the bottom of the screen when the range was from $\frac{1}{2}$ to 1 mile from the target so that without some means of "forward looking" illumination an immediate attack could not be delivered.

The early proposals were confined to the first part of the illumination problem and were being directed towards the production of a new and more powerful flare which the aircraft could release just before the contact faded out. This flare had to drop slowly enough to allow the aircraft to get to the far side of the contact, turn, and attack up the flare path. This was conceivably practicable for a high level bombing attack if the U-boat did not immediately dive when the flare was released but was no good for an immediate low level attack with depth charges.

Fortunately the solution to both problems was provided at about the same time as the A.S.V. development was showing promising results in location. The solver was Squadron Leader H. de V. Leigh D.F.C. who, at the time, was employed at Headquarters Coastal Command as an officer in "P" staff. He placed his suggestion before the A.O.C.-in-C.⁽¹⁾ on 23rd October 1940 and after discussion of details obtained his full support. The plan was put before the Air Ministry and as a result A.C.A.S.(T) agreed that experiments should be carried out with a D.W.1. Wellington allocated for the purpose.

C.C.
S.18329
encl. 1
Paras.1-4
encls.1A
to 6A

The plan consisted in the mounting of a 24 inch Naval Searchlight Projector in the turret on the underside of a D.W.1. Wellington, which was already equipped with a powerful generating set for previous duties in connection with sweeping for magnetic mines. The searchlight was not fixed but mounted to allow downwards and sideways movement and would be manipulated by remote control in co-operation with the A.S.V. operator so that just before the contact faded at a range of about 1 mile the searchlight would be switched on and hold the contacted target in its beam thus allowing identification and, if necessary, immediate attack. Originally it was not known if the weight of this equipment would permit of a bomb load in the Wellington and it was suggested that, pending this certainty, a Whitley from the squadron which was developing the long range A.S.V. should accompany the Wellington and carry out the actual attack. However, long before the operational stage had been reached, development showed that the Wellington could carry the full A.S.V. set, the searchlight and an effective depth charge load with full fuel tanks.

C.C.
S.18329
encl. 1
para. 5

Following the interview at the Air Ministry, a number of conferences and discussions took place with M.A.P. and

(1) Air Chief Marshal Sir Frederick Bowhill.

APPENDIX X (Continued)

C.C.
S.18329
encl. 1
paras 6-10

R.A.E. Contracts were placed with Vickers, Savage and Parsons Ltd, searchlight engineers, and the help of Nash and Thompson Ltd. secured for the hydraulic controls and mounting of the searchlight. Contact was also established with the Director of Anti-submarine Warfare at the Admiralty and the Electrical Department of H.M.S. Vernon.⁽¹⁾ These contacts were extremely valuable for the rapid development of the scheme in providing standard equipment where possible.

The Prototype installation was completed by 20th January 1941 but owing to difficulties with the aircraft itself which was in bad condition and to unfavourable weather the first night trials did not take place until 26th March 1941. Even then the general troubles being experienced with A.S.V. Mark II had prevented the full equipment of this aircraft. However, the Light trials carried out, using a corvette showing full navigation lights, as target were completely successful. The Light did not dazzle the crew of the aircraft and, once picked up, the target was held successfully in the beam.

C.C.
S.18329
encl. 10A,
B, C and D

At the end of April 1941 the A.S.V. equipment was completed and further trials with an unlit submarine in early May established beyond doubt that the direct illumination of a surfaced submarine from an aircraft using A.S.V. was a practical proposition which allowed immediate attack before the submarine could dive. The problem remaining was to evolve a technique aided by accurate indicators which would ensure the target being picked up in the Light in a matter of a second or two once it had been switched on, and to standardise the equipment for general production and operation.

Up to this point a generator had been used for the electrical power though the idea of using batteries had been envisaged by Squadron Leader Leigh since December 1940. As soon as the April trials had proved the practicability of the device the generator was replaced by 12 Volt 40 ampere ^{hour} standard batteries. The weight saved by this and other refinements in the equipment made it clear that the aircraft could carry not only the Light and full A.S.V. layout, but also a full fuel load and the standard depth charge armament. For further tests and experience the aircraft was based at Carew Cheriton where Coastal Command Development Unit was stationed.

C.C.
S.18329
encl. 7A

details
in
encl. 21A

Meanwhile the initial proposal had been considered in November 1940 by the Air Ministry Interception Committee who reported that the scheme had been found to be, in all essentials, identical with others that were then under consideration. However, the Deputy Director of Scientific Research suggested that Squadron Leader Leigh should be put in touch with Wing Commander Helmore who was said to be working on a similar scheme. In point of fact the two officers were working on entirely different lines to attain different objectives. Leigh was developing a narrow beam light to illuminate a target instantaneously from nearly sea level and permit immediate attack by the same aircraft whereas Helmore was endeavouring to perfect a very powerful but diffused light for use in Fighter Command for night interception at high altitude as a background against which a second aircraft would actually make the attack on the intercepted enemy aircraft. This Light, called a Turbinlite, differed from the Leigh Light

(1) H.M.S. Vernon is the Torpedo, Mining and Electrical Establishment for the Navy and is situated at Portsmouth.

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APPENDIX X Continued

in every important particular. It was a very large light, not fully moveable, positioned in the nose of the aircraft and together with the special batteries was of such a weight that neither full fuel load nor armament could be carried. After one or two meetings between these officers it was mutually agreed that they should each concentrate on developing their separate ideas, and neither had any part in the origins or developments of the other's invention.

After the successful trials in early May, both the Senior Air Staff officer and the A.O.C.-in-C. Coastal Command considered that Leigh should be relieved of "P" staff duties and be free to devote his whole time to improvements and the attainment of operational condition in this new weapon, the vast possibilities of which they were fully aware.

A letter to this effect was sent by the A.O.C.-in-C. to A.C.A.S.(R) (1) on the 18th May but the reply was discouraging in that the impression was conveyed that Leigh's activities were not required and that further developments should be handed over to Coastal Command's Development Unit, keeping the technical side in Helmore's hands. It was the more unfortunate because it confirmed that in high places there was a confusion of thought which did not distinguish between the two totally different problems and the totally different solutions which in the case of night illumination of a U-boat had been triumphantly vindicated in full scale trials by the Leigh Light.

Up to the middle of June 1941 Leigh was actively pursuing the improvements and modifications necessary to the aircraft equipment at Carew Cheriton from which frequent night flights were made, using trawlers and a light ship as targets.

On the 14th June Air Marshal Sir Philip Joubert took over command of Coastal Command and on 21st June Squadron Leader Leigh was re-called to Headquarters to resume full time duties in "P" staff. On 26th June the A.O.C.-in-C. requested the Under Secretary of State for Air that two A.S.V. fitted Wellingtons, then coming off the line at Vickers works, should be allocated to Group Captain Helmore for the installation of his device observing that a searchlight aircraft for anti-submarine work had been an operational requirement in Coastal Command for some time and asking for high priority in view of urgent need to defeat the submarine.

However, by August 1941 grave doubts were entertained by the Coastal Command and Admiralty staffs as to the value of the Helmore Turbinlite for anti-submarine work and a meeting was held on 7th August to review the work so far done on the Leigh Light and that projected by Group Captain Helmore. The known requirements for anti-submarine work were tabulated and members of the two staffs visited Heston airfield where the "Turbinlite" was viewed as fitted in the D.B.7 aircraft.

These enquiries confirmed the doubts felt by the staffs that the Turbinlite was not a practical proposition for anti-submarine work and the A.O.C.-in-C. informed the Air Ministry on the 11th August that "the small light designed by Squadron Leader Leigh had proved itself in trial to be reasonably satisfactory", requesting that six Catalinas and six Wellingtons be fitted with the Leigh searchlight as a matter of urgency. Leigh was allowed to resume his development work and he returned to Carew Cheriton to carry

(1) Air Marshal Sir Philip Joubert.

APPENDIX X (continued)

out trials with the special indicators found necessary to ensure the immediate pick up of the target when the light was switched on at the end of the A.S.V. approach.

C.C.
S.18329
encl. 1
paras
12-13

Shortly before his recall to H.Q. Coastal Command in June, Leigh had made a start in the design of a Nacelle type Light. The Turret light fitted in the Wellington was not suitable for installation in other types of aircraft except with large structural alterations. The most promising method of making a universal type was to fit the standard Naval Mark IV Arc Lamp into an egg-shaped nacelle, the projector to be fully moveable in azimuth and elevation by remote control. The fitting of the lamp was effected in co-operation with H.M.S. Vernon and the manufacture of the prototype nacelle with the controls was undertaken by Savage and Parsons. At that time this firm had no official order to regularise such work and it was purely out of faith in the invention together with Leigh's persuasion that they did so.

C.C.
S.18329
encl. 24A

encl. 25A

encl. 26A

Consequently when the Leigh Light was officially adopted by the A.O.C.-in-C. in November 1941 the work on the Nacelle Light was well advanced. At the same time the A.O.C.-in-C. requested ~~another~~ 30 Wellingtons to be fitted with the Turret Light. However the Air Ministry considered that ~~additional~~ ^{additional} orders above the original six should not be approved until results had been obtained in further trials and ^{the former} operational experience. Provision of ~~the former~~ ^{the former} was forth-coming from the Coastal Command Development Unit and, in a letter of 18th December 1941 to the Under Secretary of State for Air, the A.O.C.-in-C., now an enthusiastic supporter of the Leigh Light, urged the early placing of the further order for 30 Leigh Light Wellingtons. The Air Ministry responded by ordering a further 20 sets of searchlight equipment but intimated that the equipping of aircraft with these sets must await ^{operational} results obtained by the initial six aircraft already ordered from Vickers Ltd. The first operational Wellington arrived at Chivenor airfield on 8th February 1942 but the apparently inevitable delays which hinder a new development obtained in the case of the remainder and even by May 1942, after months of pressure by the A.O.C.-in-C. only five operational aircraft had been delivered to No. 172 Squadron which had been formed to exploit this new weapon.

C.C.
S.18329
encl. 27A

encl. 30A

encl. 34A

encl. 35A

The future production promised was six in June, six in four in August and thereafter three per month. In spite of further representations by the A.O.C.-in-C. for increased ~~production~~ production and steps to be taken for fitting the Nacelle type in Catalina, Sunderland and Liberator types the Air Ministry insisted on operational experience being obtained in the face of the enemy before committing themselves to a decision.

Unfortunately this meant that the entirely new weapon which, for the first time, enabled lethal attacks to be made from the air on U-boats at night had to be used in penny-packet tactics. Had two squadrons or even one complete squadron been launched on this night offensive, far greater execution might have been effected, aided as it was by the complete surprise and unreadiness of the U-boats for this form of attack while on passage through the Bay of Biscay.

encls. 36A
and 37A

As it was, operations commenced on 4th June 1942 with four aircraft. By the 23rd, seven U/Bs had been sighted and six of them attacked - three with depth charges and three with machine gun fire only. In July, three more U/Bs were attacked of which one was destroyed. The evidence of success with the new weapon had been supplied. The Air Ministry now stepped up allocation of aircraft, agreed to the provision of a second

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APPENDIX X (continued)

C.C.
S.18329
encl.38A

Leigh Light Wellington Squadron and raised a requisition for sufficient Nacelle types of the Leigh Light for all Coastal Command Catalinas together with trial installations in Liberator aircraft.

The effect on U-boat tactics in the Bay was immediate. The hitherto safety of the night for surface passage was gone. To avoid the unheralded and surprise attacks during darkness the U-boats were forced to reverse their procedure and dive by night, thus exposing themselves to attack by day, which played into the hands of the increasing day offensive planned by Coastal Command.

The Leigh Light was firmly established as the Standard Night Weapon by the end of 1942 and in the ensuing years was fitted to many Wellington, Catalina and Liberator Squadrons.

A.H.B.
Statistics

During the war Leigh Light fitted aircraft attacked 218 U-boats at night and carried out 206 attacks on enemy shipping. 27 U-boats were sunk and 31 damaged. Not the least factor in these night attacks was the complete surprise, with its psychological effects on U-boat personnel.

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APPENDIX XI

LETTERED CONVOYS WITHIN THE SPHERE OF
COASTAL COMMAND

OA Outward bound from London down Channel. Sailed every other day.
OB and OL Outward bound from Liverpool down Irish Sea and to the South of
Ireland. ditto.
FN East coast convoys. London to Firth of Forth (Methil) ditto.
FS ditto. Firth of Forth (Methil) to London. ditto.
D West coast convoys. Liverpool to Clyde. Sailed every fourth day.
E Northern convoys. Clyde to Firth of Forth. Sailed every eighth day.
F. FP. } Norwegian convoys. From the Firth of Forth. ditto.
FR. }
GM United Kingdom to Gibraltar and Malta.
KJ Kingston (Jamaica) to United Kingdom.

AFTER THE FALL OF FRANCE, ALL THE ABOVE
WERE CANCELLED.

BB Belfast to U.K. Western ports. (Finally to Bristol Channel ports).
{ CE St. Helens (I. of W.) to Southend.
{ CW Southend to St. Helens (I. of W.)
*(OT U.K. to Canada (Military convoy)
{ TC Canada to U.K. (ditto.)
*(CU Curacao to U.K. (tanker convoy) afterwards became New York to U.K.
{ UC U.K. to Curacao (ditto.) ditto. U.K. to New York ditto. special convoy.
{ DF Clyde to Faeroes.
{ FD Faeroes to Clyde.
*(DS Clyde to Reykjavik ferry service.
{ SD Reykjavik to Clyde ferry service.
EC Southend north about to Loch Ewe, Oban or Clyde.
{ EN Methil northabout to Loch Ewe or Oban.
{ WN Oban and Clyde northabout to Methil.
{ FN Thames to Firth of Forth (Southend to Methil)
{ FS Firth of Forth to Thames (Methil to Southend)
*(HG Gibraltar to U.K.
{ OG U.K. to Gibraltar.
{ HM Holyhead to Milfordhaven.
{ MN Milfordhaven to Holyhead.
{ HN Bergen to Methil) obsolete after capture of Norway.
{ ON Methil to Bergen)
*(HX Halifax (Nova Scotia) to U.K.
{ ON U.K. to North America. ONS was the slow portion.

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APPENDIX XI (continued)

*{KX U.K. to Gibraltar (special convoys)
{XK Gibraltar to U.K. (ditto.)

*{KM U.K. to North Africa and Port Said. Military convoys.
{MK Port Said and North Africa to U.K. ditto.

MT Methil to the Tyne.

*OS U.K. to West Africa. OSS was that portion proceeding further South than Freetown.

*{PQ Iceland to North Russia. Became JW
{QP North Russia to Iceland. Became RA

{PW Portsmouth to Bristol Channel ports.
{WP Bristol Channel ports to Portsmouth.

*{RU Reykjavik to Loch Ewe.
{UR Loch Ewe to Reykjavik.

*SC Sydney (Cape Breton Island) to U.K.

*SL Sierra Leone (Freetown) to U.K.

{SP Shoreham to Portsmouth.
{PS Portsmouth to Shoreham.

*{TA U.K. to U.S.A. Military convoy. Also called TU convoys.
{AT U.S.A. to U.K. ditto ditto. UT "

*TM Trinidad to Gibraltar.

*{TO Northwest Africa to Dutch West Indies.
{OT Dutch West Indies to Northwest Africa.

*{UG U.S.A. to North Africa.
{GU North Africa to U.S.A.

*WS U.K. to Suez via Cape of Good Hope. Military convoys.

* ARE OCEAN CONVOYS. THE ADDITION OF F OR S SIGNIFIED FAST OR SLOW PORTION.

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APPENDIX XII

DEVELOPMENT OF WHITE CAMOUFLAGE

A standardisation order on camouflage of R.A.F. aircraft was issued by the Air Ministry on 12th August 1940. This order directed the following colours to be used:-

All land aircraft - (upper surfaces. Temperate land scheme colouring.
(under surfaces. Duck egg blue or Matt Black according to the nature of duties and at the discretion of the Commands.

C.C.
S.7509/1/3
Part II
Encl. 5A

All flying boats - (upper surfaces. Temperate sea scheme colouring.
(under surfaces. Duck egg blue.

ibid
encl. 14A

ibid
encl. 24B

ibid
encl. 36A

ibid
encl. 41A

The discretionary power was exercised by Coastal Command in favour of matt black for all under surfaces of land aircraft and H.Q. Coastal Command issued orders to the Groups to this effect on the 11th September, 1940. The aircraft of the Photographic Unit had, up to this time, been painting their aircraft in various camouflage schemes to meet their special duties which included the desirability of a high degree of invisibility from ground observation. One of these aircraft, a Hudson, was stationed temporarily at this time at Bircham Newton. The upper surfaces were much paler than the standard temperate land scheme and the under surfaces were duck egg blue. The comparative invisibility of this aircraft at medium altitudes was most marked and the Station Commander requested through No. 16 Group that the G.R. Squadron, No. 206 Hudsons, on his station might be similarly painted. This was disallowed by Headquarters who officially informed the Air Ministry on 26th September, 1940, that in view of the G.R. Squadrons' employment on both day and night duties, all such aircraft would have matt black under surfaces. A further request from No. 206 Squadron was forwarded on 3rd October that they might be excepted from this order owing to the high proportion of their day reconnaissance over night sorties. On 6th October the Photographic Reconnaissance Unit made a similar request.

ibid
encls. 44A
and 45A

Headquarters Coastal Command agreed to the request from the Photographic Unit who continued thenceforth to paint as requisite for their special conditions and were not subject to any standardised colouring. No. 206 Squadron's request was refused but they were informed that the question of camouflage for G.R. aircraft was under revision.

ibid
56A ' B

In the middle of October special trials were carried out at the Coastal Command Station at Thornaby to test different schemes of colouring. The conclusions, sent to Headquarters on the 18th October, 1940, recommended the paler Temperate Sea scheme of colouring for the upper surfaces and duck egg blue for all under surfaces. It was noted that the most successful colour for under-surfaces during the trial was the pale sky blue used on a P.R.U. aircraft but there were doubts as to whether it was possible to produce this paint quickly or in any large quantity.

A conference on this subject was held at H.Q.C.C. on 28th October and the following was recommended:-

- (1) Up to 25% of G.R. and T.B. landplanes should have duck egg blue under surfaces and the remainder matt black.

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APPENDIX XII (continued)

- (2) Nos. 53 and 59 Squadrons, largely used for night bombing, should have matt black under surfaces.
- (3) Long range fighter aircraft should have duck egg blue under surfaces.
- (4) Flying boats should have no colouring on the under surfaces on top of the Lanoline protective coating (which itself was colourless) but if this coating could be coloured and still retain its protective qualities it should be duck egg blue.
- (5) All landplanes of G.R. and T.B. types should have the temperate Land Scheme colour for the upper surfaces and all flying boats should retain the temperate Sea Scheme for the upper surfaces.

ibid
encl. 58A

ibid
encl. 69A

An order to this effect was issued to the Groups on 8th November, 1940.

ibid
encl. 101A

Excepting that it was found possible to colour the Lanoline protective coating duck egg blue for the under surfaces of flying boats, no further changes or suggestions were made until March 1941. On the 5th March, Headquarters drew attention to a recent combat with two Heinkel 113 in which the enemy aircraft had their under surfaces painted a very light grey. The combat report from No. 16 Group noted that this camouflage was most efficient and H.Q.C.C. gave instructions for investigation to be made and results reported. Meanwhile the proposition was passed by H.Q.C.C. direct to the Air Ministry who, however, turned it down on the ruling that it was undesirable to re-introduce variations in standard camouflage. The high intensity of operational flying by aircraft of No. 16 Group prevented the investigation from being pursued until after the question of camouflage had been raised in connection with anti U-boat operations by No. 15 Group in the N.W. Approaches.

ibid
encl. 103A
and 105A

ibid
encl. 135A

On 3rd June 1941 No. 15 Group requested, in view of their A/U duties which were mostly by day and the conspicuous nature of the existing camouflage to U/B lookouts, that the G.R. Witleys and Wellingtons should have their under surfaces painted duck egg blue. Early in June No. 502 Squadron (Witleys) commenced trials of different camouflage schemes. These were planned and carried out by the C.O. of the Squadron in conjunction with two members of the newly appointed Operational Research Section at H.Q.C.C. (1) The trials consisted of painting pairs of aircraft in the following colours on the under and side surfaces. One pair each in eggshell blue, pale pink, light grey and matt white. It was found that, for the prevalent weather conditions in the North Atlantic matt white for side surfaces and glossy white for under surfaces was the most efficient camouflage.

C.C.
S.7050/5
encls. 5A,
11A, 14A

O.R.S.C.C./
4/4 Camouflage
of Aircraft
engaged on A/U
operations.
C.C. S.7509/1/3
Part II
encl. 153A

Resulting from these trials which extended over June and July and from the recommendations made by Headquarters Coastal Command, the Air Ministry issued a new camouflage order on 8th August, 1941. This directed that all Wellingtons, Witley and Liberator aircraft in Coastal Command should be painted white on under and side surfaces; that Beaufort, Beaufighter, Blenheim and Hudson aircraft should be painted duck egg blue on the under surfaces and that all aircraft upper surfaces should be Temperate Sea scheme colouring. This order was issued to the

(1) Professor R M S. Blackett and W. R. Merton Esq.

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APPENDIX XII (continued)

ibid
encls. 154A
and 165A

Groups by H.Q.C.C. on the 10th August but with the modification that 50% of the Torpedo bomber and Long Range fighter aircraft were to remain matt black on the under surfaces.

By the Spring of 1942 all Coastal Command aircraft, land and flying boat types, which were habitually used on A/U duties were painted in the white camouflage. The increased efficiency in A/U patrols was set out mathematically by the Operational Research Section at H.Q.C.C.(1) and this section identified itself with subsequent refinements in the method and extent of Coastal Command camouflage.

(1) Coastal Command Review No. 1 page 36 and No. 2 page 27.

Monthly Summary of Mines laid by Coastal Command by Areas

	Bay of Biscay			English Channel					The Belgian and Dutch Coasts								Frisian Islands and North German Coast						Norway					
	Artichokes	Beech	Jellyfish	Anemones	Dewberry	Greengages	Scallops	Vine Leaf	Berracles	Cypress	Flounders	Junipers	Limpets	Nerts	Oysters	Whelks	Eglantines	Mussels	Nectarines	Xeranthemums	Yams	Zinnias	Bottle	Total Laid	Mines Jettisoned	Mines Lost	A/C Lost	No. of Sorties
1940																												
Apr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	13	-	-	19	-	1	1	24
May	-	-	-	-	-	-	-	-	-	-	-	-	7	-	10	6	2	-	-	13	5	15	6	64	-	-	2	75
June	-	-	-	-	7	-	-	-	-	7	18	-	3	-	3	3	-	-	-	7	-	2	-	61	-	-	3	69
July	-	-	-	-	-	-	-	-	6	11	2	-	2	18	15	6	-	11	-	14	-	6	-	88	-	1	1	99
Aug.	-	-	-	-	-	-	-	-	6	-	-	-	3	6	3	-	-	6	-	9	-	7	-	40	1	-	1	46
Sept.	3	-	-	11	-	-	-	-	-	-	6	-	4	4	4	-	1	-	-	-	2	-	-	35	4	1	1	50
Oct.	-	-	-	-	-	-	-	-	-	-	-	10	3	-	11	5	-	3	-	7	2	4	-	45	-	-	-	53
Nov.	-	-	-	-	-	-	-	-	-	-	-	-	3	-	11	-	-	-	-	3	-	2	-	19	-	-	-	22
Dec.	-	-	7	-	-	-	21	-	-	-	-	6	-	-	3	-	-	-	-	4	-	-	-	41	-	1	2	50
Total 1940	3	-	7	11	7	-	21	-	12	18	26	16	25	28	60	20	3	28	-	63	22	36	6	412	5	4	10	478
1941																												
Jan	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	2	-	-	2	8	1	-	19	1	-	1	28
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	8	-	4	5	24	1	1	2	30
Mch.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	8	2	-	-	10	
Apr.	-	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	46	2	1	2	55	
May	-	2	22	4	4	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	1	-	-	68	
June	-	-	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-	2	2	61	
Total 1941	2	2	114	4	4	23	-	6	-	-	-	-	-	-	-	-	2	7	7	10	8	5	7	201	7	4	7	252
Grand Total	5	2	121	15	11	23	21	6	12	18	26	16	25	28	60	20	5	35	7	73	30	41	13	613	12	8	17	730

Ref: Coastal Command and Admiralty Mining Dept. records

Monthly Summary of Mines Laid by Bomber Command by Areas

	The Biscay Ports						Calais	Frisian Islands and North German Coast						The Kiel Canal and Kiel Bay						Norway Oslo	The Kattegat	The Sound and Belts										The West Baltic	Esbjerg										
	Artichokes	Beech	Cinnamon	Peacocks	Gorse	Jellyfish	Prawns	Eglantines	Nectarines	Rosemary	Xeranthemums	Yams	Zinnias	Forget-me-nots	Lettuces (Canal)	Melon	Quinces	Radishes	Wallflowers	Tomatoes	Onions	Krauts	Undergrowth	Yew trees	Asparagus	Broccoli	Carrots	Saffordil	Endives	Nasturtium	Pumpkins	Verbena	Hollyhocks	Jasmine	Sweet Peas	Hawthorn	Total Laid	Mines Jettisoned	Mines Lost	No. of Sorties	A/C Lost		
1940																																											
Apr.	1	-	-	-	-	-	-	17	-	-	-	-	-	3	-	4	-	-	-	-	-	2	-	-	15	19	10	31	-	-	-	-	3	4	-	-	109	6	7	286	(7		
May	-	-	-	-	-	-	-	5	-	-	-	-	-	20	6	-	3	-	-	-	15	1	-	-	1	-	-	-	-	9	3	2	4	2	-	-	71	1	3	130	2		
June	-	-	-	-	-	-	-	18	-	-	-	10	-	8	5	-	23	16	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	97	2	2	184	4				
July	-	-	-	-	-	-	-	14	-	-	-	9	-	5	-	-	20	-	-	-	-	9	4	-	-	-	-	30	10	10	10	3	19	-	4	157	2	2	184	4			
Aug.	19	12	12	-	-	31	-	8	-	-	-	-	-	22	-	-	13	4	3	-	-	5	5	-	-	-	-	-	-	6	-	-	6	-	-	148	6	2	183	1			
Sept.	8	4	3	12	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	1	1	59	2				
Oct.	16	2	-	6	-	5	-	12	-	-	-	-	-	14	-	-	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	5	2	85	3				
Nov.	6	3	-	-	-	12	-	4	-	-	-	-	-	4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	1	3	42	-				
Dec.	6	2	-	3	-	16	-	1	-	-	-	1	-	13	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	2	2	60	2				
Total 1940	65	23	15	21	-	64	-	94	-	-	-	20	-	89	15	4	64	22	16	2	15	17	9	3	17	19	10	61	15	25	13	5	32	6	4	-	765	24	22	1029	21		
1941																																											
Jan.	15	4	-	-	-	8	-	13	-	-	-	-	-	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	1	1	55	1			
Feb.	3	4	-	10	-	44	-	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67	2	2	79	2			
Mch.	10	8	-	5	-	42	-	-	-	-	-	-	2	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	2	1	91	2				
Apr.	5	4	18	-	2	63	4	-	24	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	3	-	-	-	-	-	-	128	3	6	154	9				
May	-	27	-	-	7	54	-	-	28	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	119	3	1	162	3				
June	-	-	-	-	7	-	-	-	23	16	-	17	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	-	2	83	3				
Total 1941	33	47	18	15	16	211	4	18	75	16	1	17	2	18	-	-	7	-	-	-	-	5	-	-	-	-	-	3	-	-	-	-	-	-	1	507	11	13	624	20			
Grand Total	98	70	33	36	16	275	4	112	75	16	1	37	2	107	15	4	64	29	16	2	15	22	9	3	17	19	10	64	15	25	13	5	32	6	4	1	1272	35	35	1653	41		

Ref: Bomber Command and Admiralty Mining Dept. records.

APPENDIX XIII (continued)

Minelaying Code and Areas

Alphabetical Areas		Alphabetical Codes	
Antwerp	Juniper	Anemones	Le Havre
Arcona to R. Dievenow	Willow	Artichokes	Lorient
Bayonne	Elderberry	Asparagus	Great Belt
Bordeaux	Deodar	Barnacle	Zeebrugge
Boulogne	Dewberry (Dabs)	Beech	St. Nazaire
Brest	Jellyfish	Bottle	Haugesund
Calais	Prawns	Broccoli	Great Belt
Cherbourg	Greengage	Carrots	Little Belt
Copenhagen (Approach)	Verbena	Cinnamon	La Rochelle
Danzig	Privet	Cypress	Dunkirk (originally Clams)
Den Helder	Limpets	Daffodil	The Sound
Dieppe	Vine Leaves	Deodar	Bordeaux
Dunkirk	Cypress (Clams)	Dewberry	Boulogne (originally Dabs)
Esbjerg (approach)	Hawthorn	Eglantine	Heligoland (approach)
Frisian Islands	Nectarines	Elderberry	Bayonne
Great Belt	Quinces	Endives	Little Belt
Great Belt	Broccoli	Flounder	Mass and East Scheldt
Great Belt	Pumpkins	Forget-me-nots	Kiel Bay
Great Belt	Asparagus	Furze	St. Jean de Luz
Haugesund	Bottle	Geranium	Swinemunde
Heligoland	Rosemary	Gorse	Quiberon
Heligoland (approach)	Eglantine	Greengage	Cherbourg
Heligoland (approach)	Yams	Hawthorn	Esbjerg (approach)
Kattegat	Undergrowth	Hollyhock	Travemunde
Kattegat	Yewtree	Hyacinth	St. Malo
Kattegat Areas	Silverthorn	Jasmine	Warnemunde
Kiel Canal	Lettuces	Jellyfish	Brest
Kiel and Eckenforde	Melon	Juniper	Antwerp
Kiel Bay	Forget-me-nots	Krauts	Limfjord
Kiel Bay	Wallflowers	Lettuces	Kiel Canal
Kiel Bay	Quinces	Limpets	Den Helder
Kiel Bay	Radishes	Melon	Kiel and Eckenforde
La Rochelle	Cinnamon	Mullet	Spezia
Le Havre	Anemones	Mussels	Terschelling Gat
Limfjord	Krauts	Nasturtiums	The Sound
Little Belt	Carrots	Nectarines	Frisian Islands
Little Belt	Endives	Newt	Maas and Scheldt
Lorient	Artichokes	Onions	Oslo
Maas and Scheldt	Newt	Oysters	Rotterdam
Maas and Scheldt	Flounder	Prawns	Calais
Oslo	Onions	Privet	Danzig
Oslofjord	Tomato	Pumpkin	Great Belt
Ostend	Turbot	Quince	Kiel Bay
Pillau	Tangerine	Quince	Great Belt and Outer Kiel Bay
Quiberon	Gorse	Radishes	Kiel Bay
River Jade (Hubert Gat)	Zinnias	Rosemary	Heligoland
River Jade	Xeranthemums	Scallops	Rouen
Rostock and Arcone Lt.	Sweet Peas	Silverthorn	Kattegat Areas
Rotterdam	Oysters	Sweet Peas	Rostock and Arcone Lt.
Rouen	Scallops	Tangerine	Pillau
St. Jean de Luz	Furze	Tomato	Oslo fjord
St. Malo	Hyacinth	Trefoils	Texel (South)
St. Nazaire	Beech	Turbot	Ostend
Spezia	Mullet	Undergrowth	Kattegat
Swinemunde	Geranium	Verbena	Copenhagen (approach)
Terschelling Gat	Mussels	Vine Leaves	Dieppe
Texel (South)	Trefoils	Wallflowers	Kiel Bay
The Sound	Nasturtiums	Whelks	Zuider Zee (exit at Ymuiden)
The Sound	Daffodil	Willow	Arcona to R. Dievenow
Travemunde	Hollyhocks	Xeranthemums	River Jade
Warnemunde	Jasmine	Yams	Heligoland approaches
Zeebrugge	Barnacle	Yewtree	Kattegat
Zuider Zee (exit at Ymuiden)	Whelks	Zinnias	River Jade (Hubert Gat)

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APPENDIX XIII (Contd.)

ENEMY SHIPPING LOSSES FROM MINES LAID BY AIRCRAFT			
OF COASTAL AND BOMBER COMMANDS			
Year and Month		SUNK	DAMAGED
September 1939 to March 1940		-	-
April		11 - 14,754	1 - 1,581
May		13 - 18,881	1 - 2,533
June		8 - 3,292	-
July		13 - 12,962	1 - 50
August		11 - 8,325	3 - 1,590
September		16 - 14,448	1 - 5,971
October		4 - 2,269	1 - 1,668
November		4 - 710	1 - 1,432
December		6 - 7,342	1 - 2,245
Total - 1940		86 - 82,983	10 - 17,070
January 1941		9 - 14,724	1 - 42
February		4 - 1,632	-
March		-	2 - 2,327
April		2 - 2,100	3 - 5,982
May		1 - 5,088	-
June		1 - 60	-
1st half - 1941		17 - 23,604	6 - 8,351

Reference - German Admiralty and Mercantile records and Lloyd's Shipping Branch.

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APPENDIX XIV

COASTAL COMMAND AIRCRAFT WASTAGE

September 1939 to June 1941 inclusive - On Operational tasks - Reference H.Q.C.C. Daily Narrative and Squadron Forms 540

	Anti-U-boat Patrol	Convoy Escort	Enemy Merchant Ships Strikes Recce.	Enemy Naval Units at Sea Strikes Recce	Air Mining	Land Targets including Naval Ports	Fighter Protection	Photographic Recce.	Monthly Totals		
1939											
Sept.	1	-	-	9	-	-	-	2	12	30	
Oct.	4	2	-	2	-	-	-	-	8		
Nov.	1	-	-	4	-	-	-	-	5		
Dec.	1	-	-	4	-	-	-	-	5		
1940											
Jan.	3	1	-	2	-	-	2	-	8	323	
Feb.	1	3	-	1	-	-	-	-	5		
Mar.	1	1	-	-	-	-	-	-	2		
Apr.	1	-	-	2	5	1	3	3	15		
May	-	1	-	4	19	2	13	1	40		
June	-	3	-	8	17	3	9	3	44		
July	-	2	1	2	20	-	9	2	36		
Aug.	-	1	2	-	18	1	16	2	45		
Sept.	-	6	8	-	5	1	8	-	30		
Oct.	1	4	10	1	15	-	2	-	37		
Nov.	3	3	5	-	2	-	9	5	28		
Dec.	2	1	3	4	6	2	10	3	33		
1941											
Jan.	1	6	2	-	5	1	5	1	22	202	
Feb.	1	5	3	2	7	2	13	-	36		
Mar.	4	5	8	3	4	-	2	7	35		
Apr.	4	6	13	8	7	2	3	6	52		
May	2	5	-	4	1	-	4	3	22		
June	2	-	5	4	9	2	6	4	35		
Totals	33	55	60	25	20	162	17	112	42	29	555

ENEMY SHIPPING LOSSES BY AIR ATTACK

S U N K					D A M A G E D			
Direct Air Attack at Sea				Air-raids-Ports	Direct Air Attack at Sea			Air-raids-Ports
Year-Month	Coastal	Bomber	F.A.A.		Coastal	Bomber	F.A.A.	
Sept. 1939 to Mar. 1940	-	-	-	-	-	-	-	-
April	-	3 - 7,970	1 - 7,569	1 - 8,200 F.A.A.	1 - 1,939	-	1 - 1,999	-
May	1 - 750	-	5 - 1,091	-	-	-	-	-
June	-	-	1 - 281	-	1 - 1,293	-	-	-
July	1 - 29	-	-	-	2 - 6,704	-	1 - 255	1 - 399
Aug.	-	-	-	-	-	-	-	-
Sept.	1 - 1,626	-	-	10 - 8,818	6 - 19,550	-	-	16 - 28,502
Oct.	1 - 763	-	-	3 - 262	2 - 5,550	-	-	-
Nov.	1 - 1,234	-	-	-	1 - 5,898	-	-	-
Dec.	1 - 1,159	-	-	2 - 1,512	1 - 6,728	-	1 - 1,501	-
Total-1940	6 - 5,561	3 - 7,970	7 - 8,941	16 - 10,792	14 - 47,662	-	3 - 3,755	17 - 28,901
Jan.-1941	1 - 1,326	-	-	-	-	-	-	2 - 4,263
Feb.	-	-	-	-	-	-	-	-
Mar.	2 - 8,581	-	-	-	2 - 1,680	-	1 - 1,376	1 - 49,746
April	-	-	1 - 3,703	1 - 46	2 - 38,268	2 - 18,737	-	1 - 37,000
May	1 - 126	5 - 4,720	1 - 200	1 - 739	-	4 - 4,351	2 - 52,800	-
June	1 - 2,095	2 - 4,836	-	-	1 - 15,206	-	-	-
1st half-1941	5 - 12,128	7 - 9,556	2 - 3,903	2 - 785	5 - 55,154	6 - 13,088	3 - 54,176	4 - 91,009

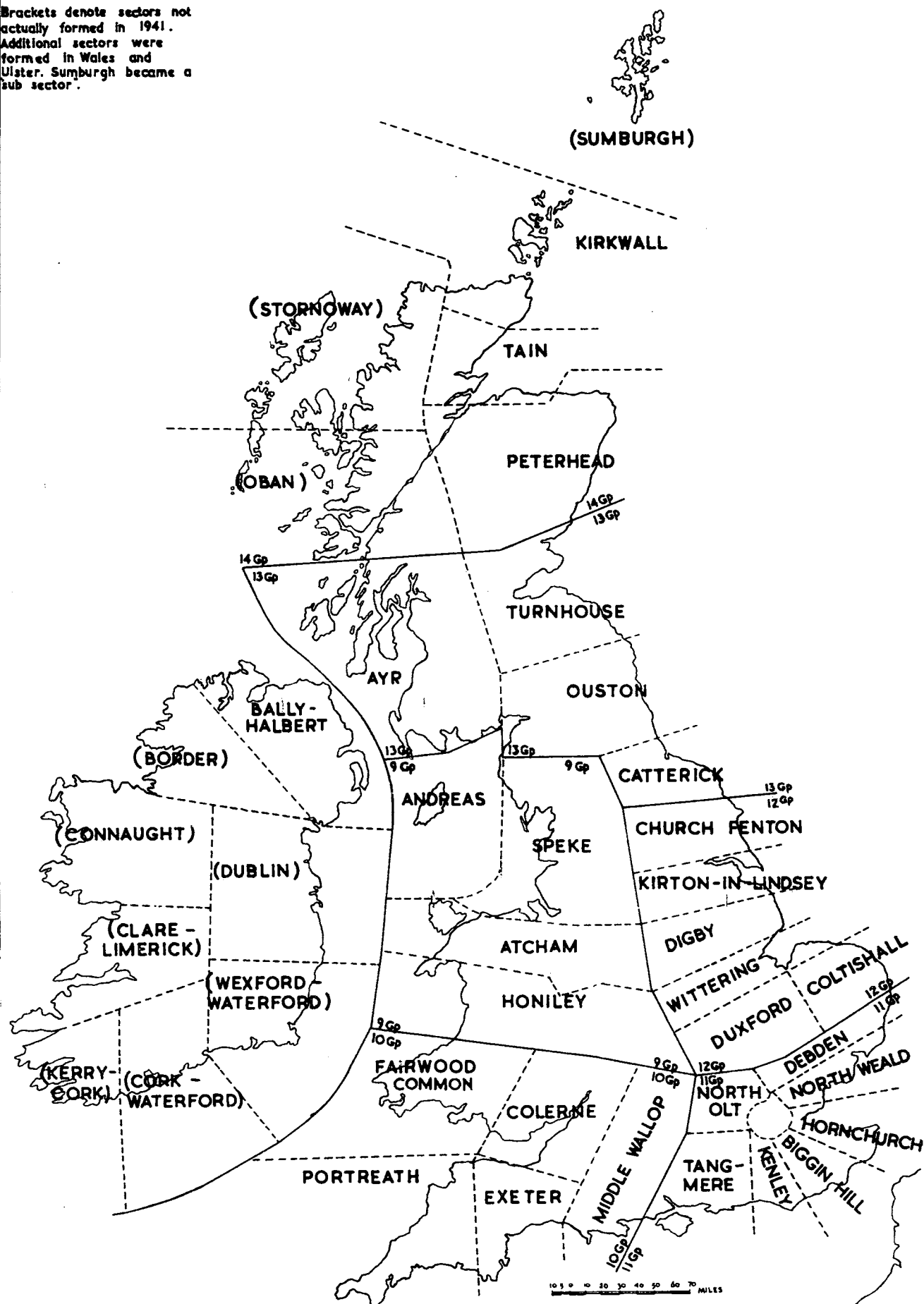
Reference - German Admiralty and Mercantile records and Lloyd's Shipping Branch.

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PROPOSED GROUP & SECTOR LAYOUT OF FIGHTER COMMAND SPRING 1941.

NOTE:

Brackets denote sectors not actually formed in 1941. Additional sectors were formed in Wales and Ulster. Sumburgh became a sub sector.



ORDER OF BATTLE OF FIGHTER COMMANDAT 0900 HOURS, 15TH JUNE, 1941

(Note: The names in brackets are those by which the Sectors became known later)

NO. 9 GROUP

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Ramsey (Andreas)	302 (Polish)	Hurricane I	Jurby	Day
Speke (Woodvale)	315 (Polish)	Hurricane I	Speke	Day
"	96	Defiant and Hurricane I	Crannage	Night
"	256	Defiant and Hurricane I	Squire's Gate	Night
Valley	615	Hurricane I	Valley	Day
"	219 (one flight)	Beaufighter I	Valley	Night; one flight
Ternhill (Atcham)	403 (R.C.A.F.)	Spitfire I	Ternhill	Day
"	68	Beaufighter I	High Ercall	Night
Baginton (Honiley)	605	Hurricane II A	Baginton	Day

Summary: Day squadrons 5, S.E. night squadrons 2,
T.E. night squadron 1½.

NO. 10 GROUP

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Pembrey (Fairwood Common)	32	Hurricane II A & B	Angle	Day
"	316 (Polish)	Hurricane I	Pembrey	Day
"	79	Hurricane II A	Fairwood Common	Day
Portreath	152	Spitfire II A	Portreath	Day
"	249	Hurricane I & I A	Portreath	Day
"	66	Spitfire II A	Perranporth	Day
Colerne	501	Spitfire I & II A	Colerne	Day
"	600	Beaufighter I & II	Colerne	Night
"	263	Whirlwind	Filton	Day
"	87	Hurricane I	Charmy Down	Night
Exeter	307	Defiant	Exeter	Night
"	504	Hurricane I	Exeter	Day
Middle Wallop	604	Beaufighter I	Middle Wallop	Night
"	93	Havoc	Middle Wallop	Mining
"	118	Spitfire II A	Ibsley	Day
"	234	Spitfire II A	Warmwell	Day
"	308 (Polish)	Spitfire II A	Chilbolton	Day

Summary: S.E. day squadrons 11, T.E. day squadron 1,
S.E. night squadrons 2, T.E. night squadrons 2,
Aerial mining squadron 1.

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APPENDIX XVII (Contd.)

NO. 11 GROUP

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Tangmere	145	Spitfire II B	Merston	Day
"	616	Spitfire II A	Westhampnett	Day
"	219	Beaufighter I	Tangmere	Night; one flight
"	(less one flight)			
"	23	Havoc	Ford	Night (Intruder)
"	F.I.U.	Mixed	Ford	Night
"	610	Spitfire II A & B	Westhampnett	Day
Kenley	312	Hurricane II A & B	Kenley	Day
"	(Czech)			
"	258	Hurricane II B	Kenley	Day
"	1	Hurricane II B	Redhill	Day
Biggin Hill	609	Spitfire V B	Biggin Hill	Day
"	92	Spitfire V B	Biggin Hill	Day
"	601	Hurricane II B	Manston	Day
"	91	Spitfire V B	Hawkinge	Day
"	74	Spitfire V B	Gravesend	Day
"	264	Defiant	West Malling	Night
"	29	Beaufighter I	West Malling	Night
Hornchurch	603	Spitfire V A	Southend	Day
"	54	Spitfire V A	Hornchurch	Day
"	611	Spitfire V A	Hornchurch	Day
North Weald	56	Hurricane II B	North Weald	Day
"	242	Hurricane II B	Hunsdon	Day
"	85	Havoc	Hunsdon	Night
Debden	3	Hurricane II B & C	Martlesham	Day
"	71	Hurricane II B (Eagle)	Martlesham	Day
Northolt	303	Spitfire II B	Northolt	Day
	(Polish)			
	306	Hurricane II B	Northolt	Day
	(Polish)			

Summary: Day squadrons 20, S.E. night squadron 1,
T.E. night squadrons 2½ (+ 1 Intruder and F.I.U.)

NO. 12 GROUP

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Duxford	19	Spitfire II A	Fowlmere	Day
"	310	Hurricane II A	Duxford	Day
	(Czech)			
Coltishall	222	Spitfire II B	Matlask	Day
"	257	Hurricane II B & C	Coltishall	Day
Wittering	25	Beaufighter I	Wittering	Night
"	151	Defiant and Hurricane I	Wittering	Night
"	266	Spitfire II A	Collyweston	Day
Digby	401	Hurricane II A	Wellingore	Day
	(R.C.A.F.)			
"	402	Hurricane II A	Coleby Grange	Day
	(R.C.A.F.)			
Kirton-in-Lindsey	65	Spitfire II A	Kirton-in-Lindsey	Day
"	255	Defiant and Hurricane I	Hibaldstow	Night
"	452	Spitfire II A	Kirton-in-Lindsey	Day
	(R.A.A.F.)			
Church Fenton	485	Spitfire II A	Leconfield	Day
	(R.N.Z.A.F.)			

Summary: Day squadrons 10, S.E. night squadrons 2, T.E. night squadron 1.

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NO. 13 GROUPAPPENDIX XVII (Contd.)

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Catterick	313 (Czech)	Spitfire I	Catterick	Day; one flight op.
	41	Spitfire II A	Catterick	Day
Custon	72	Spitfire II A	Acklington	Day
	317 (Polish)	Hurricane I	Custon	Day
Turnhouse	122	Spitfire I	Turnhouse	Day; one flight op.
"	123	Spitfire I	Turnhouse	Day; one flight op.
"	64	Spitfire II A	Drem	Day
"	43	Hurricane II A & B	Drem	Day
Ayr	602	Spitfire I & II A	Ayr	Day
"	141	Defiant	Ayre and Acklington	Night
Aldergrove	245	Hurricane I	Aldergrove	Day

Summary: Day squadrons $8\frac{1}{2}$. S.E. night squadron 1.

NO. 14 GROUP

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Dyce	111	Spitfire II A	Dyce and Montrose	Day
Kirkwall	17	Hurricane I	Castletown and Elgin	Day
"	607	Hurricane I	Skitten	Day
"	253	Hurricane I	Skeabrae	Day
"	124	Spitfire I	Castletown	Day; one flight op.

Summary: Day squadrons $4\frac{1}{2}$. night squadrons nil.

NON-OPERATIONAL SQUADRONS

<u>Sector</u>	<u>Squadron</u>	<u>Equipment</u>	<u>Aerodrome</u>	<u>Remarks</u>
Kirton-in-Lindsey	121 (Eagle)	Hurricane I	Kirton-in-Lindsey	Day training
Catterick	313 (Czech)	Spitfire I	Catterick	Day; one flight training
Custon	406 (R.C.A.F.)	Blenheim	Acklington	Night; Forming
Turnhouse	122	Spitfire I	Turnhouse	Day; one flight forming
Turnhouse	123	Spitfire I	Turnhouse	Day; one flight forming
Kirkwall	124	Spitfire I	Castletown	Day; one flight training

Summary: Day squadrons 3, T.E. night squadron 1.

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APPENDIX XVII (Contd.)

SUMMARY FOR WHOLE COMMAND

	<u>Day</u>		<u>Night</u>		<u>Int- ruder</u>	<u>Aerial Mining</u>	<u>Total</u>
	<u>S.E.</u>	<u>T.E.</u>	<u>S.E.</u>	<u>T.E.</u>			
No. 9 Group	5	-	2	1 $\frac{1}{2}$	-	-	8 $\frac{1}{2}$
No. 10 Group	11	1	2	2	-	1	17
No. 11 Group (excluding F.I.U.)	20	-	1	2 $\frac{1}{2}$	1	-	24 $\frac{1}{2}$
No. 12 Group	10	-	2	1	-	-	13
No. 13 Group	8 $\frac{1}{2}$	-	1	-	-	-	9 $\frac{1}{2}$
No. 14 Group	4 $\frac{1}{2}$	-	-	-	-	-	4 $\frac{1}{2}$
	59	1	8	7	1	1	77
Non-operational	3	-	-	1	-	-	4
	62	1	8	8	1	1	81

ANALYSIS BY FUNCTIONS

(figures on 6.4.41 in brackets)

S.E. day squadrons	62(63)	
T.E. day squadrons	1(1)	
Total of day squadrons	63(64)	
S.E. night squadrons	8(8 $\frac{1}{2}$)	
T.E. night squadrons	8(6 $\frac{1}{2}$)	
True defensive night squadrons	16(15)	
Intruder squadron	1(1)	
Aerial mining squadron	1(1)	
Total of night squadrons	18(17)	
Total of day and night squadrons		81(81)

ATTACK AND DEFENCE OF ALLIED SHIPPING IN HOME WATERS (September 1939 to June 1941)

	German Air Force ⁽¹⁾						Allied Shipping Sunk by direct Attack at Sea ⁽²⁾										Fighter Command ⁽³⁾								Ships			
Month	Direct Attack at Sea				Minelaying		Merchant Ships						Fishing Vessels		Naval Craft		Protection of Shipping at Sea								A.A. Armament			
	Despatched		Attacked		Sorties	Mines	Day			Night		Unrecorded		Day & Night		Day & Night		Despatched		Wastage		Claims		E/Ac.	Claims		E/Ac.	
	Day	Night	Day	Night	Desp'd.	Laid	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage	Day	Night	By E/A.	Non E/A.	Desty'd.	P/Desty'd.	Dmg'd.	Desty'd.	P/Desty'd.	Dmg'd.
1939																												
September	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							2	-
October	29	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,080	-				7	-				
November	79	40	4	-	65	47	-	-	-	-	-	-	-	-	-	-	-	971	-				2					
December	66	57	24	11	55	27	1	487	-	-	-	-	8	1,705	-	-	-	1,137	-				2					
Totals:-	194	97	33	11	120	74	1	487	N11	N11	N11	N11	8	1,705	N11	N11	3,188	N11					11				2	
1940																												
January	94	7	74	7	-	-	8	16,080	-	-	1	7,216	2	397	1	251	2,521						5					
February	65	37	55	-	-	-	1	629	-	-	-	-	1	224	4	2,255	2,252						8					
March	137	64	53	11	-	-	3	8,094	-	-	-	-	1	202	-	-	2,075	Dusk 40					3					
April	151	122	36	-	140	112	-	-	-	-	-	-	2	420	-	-	1,039	Dusk 31	1				3				4	
May	185	409	11	-	180	148	1	1,162	1	5,839	-	-	-	-	-	-	201	Dusk 19					1				-	
June	133	508	15	6	190	234	2	5,244	1	2,290	1	1,147	2	398	-	-	92						-				-	
July	1,235	698	207	3	559	674	26	61,049	-	-	-	-	1	139	9	12,239	3,464			46			43				2	
August	1,220	870	402	7	764	386	11	47,131	1	4,852	-	-	1	189	5	1,931	3,020			29			57				19	
September	1,525	815	67	21	693	184	4	12,184	6	22,856	-	-	2	378	-	-	314						3				3	
October	1,200	675	21	15	761	778	2	567	1	840	-	-	-	-	1	96	245						2					
November	1,280	530	81	11	643	866	7	19,128	4	14,325	-	-	-	-	4	901	402						57	12				
December	1,010	355	33	-	370	519	-	-	1	6,941	-	-	1	276	-	-	504						2					
Totals:-	8,226	5,090	1,055	81	4,300	3,901	65	171,268	15	57,943	2	8,363	13	2,623	24	17,673	16,129	90	76				184	12			29	
1941																												
January	950	330	31	5	339	481	2	12,466	-	-	-	-	1	275	-	-	350						3				3	
February	985	595	56	15	609	1,048	2	7,217	1	1,278	2	1,399	3	769	5	1,961	443						7				6	
March	1,610	615	79	17	570	477	12	33,299	8	31,609	2	819	9	1,351	3	1,453	2,103						22	7			8	
April	1,706	590	124	72	582	471	4	10,900	10	17,977	1	7,982	3	805	6	6,812	7,876						11				7	
May	1,223	570	41	60	497	275	1	2,846	9	19,327	-	-	4	437	7	4,548	8,287			3			15	7			6	
June	789	435	40	79	345	599	2	3,321	14	45,454	-	-	2	291	7	1,955	7,331	56					13				8	
Totals:-	7,263	3,135	371	248	2,942	3,311	23	70,049	42	115,645	5	10,200	22	3,928	28	16,329	26,390	56	3				71				38	

(1) All figures for the German Air Force, with the exception of 'Mines Laid', are estimations by Fighter Command as German records do not give a breakdown into types of operation. 'Mines Laid' are from German records.

(2) The figures in these columns are from BR.1337 and "Ships of the Royal Navy, Statement of Losses, etc."

(3) Unavoidably, certain columns and spaces have been left blank as Fighter Commands records do not give the required breakdown.

U-BOAT CONSTRUCTION - 1922 TO 1941

Reference - German Naval Archives

By the Treaty of Versailles, Germany was denied the right to build or acquire submarines. In 1922, German building yards, with the approval of Adm. Behnke, C.-in-C. Navy, founded at The Hague a German Submarine Construction Office under the cover of a Dutch firm (I.V.S. Ltd.). This office was to provide an efficient U-boat construction staff to keep abreast of all technical developments by means of practical work for foreign navies. A secret Berlin Company - Mentor Bilanz Ltd. - provided the link between I.V.S. Ltd., and the German Admiralty. Mentor Bilanz Ltd. was liquidated in 1928 for internal political reasons and a new company - Igewit Ltd. was formed to make preparations for a speedy and effective rebuilding of the German U-boat arm in such a way that the Navy and Government would not be compromised.

In October 1924, Adm. Zenker replaced Adm. Behnke as C.-in-C. Navy and he was, in turn, succeeded by Adm. Raeder in October 1928.

In November 1932, the Reichswehrminister Von Schleicher approved a plan for rebuilding the German Navy. This included 16 U-boats to be built in three stages up to and after 1938. He stipulated that no U-boats were to be purchased or commenced until the political situation was favourable.

On 30 January 1933 the National Socialists came into power and General Blomberg replaced Von Schleicher.

At the Disarmament Conference in Geneva in March 1933, Macdonald - the British Prime Minister - presented his plan which among other things called for a cessation of all naval construction until 1936.

On 13 October 1933, the German Admiralty discussed a programme known as New Construction Plan A, for the rebuilding of the German Navy, and it was decided that the U-boats already planned should be built. In addition, large U-boats were to be built as far as the available dockyard capacity allowed. A target of six small U-boats per month was to be reached as soon as the necessary facilities could be provided.⁽¹⁾ On 16 March 1935, Germany repudiated the Treaty of Versailles and on 18 June voluntarily entered into a Naval Agreement with Great Britain, undertaking to restrict her naval tonnage to a ratio of 35/100 to the aggregate naval tonnage of the British Empire. This was to apply to all categories of ships except submarines in which Germany was given the right to possess an equal tonnage with Great Britain. Germany agreed, however, not to build beyond 45% of British submarine tonnage unless special circumstances arose.

The preliminary work on U-boat construction was so far advanced that eleven days after the above Agreement had been signed, Germany commissioned her first U-boay since 1918 on 29 June at Kiel and by the end of 1935, 14 U-boats had been commissioned.

On 22 July 1935, the German Admiralty proposed to Von Blomberg a programme for U-boat constructions up to October 1939.

(1) Germany had already built and tested prototypes of the envisaged construction. In 1927, the Mentor Bilanz Ltd., had obtained the agreement of the King of Spain for a 750 ton U-boat to be built at Cadiz. After thorough trials this boat was sold to Turkey at the end of 1931. A small 250 ton U-boat had with the permission of the Finnish Government been built in Finland in 1930. This prototype for the German Coastal U-boats was used in 1933/34 to give practical experience to a number of German naval officers.

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APPENDIX XIX (continued)

36 boats to be commenced Feb. 1935/Mar. 1936 of which 19 to be completed by
Mar. 1936
and 17 to be completed
by Apr/Nov. 1936

4 boats to be commenced Apr. 1936 4 to be completed by Oct. 1937

4 boats to be commenced Apr. 1937 4 to be completed by Oct. 1938

4 boats to be commenced Apr. 1938 4 to be completed by Oct. 1939

48 Total

48 Total

On 17 July 1937, Germany entered into a second Naval Agreement with Great Britain which stipulated among other points that no submarines built was to exceed 2,000 tons in standard displacement or carry a gun larger than 5.1 inches (130 mm) in calibre. The two Powers also undertook to exchange information regarding their annual building programmes and affirmed that all matters relating to submarines were governed exclusively by the Agreement of 18 June 1935.

In May 1938, Hitler decided that France and Great Britain must be regarded as potential enemies and instructed Admiral Raeder on 27 May to take all measures for bringing the U-boat fleet up to parity with Great Britain. Raeder informed him that preliminary orders to this end had already been placed.

In a review of U-boat construction issued on 19 September 1938 the position was:

39 U-boats had been completed and 33 were building. This 72 boats represented 45% of the British submarine tonnage. Between May and August 1938, contracts for a further 25 boats had been placed. Drawings and preparations for 26 more had been completed and 6 had been projected. The total of 129 built, building or planned corresponded to 100% of the British tonnage. However, it was not till 12 December 1938 that the German Government notified the British Government of their intention to exercise their Treaty Rights and increase their U-boat tonnage to 100% of that of Great Britain.

In view of the international situation in the latter part of 1938 (Czecho-Slovakian crisis and Munich Agreement) the German Admiralty on 24 November 1938 reviewed the possibility of expanding their entire building programme. A plan, known as the "Z" plan, was drawn up and provisionally approved by Admiral Raeder on 31 December. This was circulated in the German Admiralty on 6 January 1939 and, where U-boats were concerned, it proposed that by 1943 the U-boat fleet should number 162 boats, by 1945 230 boats and by 1948 247 boats.

By 10 March 1939, 72 U-boats had been built or were building; of these 48 were in commission. Contracts for a further 46 boats had been placed.

On 28 April 1939, Hitler denounced the Anglo-German Naval Agreements.

On the outbreak of war, Germany had 46 U-boats ready for operations while 11 more were in commission and being prepared for active service. Resulting from the start of war with the Allies, a new construction plan was approved by Hitler on 7 September 1939. From September an additional seven boats were to be laid down. The figure for 1940 was to be raised by about 46 boats while the target for 1941 was an increase of ten boats per month over the number previously scheduled for the period.

On 23 September, in discussing this programme with Hitler, Admiral Raeder pointed out that, far from being adequate to the task of attacking Allied shipping, the increases would barely cover anticipated losses. Hitler agreed and ordered an extension of the building programme. Accordingly on 6 October,

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APPENDIX XIX (continued)

the Naval Construction Office made a plan for building U-boats up to U.850. Its ultimate aim was a monthly output of 29 $\frac{1}{2}$ boats.

On 1 November 1939, Raeder stated that the inadequate quota of steel would make the completion of this programme impossible. He again drew the attention of both Hitler and Keitel (Chief of Staff, Supreme Command) to this fact on 8 and 11 November. At a further meeting on 30 December, he requested authority to begin drawing on stocks of certain materials - particularly tin - which were being held in reserve for the Navy's use in the next few years. This would allow a modified programme which would produce 316 U-boats by 1942, making with the existing fleet a total strength of 372 boats.

By June 1940, matters were still unsettled and on 20 June, Raeder was forced to point out that shortage of men and materials were delaying even the modified programme. On 28 June, Raeder wrote to Keitel saying that although the modified programme was running fairly satisfactorily despite shortages, unless there was an immediate allocation of additional labour and materials a break in U-boat building would occur after January 1942 when the modified plan was completed.

On 31 July 1940, Hitler cancelled all restrictions on materials for U-boat building and Raeder ordered contracts to be placed for as many boats as would maintain the highest monthly output for 1941 (24 boats rising to 25 as soon as possible). On 19 August the Naval Construction Office reported that in addition to the 316 boats of the modified programme, contracts had been placed for a further 120. It was intended to complete these during 1942.

However, the building was again destined to be held up by shortages. On 14 November 1940 and again on 27 December 1940, Raeder complained that too many types of armament were being given priority while U-boats were being neglected. The output for 1941 would be 37 less than projected.

The monthly output up to November 1940 had been only seven, and on 27 December 1940, Raeder informed Hitler that, with the number of workers then available, the maximum possible monthly output was 18 boats - which was inadequate. Hitler replied that in view of the political situation (i.e. Russia's interference in the Balkans) all army requirements must be met before giving further priority to U-boat production.

On 8 January 1941, the Naval Construction Office produced a schedule for the period December 1940 to December 1941 which provided for 205 new boats, but by 18 March 1941, Raeder was again compelled to inform Hitler that unless the demands for additional workers were conceded, production figures would decline. The monthly output for the second quarter of 1941 would be 18 boats but it would afterwards drop to 15.

On 30 June 1941, Raeder urgently represented to Keitel that the Naval building programme be given equal priority with the G.A.F. programme and that both should take precedence over all other types of armament. But Hitler's directive of 14 July 1941, while confirming the continuation of the U-boat programme, gave the G.A.F. programme, augmented at his instructions, absolute priority. Yet on 25 July Hitler emphasized that the U-boat target of 25 boats per month was not to be reduced - an example of unco-ordinated planning which reflects on the higher direction of the war.

Growth of the U-boat fleet and its operational dispositions

APPENDIX XIX Cont'd

		1939				1940												1941					
		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Operational	Based in Germany	42	49	38	38	33	34	31	31	23	26	28	23	22	13	7	4	5	3	3	-	-	-
	Based in Atlantic	-	-	-	-	-	-	-	-	-	-	1	5	9	13	18	18	18	19	27	30	40	47
Total number operational		42	49	38	38	33	34	31	31	23	26	29	28	31	26	25	22	23	22	30	30	40	47
School and training force		11	4	10	10	12	13	14	17	17	18	19	21	23	24	33	36	42	42	43	43	43	42
New U-boats on test and ⁺ working up in the Baltic		4	4	5	5	11	8	5	2	10	8	5	5	4	14	11	10	25	32	34	43	49	56
TOTAL U-BOAT FLEET		57	57	53	53	56	55	50	50	50	52	53	54	58	64	69	78	90	97	108	116	132	145
Newly Commissioned U-boats		2	-	1	4	-	-	1	7	3	1	3	6	6	6	11	12	7	11	13	13	14	13
On first war cruise from Germany		-	-	1	-	3	-	2	1	4	2	-	2	5	5	4	1	2	8	4	5	7	14
Average No. at sea in Atlantic		14	10	8	3	11	6	5	-	5	15	15	12	15	15*	14	11	13	14	12	22	19	22
Average No. in operational areas in the Atlantic		18 to 2	6	5	3	8	5	3	-	-	13	10	9	8	9	10	9	9	7	13	14	13	20
U-boats lost from all causes		2	4	1	1	1	5	1	7	1	-	2	2	-	1	2	-	-	-	5	2	1	4
Planned building output		1	1	1	1	1	1	1	4	4	4	4	4	4	8	8	8	12	12	12	20	20	20
Actual building output		1	1	2	2	2	-	2	3	4	3	2	7	7	7	7	8	12	7	12	14	19	18

*From this date onward, an average of 8 Italian U-boats were at sea in the Atlantic.

⁺The time occupied on test and working up averaged three months during this period.

Reference - War Diary of B. d U.

Ref. No. A.H.B. 1/2

THE EVACUATION FROM NORWAY AND THE LOSS OF H.M. SHIPS
GLORIOUS, ACASTA, ARDENT AND THE AUXILIARIES ORAMA,
OIL PIONEER AND JUNIPER, 8 JUNE 1940

A German force consisting of the two battle-cruisers Scharnhorst and Gneisenau, the heavy cruiser Hipper and an escort of four destroyers left Kiel at 0800 German Summer Time on 4 June 1940 under the command of Admiral Marschall. His orders were to make a surprise penetration of And and Vaags fiords to destroy British warships and any shipping concentrations found there. As the German High Command had no inkling of the Allied intention to evacuate completely from Norway, this German naval force was not intended to search for any convoys on the route between U.K. and Narvik. It was hoped that this appearance off the fiords northward of Narvik would also afford protection to military supplies using the coastwise route from Trondheim to Northern Norway which had been attacked by Allied surface craft.

At this period of the war no special intelligence was available to us neither was the German squadron reported by any shore agents on its way up the Kattegat. During the passage up the south-western and western coast of Norway between 1100 hours on the 5th and 0700 hours on the 6 June, no British aircraft were sighted by them. Actually fog at Coastal Command bases reduced the standard reconnaissance flying to a few sorties and none of these were in areas which could have obtained a sighting. The Admiralty were, therefore, quite unaware that this enemy force was at sea. Equally the Germans were unaware that we were in the course of evacuating entirely from Norway.

Regarding surface escorts for ships engaged in the evacuation, we were as usual desperately short - the more so as it was only on 4 June that the Dunkirk evacuation had been completed with its heavy toll in destroyers. In addition, much of the Home Fleet was on the 5 June sailed from Scapa Flow to intercept two unknown ships reported at 1130 hours that day by a naval "Q ship" in a position 240 miles north of the Shetlands steering 265° at 20 knots.⁽¹⁾ It was thought possible that these might be warship raiders and the Admiralty asked for immediate air reconnaissance. At 1700 hours a Sunderland left Sollum Voe but had to be recalled at 2030 hours owing to fog again closing down all air bases. However, on the 6 June three Sunderlands were got away and co-operated all day with the surface force in searching to the south of Iceland. Nobody saw anything except two of our own armed merchant cruisers steering west at high speed. It could have been these two that gave rise to the "Q ship's" report.

Hardly had this scare died down when War Office intelligence informed the Admiralty during the forenoon of the 7 June that they had information that Germans were actually landing in Iceland in a fiord about 15 miles north of Seydisfjörðr on the east coast. Such was the unco-ordinated state of our Intelligence Branches that this was promptly linked up with the "two unknown ships" and a Sunderland sent to search the coastline. This was done but there were no signs of the ships or a landing party.

(1) The ships detached were the battle-cruisers Renown and Repulse, the cruisers Newcastle and Sussex and five destroyers.

It must be remembered that, at this stage of the war, both the Admiralty and the C.-in-C. Home Fleet were seriously concerned with the threat of enemy major units breaking out either to attack our Atlantic trade or to roll up the line of armed merchant cruisers who were maintaining the Northern Blockade Patrol. At this time the Home Fleet consisted of only four capital ships, two cruisers and thirteen destroyers. The detachment searching off Iceland therefore left only the Rodney (C.-in-C.'s flagship), the Valiant and eight destroyers at Scapa Flow.

The evacuation from Norway

All the heavy equipment was loaded into storeships at Harstad and sailed in a slow convoy on the 7 June. On the 4, 5 and 6 June, 15,000 men were embarked in six large troopships. They sailed to a rendez-vous about 180 miles off shore and were then formed into an organised group escorted by the cruiser Vindictive bound for the U.K. Meanwhile the Valiant and four destroyers had been sailed from Scapa Flow on the 5 June to meet this first group. They did so at 0100 hours on the 8 June and had an uneventful passage to the Clyde. On the 7 and 8 June the remaining 10,000 men were embarked in seven more troopships who also proceeded to a rendez-vous off shore. On the 9 June this second group left for the U.K. escorted by the cruiser Southampton (Lord Cork's flagship), the A/A cruiser Coventry and five destroyers. Shortly afterwards they were joined by the fleet carrier Ark Royal and three more destroyers. This group also reached home waters without incident.

The fleet carrier Glorious was proceeding homeward on much the same route but ahead and independently as she was short of fuel which could not be replenished at sea. She was escorted by the destroyers Ardent and Acasta. Soon after sailing on 7 June, eleven R.A.F. Hurricanes and a few Gladiators were flown on to her deck from the airfield at Bardufoss. All, including the Hurricanes were struck below and stowed clear so as to permit the carrier to operate her own Swordfish aircraft. (1)

Also leaving Norway on the evening of the 7 June was the cruiser Devonshire (flag Admiral Cunningham) with the King of Norway on board. She proceeded alone independently at high speed for the U.K. and by the afternoon of the 8 June was some 100 miles to the westward of the Glorious. There were two other little parties to the southward of the main evacuation route. The empty tanker Oil Pioneer escorted by the armed trawler Juniper and the empty troopship Orama in company with the hospital ship Atlantis.

None of these movements from Norway were known at Coastal Command. The Cabinet War Council shrouded with complete secrecy the decision to evacuate and forbade any information

(1) The lifts from the Glorious's flying deck to the hangar space were broad enough to take Hurricanes without fouling their wing tips. This was not so in the case of the Ark Royal - hence the choice. Moreover the choice was clinched by the fact that the larger deck landing space afforded in the Ark Royal was especially asked by the naval staff to be reserved so that the ex-catapult Walrus aircraft could be flown on as none of their pilots had ever made a deck landing before.

of the actual operation being given except to the C.-in-C. Home Fleet and a few very senior officers in the Whitehall Service Ministries. Thus no air reconnaissance along or to the south of the projected route was requested. Indeed Coastal Command Staff knew nothing until 1600 hours on 8 June of the fact that the evacuation was complete and the returning ships were well on their way home. True, the Admiralty did ask at 0900 hours this day if air escort was feasible to the Vindictive and later the C.-in-C. Home Fleet asked Rosyth if air escort could be arranged for the Valiant but there was no urgency in the requests and no indication given that these warships were escorting returning troopships. In the event neither request could be met as shortly after 1000 hours fog again closed down on the northern bases.

Admty.
G. H. S. /4
plan 6

Turning back to the German squadrons, Admiral Marschall met his previously positioned tanker Dithmarschen late on the 6th and refuelled the Hipper and destroyers during the 7 June along a line 300 to 450 miles northeast of Iceland. At about midnight his floatplane reconnaissance aircraft reported two large escorted steamers some 120 miles to the south. The German admiral succumbed to the temptation to postpone his proper mission, turn south and snap up such easy victims. At 0700 hours on the 8 June he sighted the Oil Pioneer and Juniper in 6725N x 0400E and sank them both before either could make a W/T signal. Turning north once more he ran across the Orama with the Atlantis near by in 6744N x 0352E. The hospital ship was respected but the Orama was sunk at 0900 hours and once more a W/T signal was prevented. At this juncture the Hipper and four destroyers were detached to make for Trondheim in support of German coastwise communications up to Narvik as Marschall foresaw difficulties in keeping them refuelled so far to the north in ensuing naval actions. The two battle-cruisers continued northward and at 1600 hours sighted the Glorious and her two destroyers in about 6850N x 0415E.

Reverting to the Glorious. As the day of the 7 June wore on, the C.O. of the Hurricane squadron (Squadron Leader K. B. B. Cross) noticed that no Swordfish flying was taking place in spite of the clear flying deck and out of curiosity he asked the reason. He was told that as the ship was making 18 knots this was a sufficient safeguard against possible U-boat attack and there was no suspicion of enemy surface units in the area. No flying took place either during the 8 June. At about 1600 hours two large ships were sighted and before any Swordfish could be got up and flown off to identify them salvos of heavy shells began to straddle at 28,000 yards range. Under heavy fire fruitless efforts were made to get off a strike complicated by the fact that the Swordfish were bombed up with anti-submarine bombs and valuable time was wasted in changing to a torpedo load. At 1720 hours the ships stopped on fire everywhere and twenty minutes later capsized and sank. The two destroyers had made straight for the German ships, laying smoke screens in a vain endeavour to shield the Glorious and finally firing their torpedoes. At 1728 hours the Ardent was overwhelmed by gunfire and sank leaving the Acasta still carrying on the hopeless fight. At 1808 hours she too was overwhelmed but one of her torpedoes hit the Scharnhorst abreast her after turret and damaged her severely.

This damage caused Admiral Marschall to break off his operations and return forthwith to Trondheim which he entered

on the afternoon of the 9 June. There seems little doubt that had it not been for this torpedo hit the two battlecruisers would have intercepted the lightly escorted second group of evacuation ships.

Regarding survivors, it was not till the 11 June that five officers and 35 men from the Glorious and one man from the Acasta were picked up by a small Norwegian fishing vessel and landed in the Faeroes. Another five men from the Glorious and two from the Ardent were picked up by a German seaplane and made prisoners of war. The five surviving officers were:- Squadron Leader K. B. B. Cross (C.O. of the Hurricane Sqdn.), Flight Lieutenant Jameson, Sub-Lieutenant Mac Cloughlin (F.A.A. pilot), Sub-Lieutenant Baldwin (F.A.A. observer), and Lieutenant Commander Hill R.N.R.

No hint of the presence of the German squadron or their successes reached any authority in the United Kingdom until the morning of the 9 June. At 0911 hours on this day the Atlantis met the Valiant and reported that on the previous day (the 8th) when in position 6744N x 0352E, an enemy battlecruiser with two destroyers (accompanied overhead by a seaplane) had sunk the Orama. This news was immediately broadcast by the Valiant and produced a signal from the Devonshire that she had intercepted a confused and broken message at 1615 hours on the 8th from the Glorious addressed to the Valiant in which was mentioned the presence of two enemy pocket battleships. In view of her important mission with the King of Norway on board, the Devonshire had naturally not broken W/T silence until nearing the Shetlands.

On receipt of these signals the C.-in-C. Home Fleet immediately put to sea in the Rodney with the Renown and signalled Repulse, Newcastle and Sussex to abandon their search south of Iceland and to join him with despatch. Air escorts were asked for and detailed to take off at 1430 hours which they did as follows:-

- One Sunderland to Devonshire in 6140N x 0520W.
- One Sunderland to Evacuation Group I in 6715N x 0200E.
- One Sunderland to Evacuation Group II in 6910N x 0720E.

Even then our knowledge was only scanty and it was the Germans themselves who enlightened us. At 1515 hours a German en clair broadcast stated that their battle squadron had sunk the Furious (Glorious), the Orama, an oil tank with escort vessel and two destroyers.

So ended a regrettable episode. Excessive secrecy, although hiding the evacuation from the enemy, prevented the air support which might well have located an enemy force who only fortuitously blundered into partial contact. It seems incredible that the Glorious was flying no air reconnaissance but the heroic Acasta's torpedo hit undoubtedly saved the operation from a still greater disaster. It is of interest to note that on his return to harbour Admiral Marschall was severely censured by the German High Command for his diversion southward on the 8 June in defiance of his mission orders. They deplored the use of this powerful squadron to sink such paltry vessels and criticised his detachment of the Hipper and destroyers. Despite the sinking of the British aircraft carrier they blamed the poor handling of the Scharnhorst in not avoiding the destroyer's torpedoes which resulted in a promising operation being prematurely abandoned. On the 19 June Admiral Marschall was relieved of his command in favour of Vice-Admiral Lutjens.

Admty.
G.H.S/4

AIR DEFENCE OF ALLIED SHIPPING IN HOME WATERS AGAINST GERMAN E-BOATS - SEPTEMBER 1939 TO DECEMBER 1941

APPENDIX XXI

Reference - British air figures compiled from Command and Group Operational Record Books

German figures compiled from the E-boat Command War Diary - Admiralty F.D.S. (N.I.D./15/X.237/48)

Vessels sunk compiled from Admiralty records - Merchant BR.1337 and statement of Royal Navy Losses in Second World War

Month and Year	COASTAL COMMAND			COASTAL AND BOMBER			FIGHTER COMMAND			FIGHTER COMMAND			GERMAN E-BOATS										VESSELS SUNK BY TORPEDO	
	AT SEA			AIR-RAIDS ON PORTS			AT SEA			AIR-RAIDS ON PORTS			OPERATIONS AT SEA				LOSSES AT SEA				Loss in port bombing	Allied merchant ships	Naval craft	
	Sorties	Attacks	A/C loss	Sorties	Attacks	A/C loss	Sorties	Attacks	A/C loss	Sorties	Attacks	A/C loss	Torpedo		Minelaying		By A/C	By Ship	By Mine	Accident		No. & tonnage	No. & tonnage	
													Sorties	Attacks	Sorties	Mines laid								
1939 Sept.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Oct.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nov.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Totals 1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1940 Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Feb.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mar.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Apr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
May	133	16	2	10	10	-	-	-	-	-	-	-	36	26	-	-	-	-	-	-	-	1 - 694	2 - 2,435	
June	35	9	-	21	20	2	-	-	-	-	-	-	58	29	-	-	-	1	-	-	-	3 - 6,856	2 - 1,090	
July	37	7	-	71	70	2	-	-	-	-	-	-	79	20	42	107	-	-	1	-	-	6 - 13,302	-	
Aug.	7	1	-	67	60	6	-	-	-	-	-	-	26	7	19	68	-	-	-	-	-	2 - 1,583	-	
Sept.	19	-	-	47	43	4	-	-	-	-	-	-	54	30	3	9	-	-	-	-	-	7 - 14,951	-	
Oct.	-	-	-	53	53	-	-	-	-	-	-	-	51	5	27	87	-	-	1	-	-	1 - 1,595	-	
Nov.	-	-	-	17	17	-	-	-	-	-	-	-	16	3	-	-	-	1	-	-	-	-	-	
Dec.	-	-	-	38	38	-	-	-	-	-	-	-	44	19	-	-	-	-	-	-	-	2 - 8,853	1 - 358	
Totals 1940	231	33	2	324	311	14	-	-	-	-	-	-	364	139	91	271	-	1	3	-	-	22 - 47,834	5 - 3,683	
1941 Jan.	-	-	-	-	-	-	-	-	-	-	-	-	39	2	-	-	-	-	-	-	-	-	-	
Feb.	7	-	-	15	15	-	-	-	-	-	-	-	39	25	-	-	-	-	-	-	-	3 - 2,979	1 - 1,000	
Mar.	75	8	2	-	-	-	-	-	-	-	-	-	109	49	-	-	-	-	-	-	-	9 - 20,361	-	
Apr.	74	-(1)	-	25	24	2	-	-	-	-	-	-	11	11	35	158	-	-	-	-	-	3 - 4,299	-	
May	61	-	3	17	17	1	-	-(4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
June	57	3(2)	-	6	5	1	-	-(4)	-	-	-	-	12	8	16	30	-	-	-	-	-	-	-	
July	17	-(2)	1	1	1	-	-	-(2)	-	-	-	-	-	-	31	163	-	-	-	-	-	-	-	
Aug.	12	-	-	-	-	-	-	-(16)	-	-	-	-	14	9	-	-	-	-	-	-	-	2 - 3,519	-	
Sept.	24	-	-	-	-	-	-	-(13)	-	-	-	-	51	11	5	10	-	-	-	-	-	3 - 6,676	-	
Oct.	23	1	-	-	-	-	-	-(8)	-	-	-	-	14	6	-	-	-	-	-	-	-	2 - 3,305	-	
Nov.	3	-	-	-	-	-	-	-(10)	-	-	-	-	32	14	3	18	-	-	-	1	-	8 - 23,217	-	
Dec.	10	-	-	-	-	-	-	-	-	-	-	-	11	11	27	156	-	-	-	-	-	-	-	
Totals 1941	363	12(5)	6	64	62	4	-	-(57)	-	-	-	-	332	146	117	535	-	-	-	1	-	30 - 64,356	1 - 1,000	

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R.A.A.F.

- No. 10: Vol. II 271n.

Disembarked F.A.A.

- No. 701: Vol. II 295.

Disembarked F.A.A. (contd.)

- No. 801: Vol. II 100n, 111.
No. 806: Vol. II 100n, 111.
No. 812: Vol. II 100n, 322, 323.
No. 815: Vol. II 320, 322, 323.
No. 816: Vol. II 100n, 245n.
No. 818: Vol. II 100n.
No. 819: Vol. II 100n.
No. 825: Vol. II 100n, 114n.
No. 826: Vol. II 100n, 159.
No. 827: Vol. II 255n, 259.
No. 828: Vol. II 249.

Squadrons under Bomber Command control:

- No. 7 B.C.: Vol. II 333.
No. 12 B.C.: Vol. II 322.
No. 207 B.C.: Vol. II 333.

Stadtlandet, Norway: importance of, Vol. II 24.

Statistics, of Air effort: see under Anti-aircraft, Anti-ship, Anti-U-boat and E-boat; of Allied and German losses; see under Shipping Casualties.

Stavanger, S.W. Norway: airfield bombed, Vol. II 74-77; airfield bombarded from the sea, Vol. II 78, 79.

Stirling, Bomber Command aircraft: used as a minelayer, Vol. II 333, 335.

Stonegate, S.S.: captured in Atlantic by the Deutschland, Vol. II 28.

Stragglers, from convoy: losses amongst and problem of, Vol. II 292, 296, 297n.

Stranraers, Coastal Command flying boats: numbers of, Vol. II 1; particulars of, App. I.

Submarine Bombing Restrictions: first instituted, Vol. II 44, 45.

Suffolk, British cruiser: see under Royal Navy.

Sunderlands, Coastal Command flying boats: numbers and particulars of, Vol. II 1, App. I; first fitted with A.S.V., 31; taxi service to Norway, 84, 85.

Tactics, U-boat: see under U-boats.

Tiger Moth Flights: use of as scarecrow to U-boats, Vol. II 45.

T.I.M.s: see under Weapons Air.

Titania, British submarine depot ship: see under Royal Navy.

Torpedoes, British: see under Weapons.

Transit Areas, U-boat: see under Biscay, Bay of and Northern Transit.

Trondheim, West Norway: nearby airfield at Vaernes bombed, Vol. II, 77, 77n; enemy warships off bombed, 93.

U-boat Command: headquarters in Wilhelmshaven at outbreak of war; moved to Lorient, Vol. II 293; moved to Paris, Vol. II 293.

U-boat Biscay bases: first established, Vol. II 266, 268; development of 307.

U-boats, German:

Famous captains: early band of, Vol. II 265n; attacks by, 273, 273n, 288, 292; three aces eliminated, 301, 302.

Policy for: U-boats forced to retire into the Atlantic, Vol. II 293, 296, 302.

Production: prewar, Vol. II App. XIX; operational numbers at outbreak of the war, 41; growth of U-boat fleet, App. XIX.

Successes against Allies: see Shipping Casualties.

Tactics: first night surfaced attacks, Vol. II 47; general adoption, 268; start of U-boat packs, 270; co-operation with FW.200 aircraft, 270, 291; pack system standardised, 293.

Weapons: failure of torpedoes during Norwegian Campaign, Vol. II 48, 49.

Sunk by Air attack:

U.26 shared between H/10 Squadron and Gladiolus, Vol. II 271n.

U.55 shared between Y/228 Squadron and Fowey, Vol. II 47.

Sunk by Surface craft attack: up to November 1939, Vol. II 45n; U.47, 99 and 100, 302.

U-boats, Italian: numbers of on entering the war, Vol. II 265n; numbers sunk by end of June 1940, 265n.

Victorious, British Fleet carrier: in operations against the Bismarck, Vol. II 252.

Vildebeeste, Coastal Command landplanes: numbers of at the outbreak of war, Vol. II 1; particulars of, App. I.

"W" mines: see Weapons, British Air, mines types of.

War Plan, Coastal Command: at outbreak of war, Vol. II 2.

Weapons, British Airborne:

Bombs, anti-ship: types and methods of attack, Vol. II 188-190.

Bombs, anti-submarine: details of at outbreak of the war, Vol. II 50, 51, App. I; inadequate against U-boats, Vol. II 44, 44n, 47, 50, 50n, 51, 305.

Bomb Sights: none in use against U-boats, Vol. II 51.

Depth Charges: need for first stressed, Vol. II 44; early adaption of, 51; development of air design of, App. IV; first used, 268; set too deep, 305.

I.M.P.: Vol. II 327.

Machine guns: types carried at start of war, Vol. II App. I.

Mines: standard magnetic type details, Vol. II 312-318; "B" type bomb/mine, 313, 316, 317, 324; Osmosis pistol, 317; "W" mines, 159.

Mines, magnetic firing mechanisms; period delay, Vol. II 327; sterilisers, 333, 334, 339.

T.I.M.: Vol. II 212, 212n, 327.

Torpedo: early training in use of, Vol. II 57, 181; first attacks with, 182; method of attack, 189.

Weapons, German Naval:

U-boat torpedoes: failure of during Norwegian Campaign, Vol. II 49.

U-boat mines, magnetic: first laid, Vol. II 36, 45.

Weapons, German Airborne:

Mines, magnetic: first laid, Vol. II 36; statistics of sorties, App. XVIII.

West Africa: see Africa, West.

Western Approaches Command: established, Vol. II 294.

Whitley, Coastal Command landplane: first type to be fitted with Mk. II A.S.V., Vol. II 272, 273, 273n.

Wilhelmshaven, Germany: warships, laying off in Schillig Roads attacked, Vol. II 9.

Wireless Telegraphy (W/T): Excessive use of necessitated by the pack tactics adopted in the U-boat War, Vol. II 293.

Ymuiden, Holland: used as an E-boat base; bombed by G.C. aircraft, Vol. II 265(b), 365(c), 365(e).

MAP I.

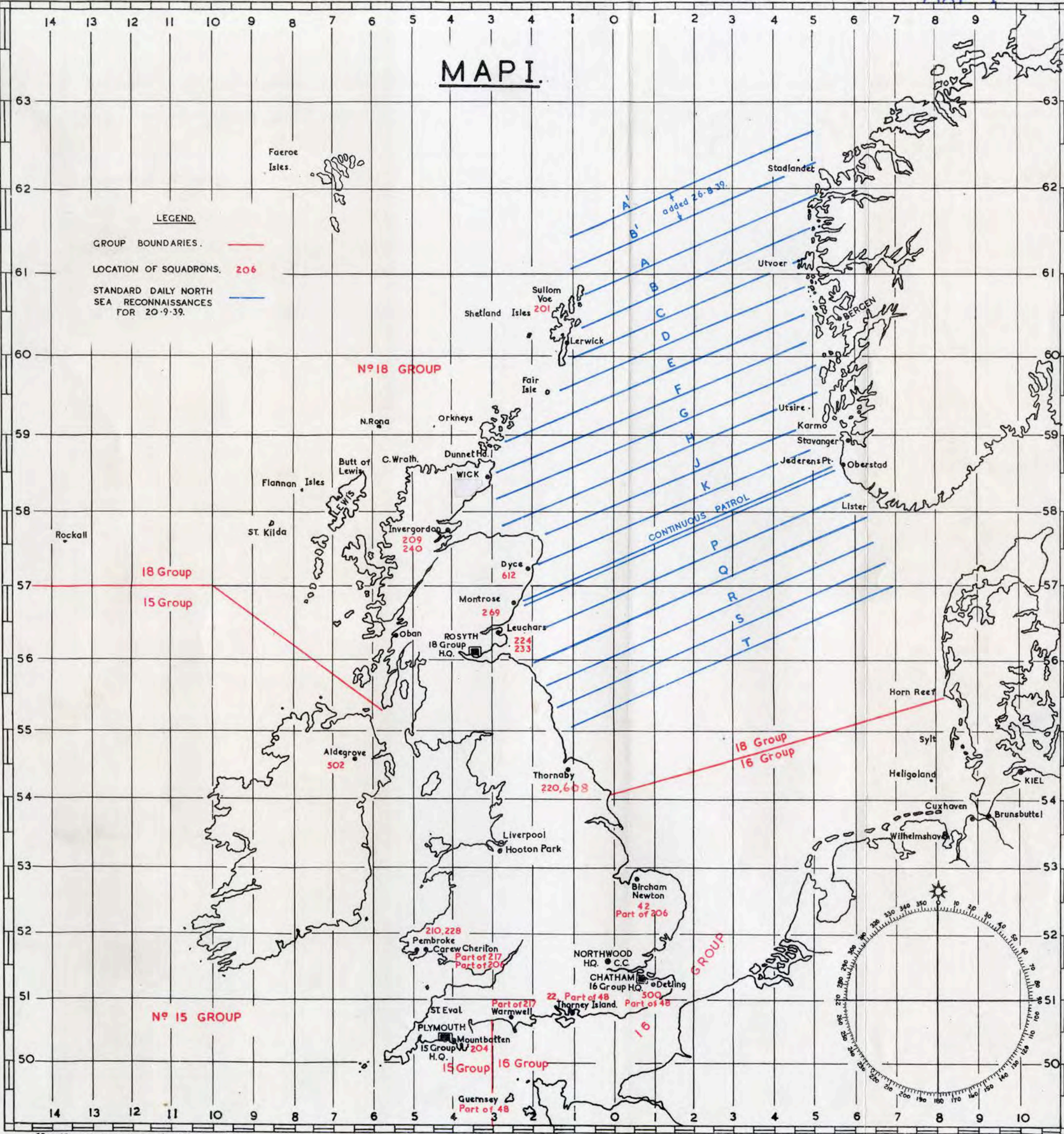
MAP I

LEGEND.

GROUP BOUNDARIES. —

LOCATION OF SQUADRONS. 206

STANDARD DAILY NORTH
SEA RECONNAISSANCES
FOR 20.9.39. —



MAP II.

STANDARD DAILY PATROLS. AU AND SHIP RECONNAISSANCE FOR 20.10.39

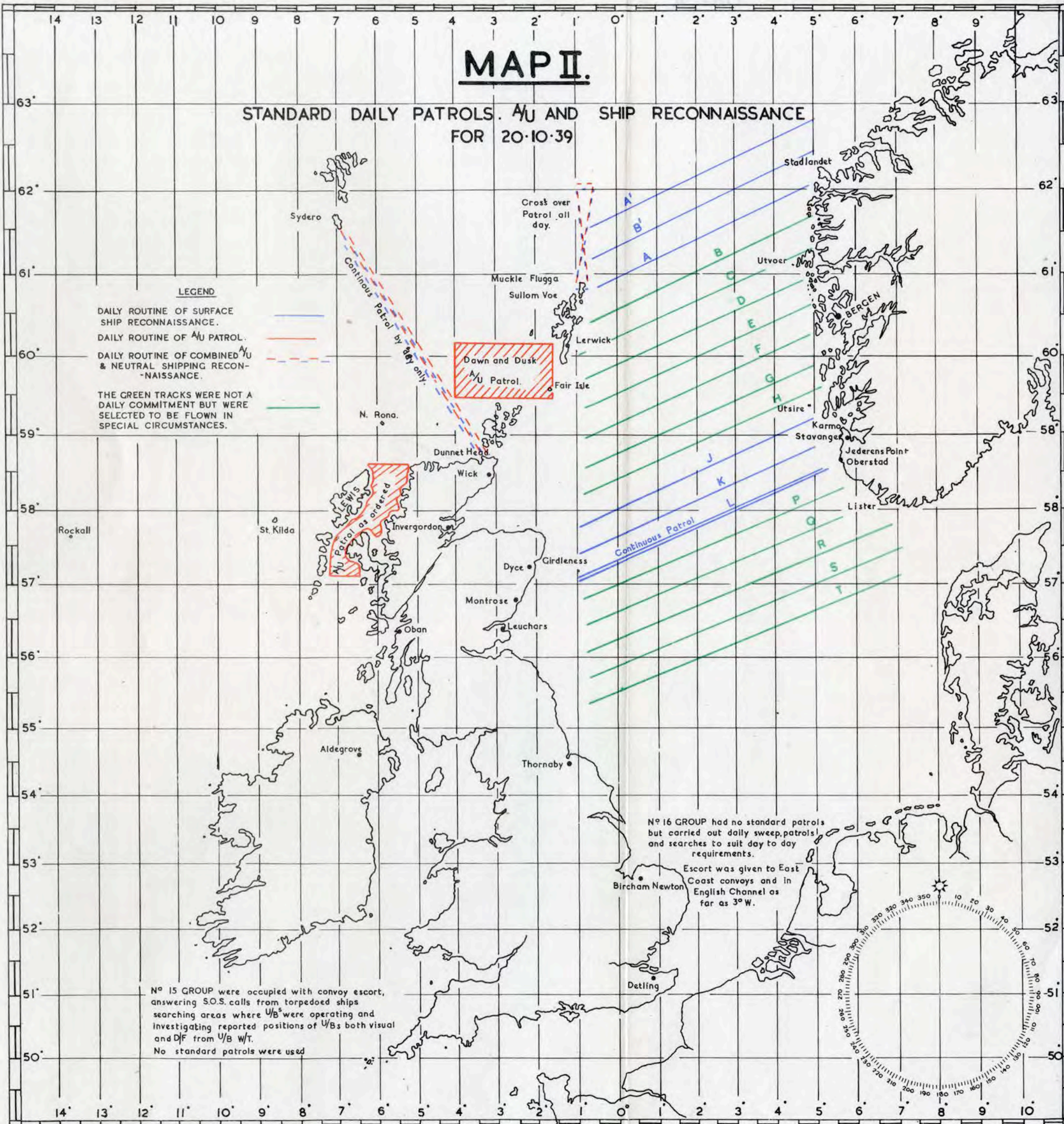
LEGEND

DAILY ROUTINE OF SURFACE
SHIP RECONNAISSANCE.

DAILY ROUTINE OF AU PATROL.

DAILY ROUTINE OF COMBINED AU
& NEUTRAL SHIPPING RECON-
NAISSANCE.

THE GREEN TRACKS WERE NOT A
DAILY COMMITMENT BUT WERE
SELECTED TO BE FLOWN IN
SPECIAL CIRCUMSTANCES.



No 16 GROUP had no standard patrols
but carried out daily sweep patrols
and searches to suit day to day
requirements.

Escort was given to East
Coast convoys and in
English Channel as
far as 3° W.

No 15 GROUP were occupied with convoy escort,
answering S.O.S. calls from torpedoed ships
searching areas where U/Bs were operating and
investigating reported positions of U/Bs both visual
and D/F from U/B W/T.
No standard patrols were used

MAP III

STANDARD DAILY PATROLS

A/U AND SHIP RECONNAISSANCE FOR 12-11-39

LEGEND

- SURFACE SHIP RECONNAISSANCE.
- ANTI UBOAT PATROLS
- - - COMBINED A/U AND SHIP RECONNAISSANCE.

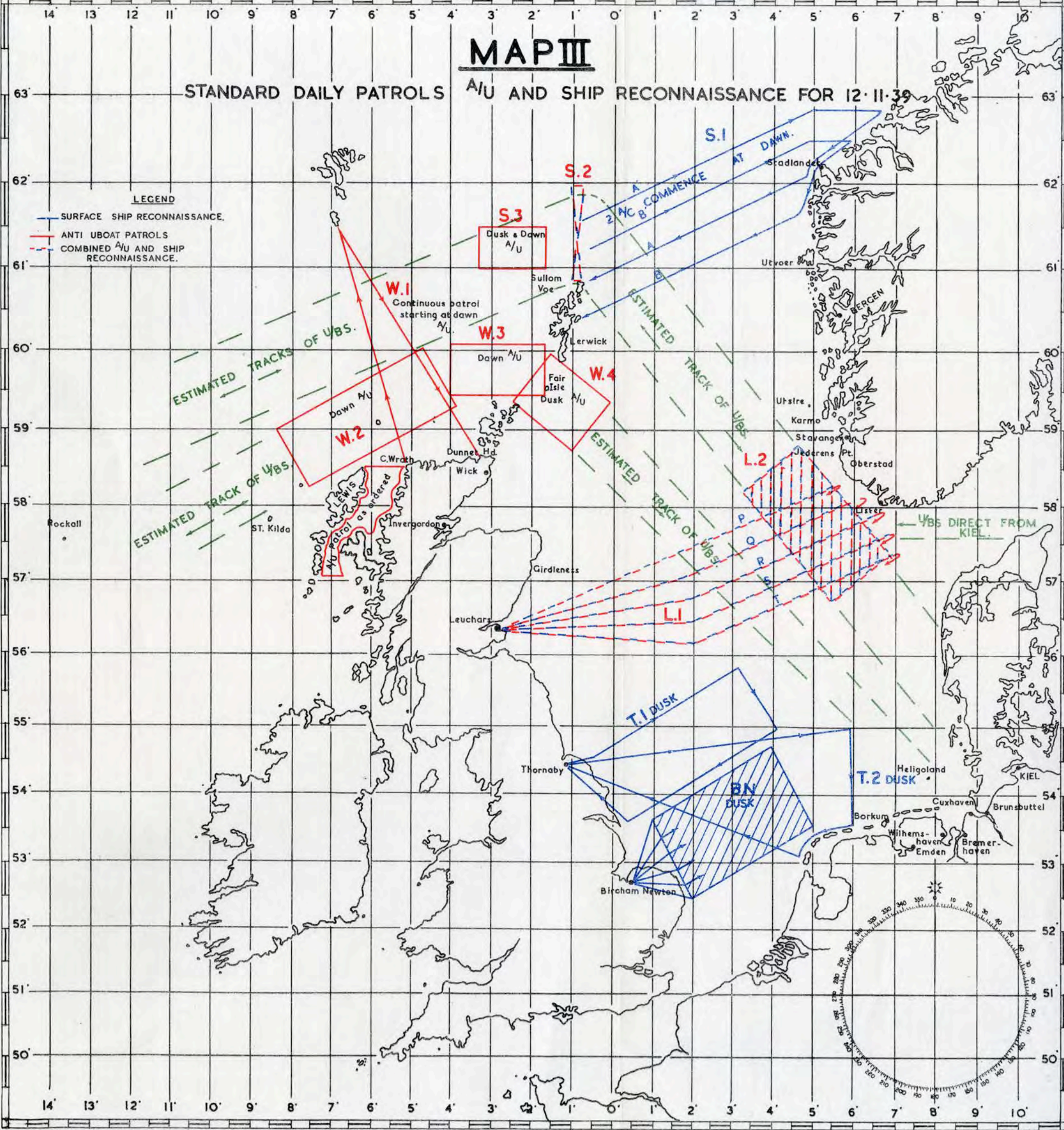
ESTIMATED TRACKS OF UBS.

ESTIMATED TRACK OF UBS.

ESTIMATED TRACK OF UBS.

ESTIMATED TRACK OF UBS.

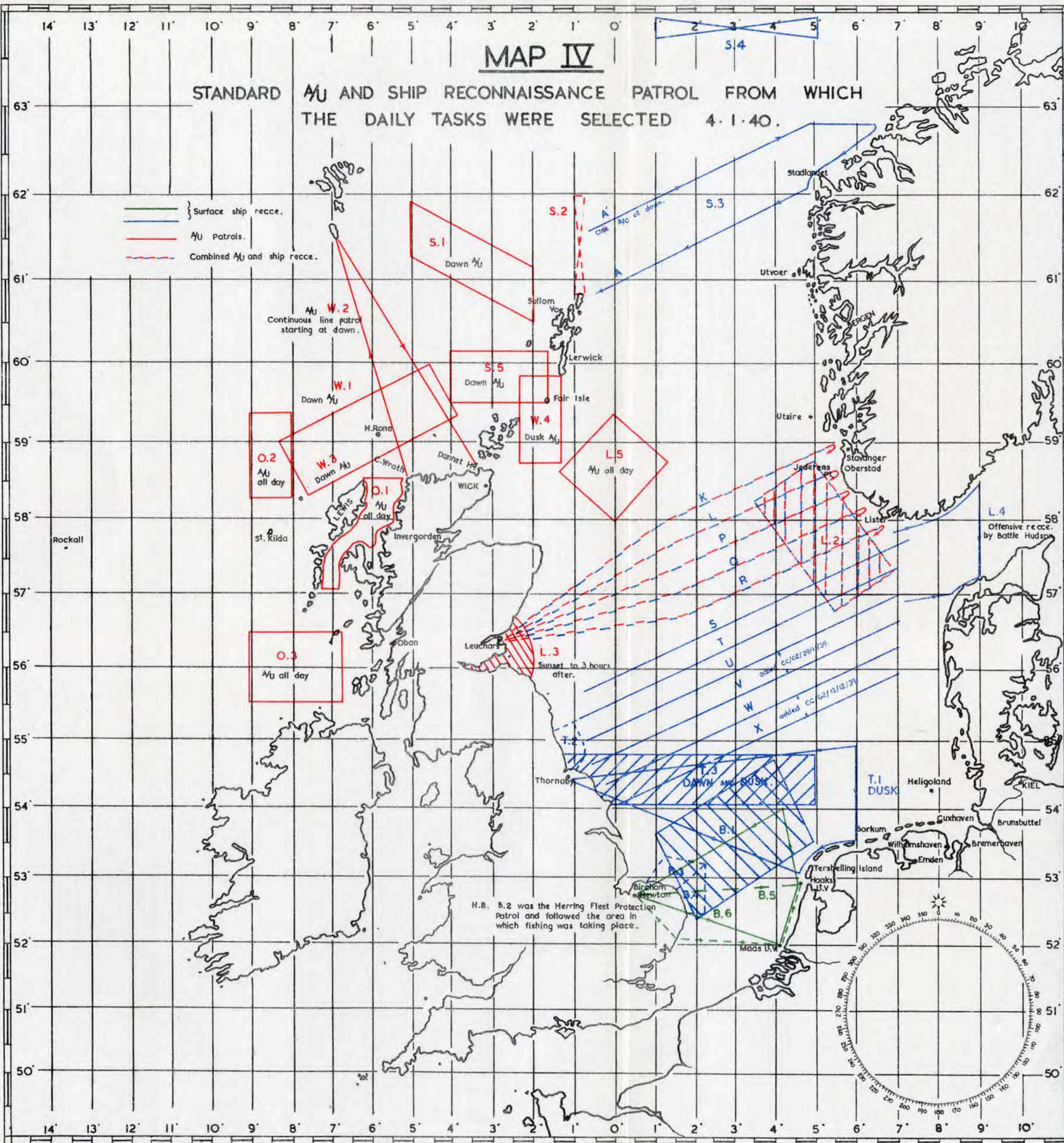
UBS DIRECT FROM KIEL.



MAP IV

STANDARD AU AND SHIP RECONNAISSANCE PATROL FROM WHICH
THE DAILY TASKS WERE SELECTED 4.1.40.

- Surface ship recce.
- AU Patrols.
- - - Combined AU and ship recce.

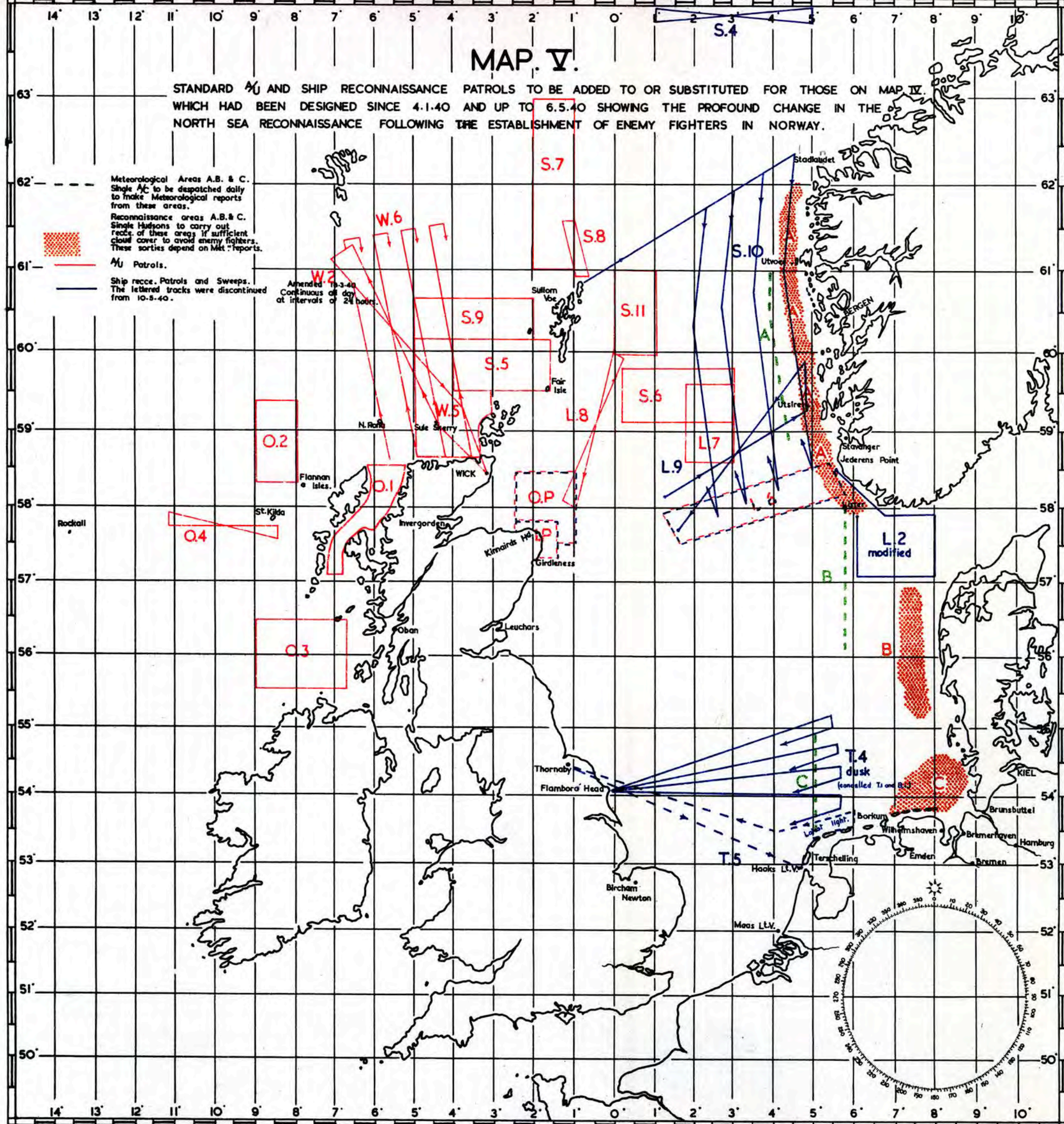


MAP V.

STANDARD \mathcal{H} U AND SHIP RECONNAISSANCE PATROLS TO BE ADDED TO OR SUBSTITUTED FOR THOSE ON MAP IV. WHICH HAD BEEN DESIGNED SINCE 4.1.40 AND UP TO 6.5.40 SHOWING THE PROFOUND CHANGE IN THE NORTH SEA RECONNAISSANCE FOLLOWING THE ESTABLISHMENT OF ENEMY FIGHTERS IN NORWAY.

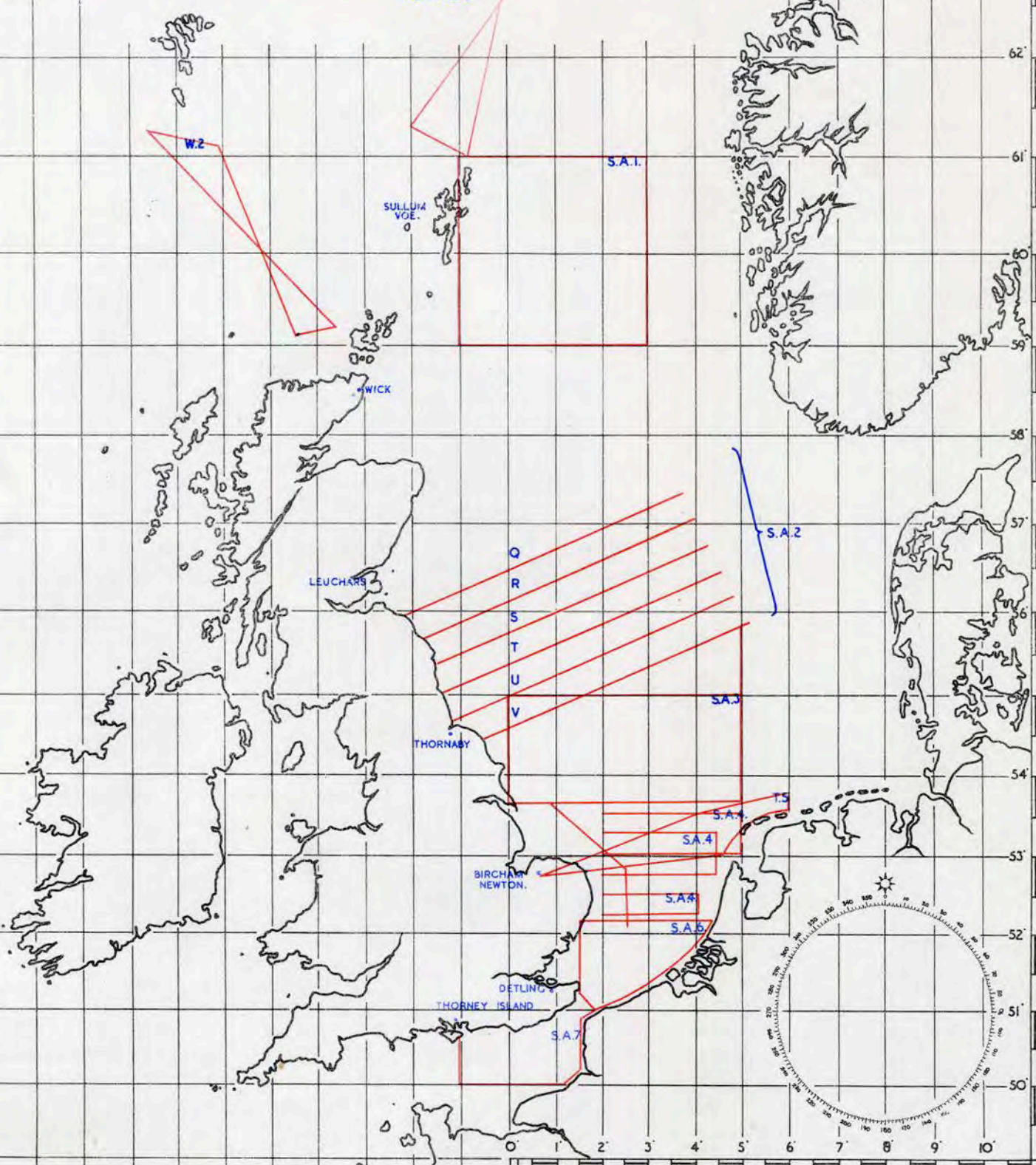
Meteorological Areas A.B. & C.
Single \mathcal{H} U to be despatched daily to make Meteorological reports from these areas.
Reconnaissance areas A.B. & C.
Single Hudsons to carry out recce. of these areas if sufficient cloud cover to avoid enemy fighters. These sorties depend on Met. reports.
 \mathcal{H} U Patrols.
Ship recce. Patrols and Sweeps.
The lettered tracks were discontinued from 10.5.40.

Amended 19.3.40
Continuous all day
at intervals of 24 hours.



MAP. VI.

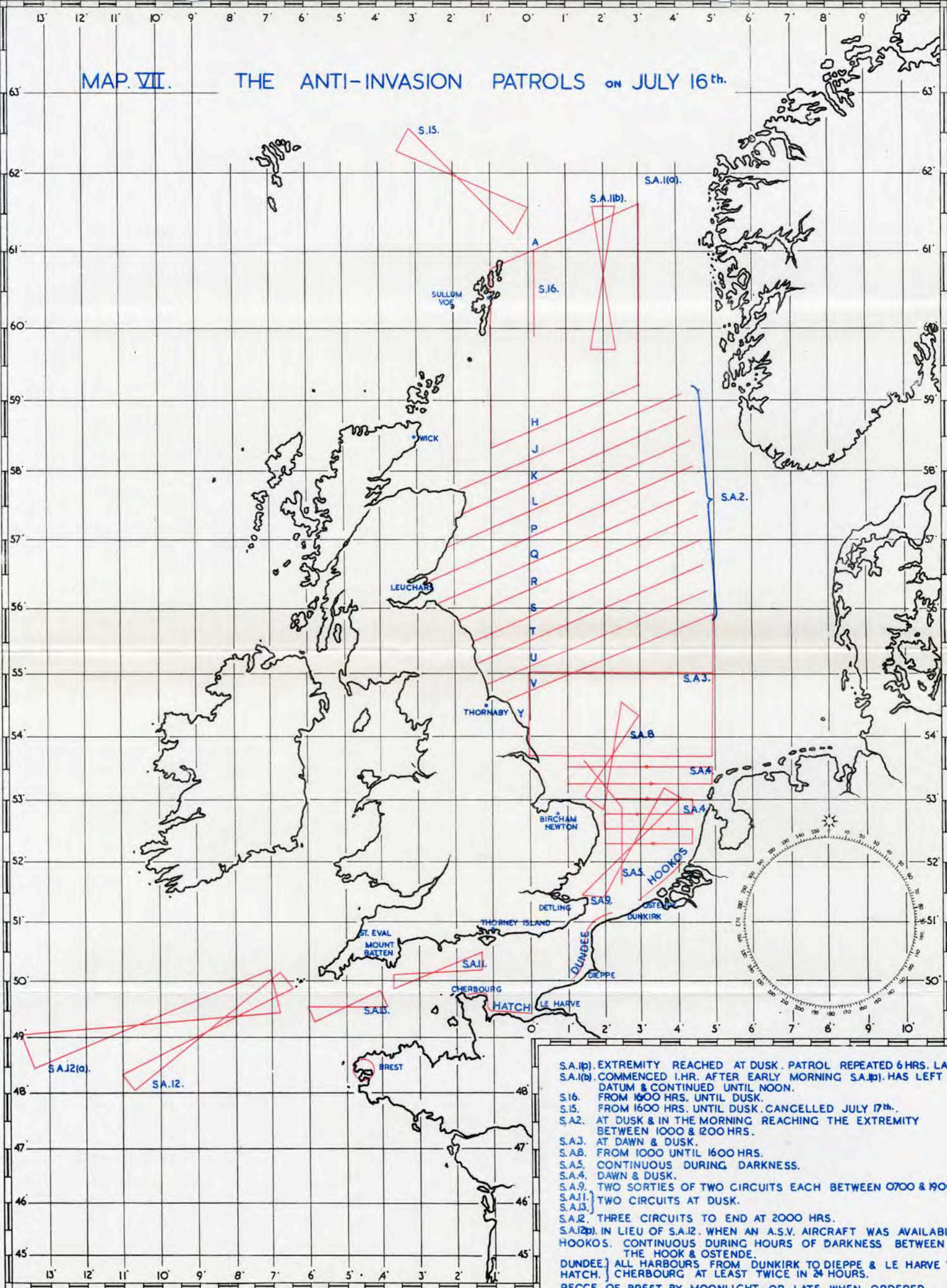
THE SCHEME OF ANTI-INVASION PATROLS BROUGHT INTO EFFECT FROM JUNE 5/6 1940.



- S.A.1.
- S.A.2. DUSK & DAWN.
- S.A.3.
- S.A.4. COMMENCED TWO HOURS BEFORE DUSK REPEATED THREE HOURS LATER AND AT DAWN.
- T.5 TO REACH EXTREMITY AT LATEST DAYLIGHT.
- S.A.5.
- S.A.6. CONTINUOUS DURING HOURS OF DARKNESS.
- S.A.7. FROM TWO HOURS AFTER DUSK UNTIL DAWN.

MAP VII.

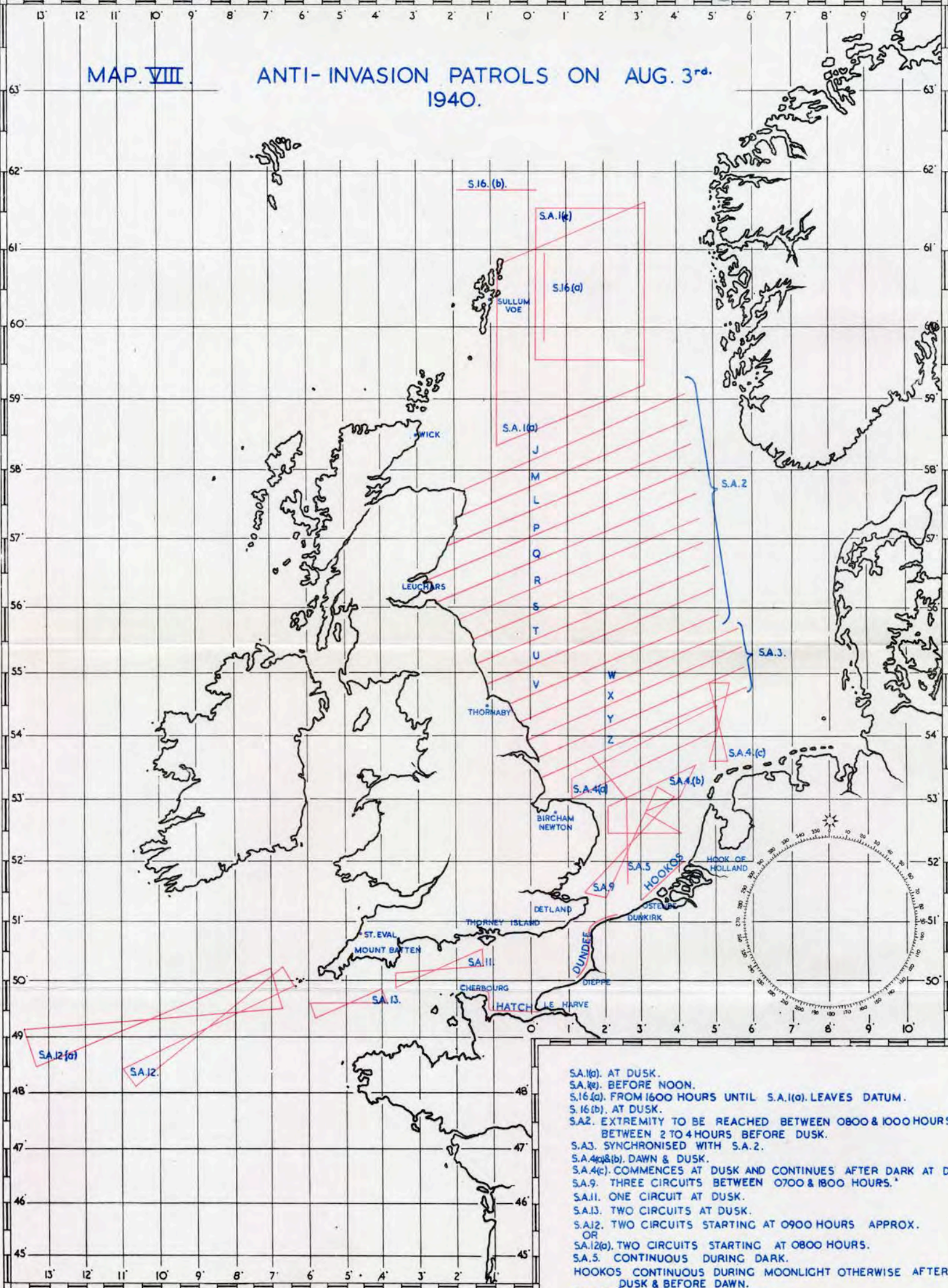
THE ANTI-INVASION PATROLS ON JULY 16th.



S.A.1(b). EXTREMITY REACHED AT DUSK. PATROL REPEATED 6 HRS. LATER.
 S.A.1(b). COMMENCED 1.HR. AFTER EARLY MORNING S.A.1(a). HAS LEFT DATUM & CONTINUED UNTIL NOON.
 S.16. FROM 1600 HRS. UNTIL DUSK.
 S.15. FROM 1600 HRS. UNTIL DUSK. CANCELLED JULY 17th.
 S.A.2. AT DUSK & IN THE MORNING REACHING THE EXTREMITY BETWEEN 1000 & 1200 HRS.
 S.A.3. AT DAWN & DUSK.
 S.A.8. FROM 1000 UNTIL 1600 HRS.
 S.A.5. CONTINUOUS DURING DARKNESS.
 S.A.4. DAWN & DUSK.
 S.A.9. TWO SORTIES OF TWO CIRCUITS EACH BETWEEN 0700 & 1900 HRS.
 S.A.11. TWO CIRCUITS AT DUSK.
 S.A.13. THREE CIRCUITS TO END AT 2000 HRS.
 S.A.12(b). IN LIEU OF S.A.12. WHEN AN A.S.V. AIRCRAFT WAS AVAILABLE. HOOK'S. CONTINUOUS DURING HOURS OF DARKNESS BETWEEN THE HOOK & OSTENDE.
 DUNDEE. ALL HARBOURS FROM DUNKIRK TO DIEPPE & LE HARVE TO HATCH. CHERBOURG AT LEAST TWICE IN 24 HOURS.
 RECCE OF BREST BY MOONLIGHT OR LATE WHEN ORDERED.

MAP. VIII.

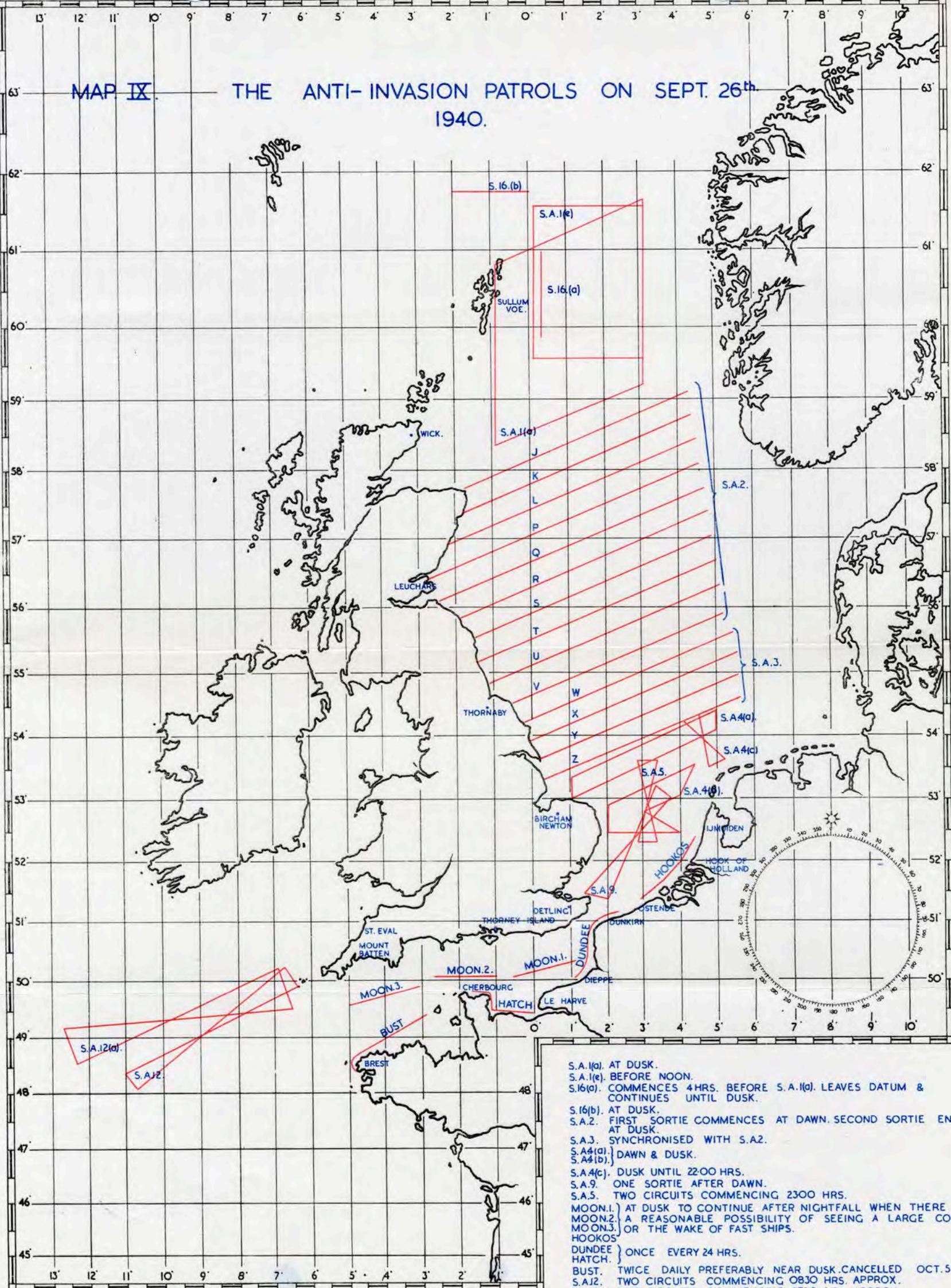
ANTI-INVASION PATROLS ON AUG. 3rd. 1940.



- S.A.1(a). AT DUSK.
- S.A.1(b). BEFORE NOON.
- S.16(a). FROM 1600 HOURS UNTIL S.A.1(a) LEAVES DATUM.
- S.16(b). AT DUSK.
- S.A.2. EXTREMITY TO BE REACHED BETWEEN 0800 & 1000 HOURS & BETWEEN 2 TO 4 HOURS BEFORE DUSK.
- S.A.3. SYNCHRONISED WITH S.A.2.
- S.A.4(a)(b). DAWN & DUSK.
- S.A.4(c). COMMENCES AT DUSK AND CONTINUES AFTER DARK AT DISCRE.
- S.A.9. THREE CIRCUITS BETWEEN 0700 & 1800 HOURS.
- S.A.11. ONE CIRCUIT AT DUSK.
- S.A.13. TWO CIRCUITS AT DUSK.
- S.A.12. TWO CIRCUITS STARTING AT 0900 HOURS APPROX. OR
- S.A.12(a). TWO CIRCUITS STARTING AT 0800 HOURS.
- S.A.5. CONTINUOUS DURING DARK.
- HOOKOS CONTINUOUS DURING MOONLIGHT OTHERWISE AFTER DUSK & BEFORE DAWN.
- DUNDEE } ONCE EVERY 24 HOURS.
- HATCH }

MAP IX.

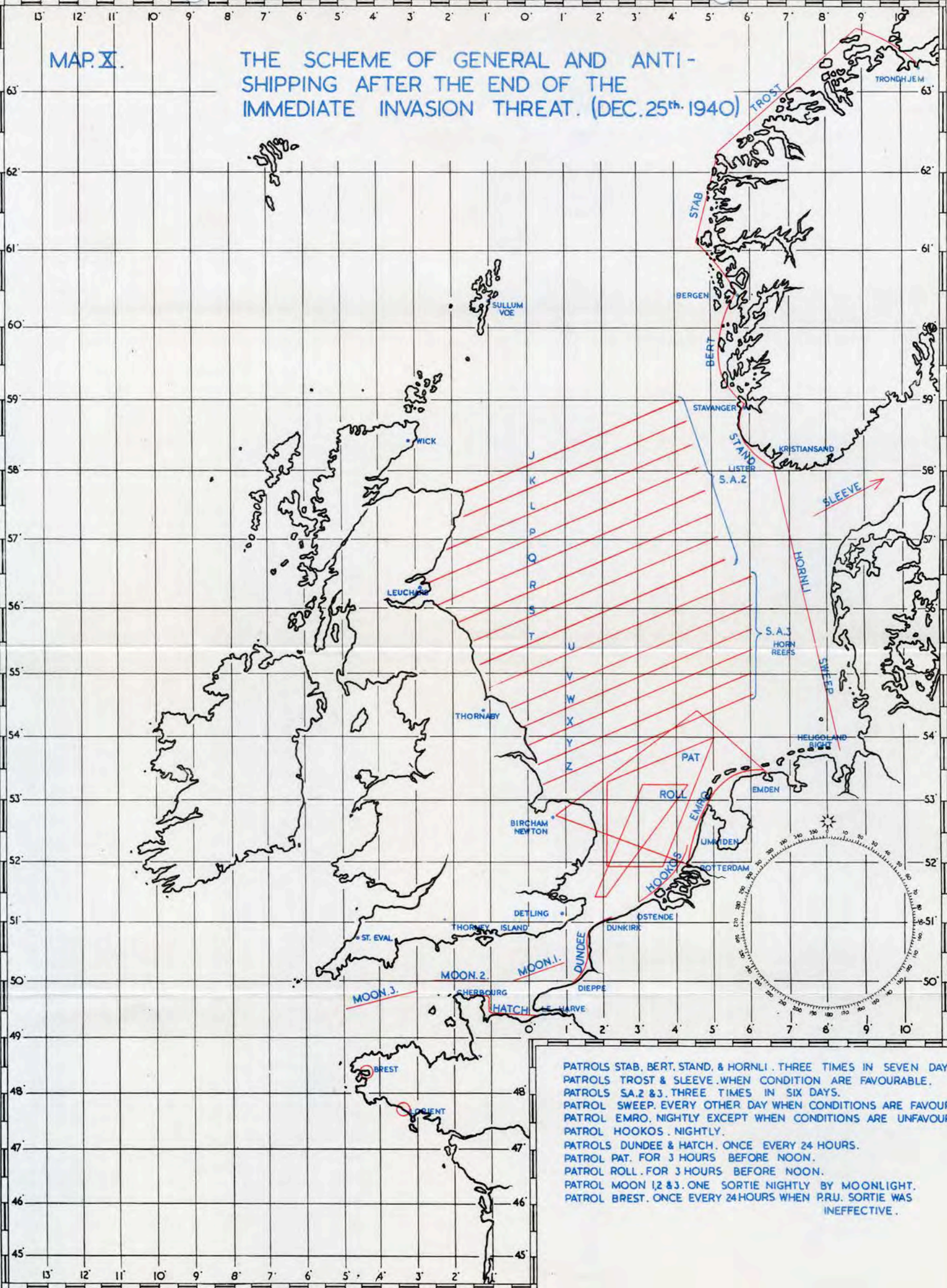
THE ANTI-INVASION PATROLS ON SEPT. 26th 1940.



- S.A.1(a). AT DUSK.
- S.A.1(e). BEFORE NOON.
- S.16(a). COMMENCES 4 HRS. BEFORE S.A.1(a). LEAVES DATUM & CONTINUES UNTIL DUSK.
- S.16(b). AT DUSK.
- S.A.2. FIRST SORTIE COMMENCES AT DAWN. SECOND SORTIE ENDS AT DUSK.
- S.A.3. SYNCHRONISED WITH S.A.2.
- S.A.4(a). DAWN & DUSK.
- S.A.4(b).
- S.A.4(c). DUSK UNTIL 22:00 HRS.
- S.A.9. ONE SORTIE AFTER DAWN.
- S.A.5. TWO CIRCUITS COMMENCING 2300 HRS.
- MOON.1. AT DUSK TO CONTINUE AFTER NIGHTFALL WHEN THERE IS
- MOON.2. A REASONABLE POSSIBILITY OF SEEING A LARGE CONVOY
- MOON.3. OR THE WAKE OF FAST SHIPS.
- HOOKOS
- DUNDEE } ONCE EVERY 24 HRS.
- HATCH. }
- BUST. TWICE DAILY PREFERABLY NEAR DUSK. CANCELLED OCT. 5th.
- S.A.12. TWO CIRCUITS COMMENCING 0830 HRS. APPROX.
- S.A.12(a). TWO CIRCUITS COMMENCING 0730 HRS. APPROX.

MAP. XI.

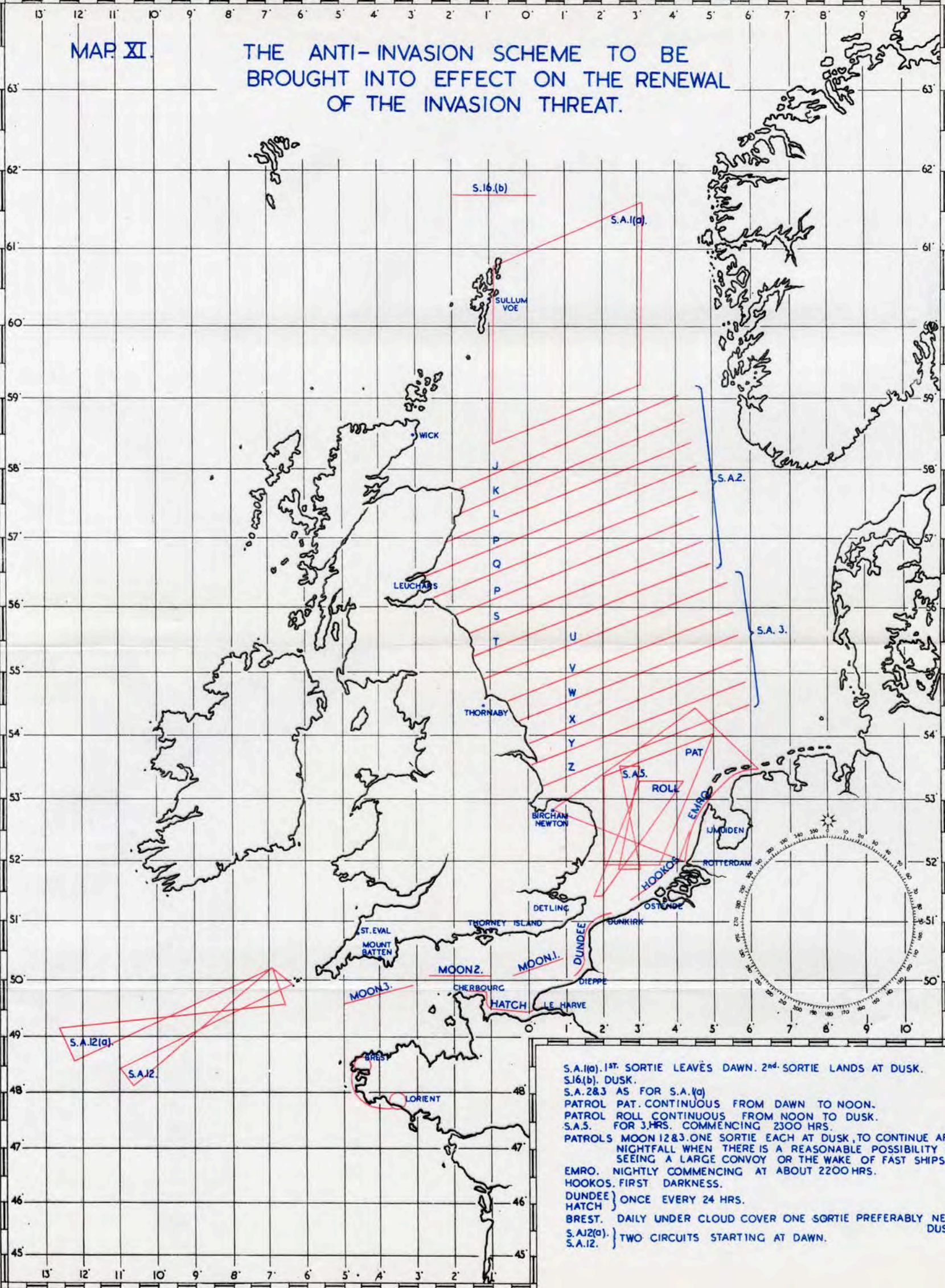
THE SCHEME OF GENERAL AND ANTI-SHIP-
SHIPPING AFTER THE END OF THE
IMMEDIATE INVASION THREAT. (DEC. 25th. 1940)



PATROLS STAB, BERT, STAND, & HORNLI. THREE TIMES IN SEVEN DAYS.
PATROLS TROST & SLEEVE. WHEN CONDITION ARE FAVOURABLE.
PATROLS SA.2 & 3. THREE TIMES IN SIX DAYS.
PATROL SWEEP. EVERY OTHER DAY WHEN CONDITIONS ARE FAVOURABLE.
PATROL EMRO. NIGHTLY EXCEPT WHEN CONDITIONS ARE UNFAVOURABLE.
PATROL HOOKOS. NIGHTLY.
PATROLS DUNDEE & HATCH. ONCE EVERY 24 HOURS.
PATROL PAT. FOR 3 HOURS BEFORE NOON.
PATROL ROLL. FOR 3 HOURS BEFORE NOON.
PATROL MOON 1, 2 & 3. ONE SORTIE NIGHTLY BY MOONLIGHT.
PATROL BREST. ONCE EVERY 24 HOURS WHEN P.R.U. SORTIE WAS INEFFECTIVE.

MAP XI.

THE ANTI-INVASION SCHEME TO BE BROUGHT INTO EFFECT ON THE RENEWAL OF THE INVASION THREAT.



S.A.1(a). 1st. SORTIE LEAVES DAWN. 2nd. SORTIE LANDS AT DUSK.
S.16(b). DUSK.

S.A.2&3 AS FOR S.A.1(a)

PATROL PAT. CONTINUOUS FROM DAWN TO NOON.
PATROL ROLL CONTINUOUS FROM NOON TO DUSK.

S.A.5. FOR 3.HRS. COMMENCING 2300 HRS.

PATROLS MOON 12&3. ONE SORTIE EACH AT DUSK, TO CONTINUE AFTER NIGHTFALL WHEN THERE IS A REASONABLE POSSIBILITY OF SEEING A LARGE CONVOY OR THE WAKE OF FAST SHIPS.

EMRO. NIGHTLY COMMENCING AT ABOUT 2200 HRS.

HOOKOS. FIRST DARKNESS.

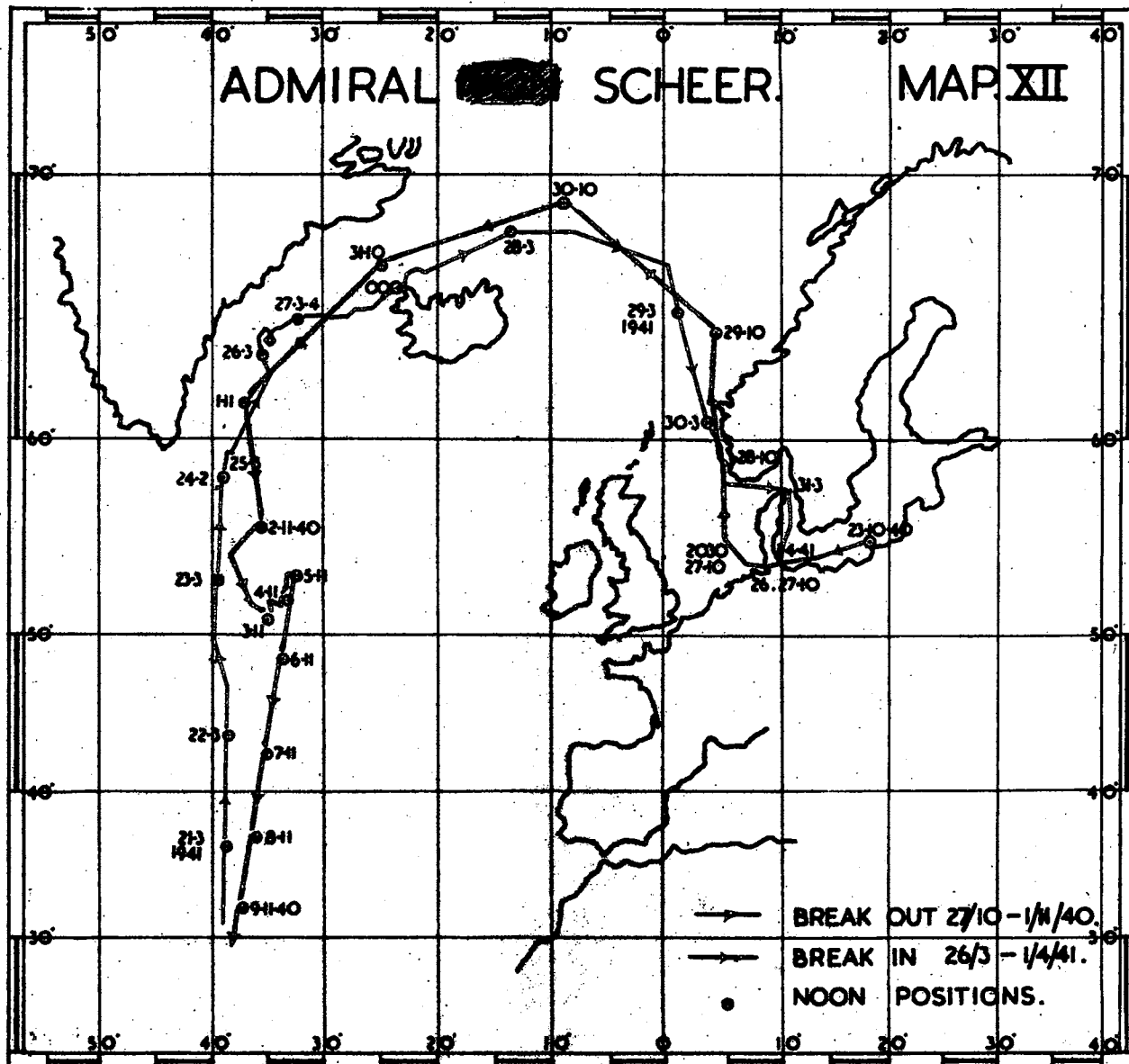
DUNDEE } ONCE EVERY 24 HRS.

HATCH }

BREST. DAILY UNDER CLOUD COVER ONE SORTIE PREFERABLY NEAR DUSK.

S.A.12(a). } TWO CIRCUITS STARTING AT DAWN.

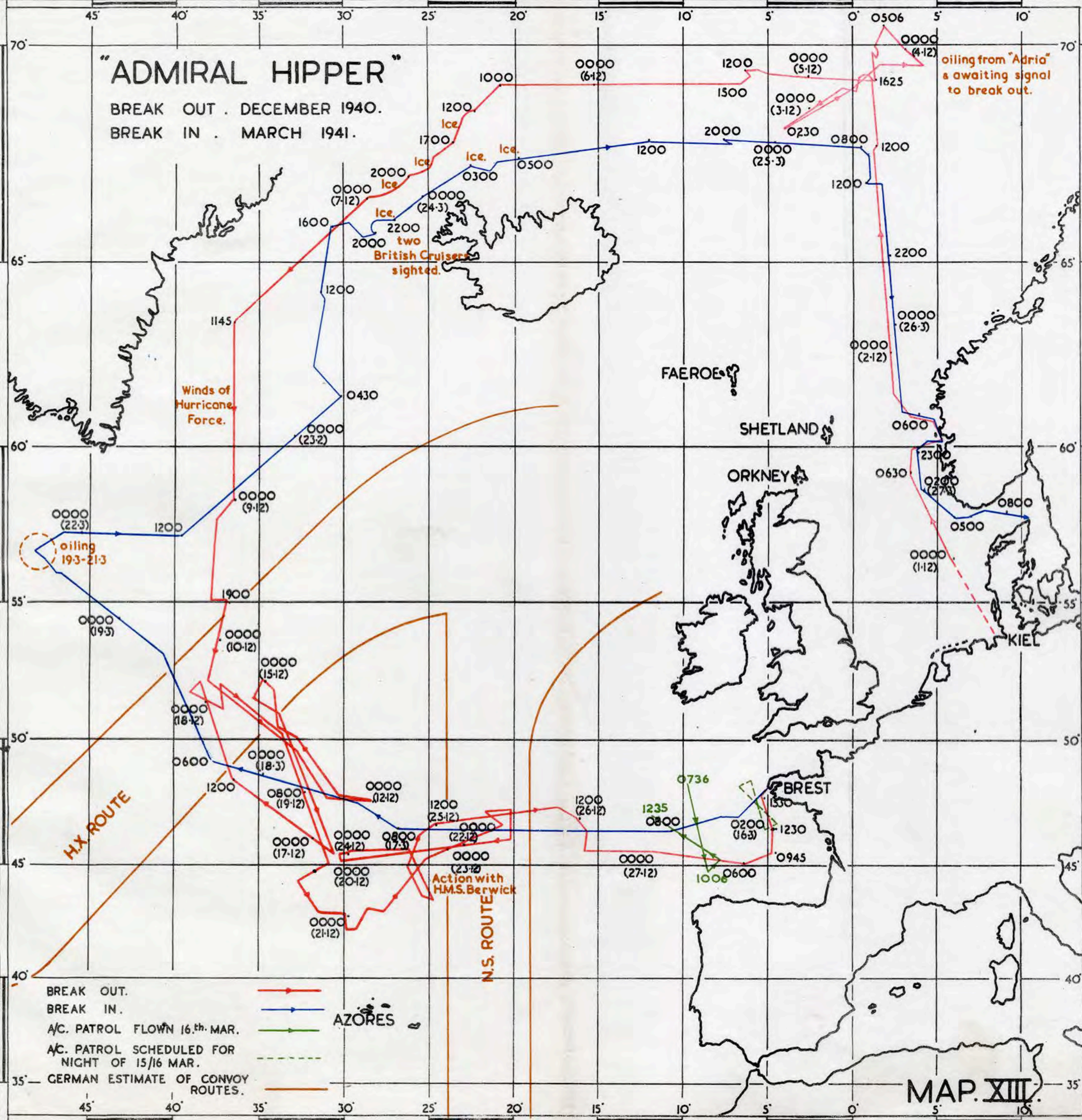
S.A.12. }



"ADMIRAL HIPPER"

BREAK OUT . DECEMBER 1940.

BREAK IN . MARCH 1941.



"ADMIRAL HIPPER" COMMERCE RAID 1ST-14TH FEBRUARY 1941

N.S. CONVOY ROUTE

BREST

MAP XIV

KEY.

OUTWARD VOYAGE



ATTACK ON CONVOY
AND RETURN VOYAGE



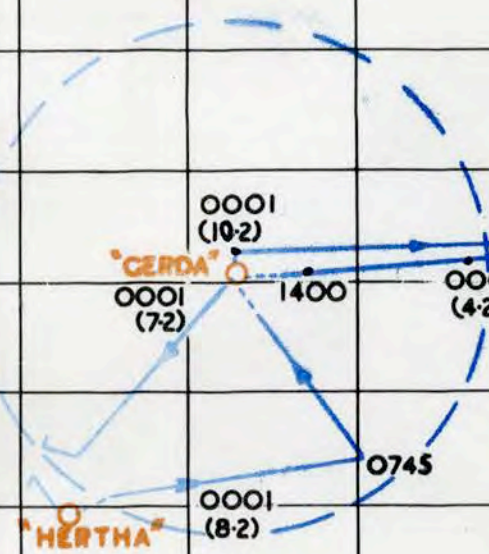
CROSSOVER PATROL BY
J/220 SQUADRON 14TH FEB.



SEARCH BY F/236 SQUADRON
14TH FEBUARY.



GERMAN ESTIMATE OF
CONVOY ROUTE FROM SOUTH.



SLS 64
attacked
0630
7 Ships
sunk
0200
(12-2)
1806
SS Iceland sunk
1206
0900
1400

1255
1303
1430
1125
0430
(2-2)
1350
0642
0200
(4-2)
2330
1400
0800

0001
(10-2)

0001
(7-2)

0001
(8-2)

1400

0001
(4-2)

1100

1200

0745

0001
(11-2)

0800

1600

0400

0001
(13-2)

2000

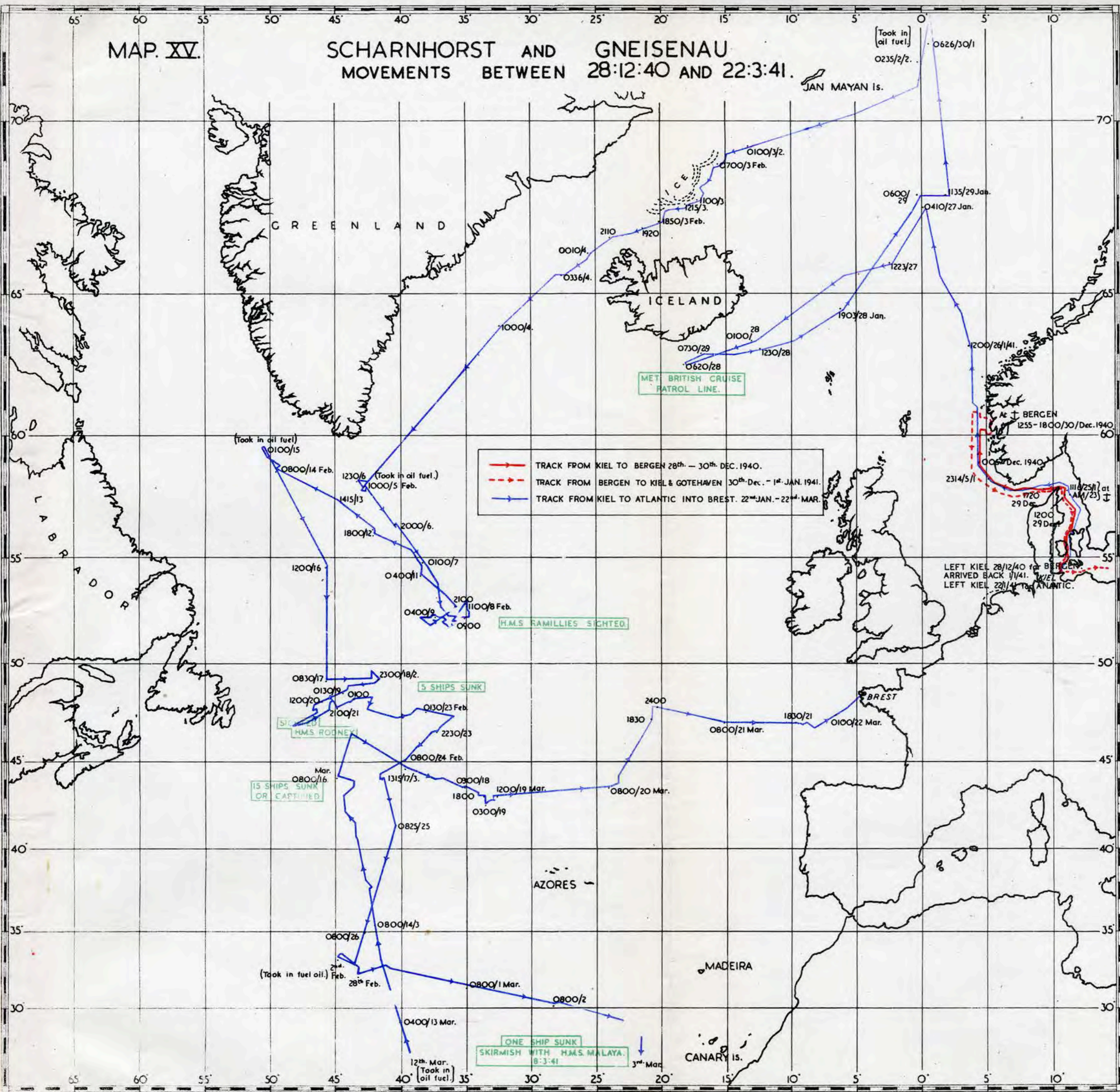
1200

0001
(3-2)

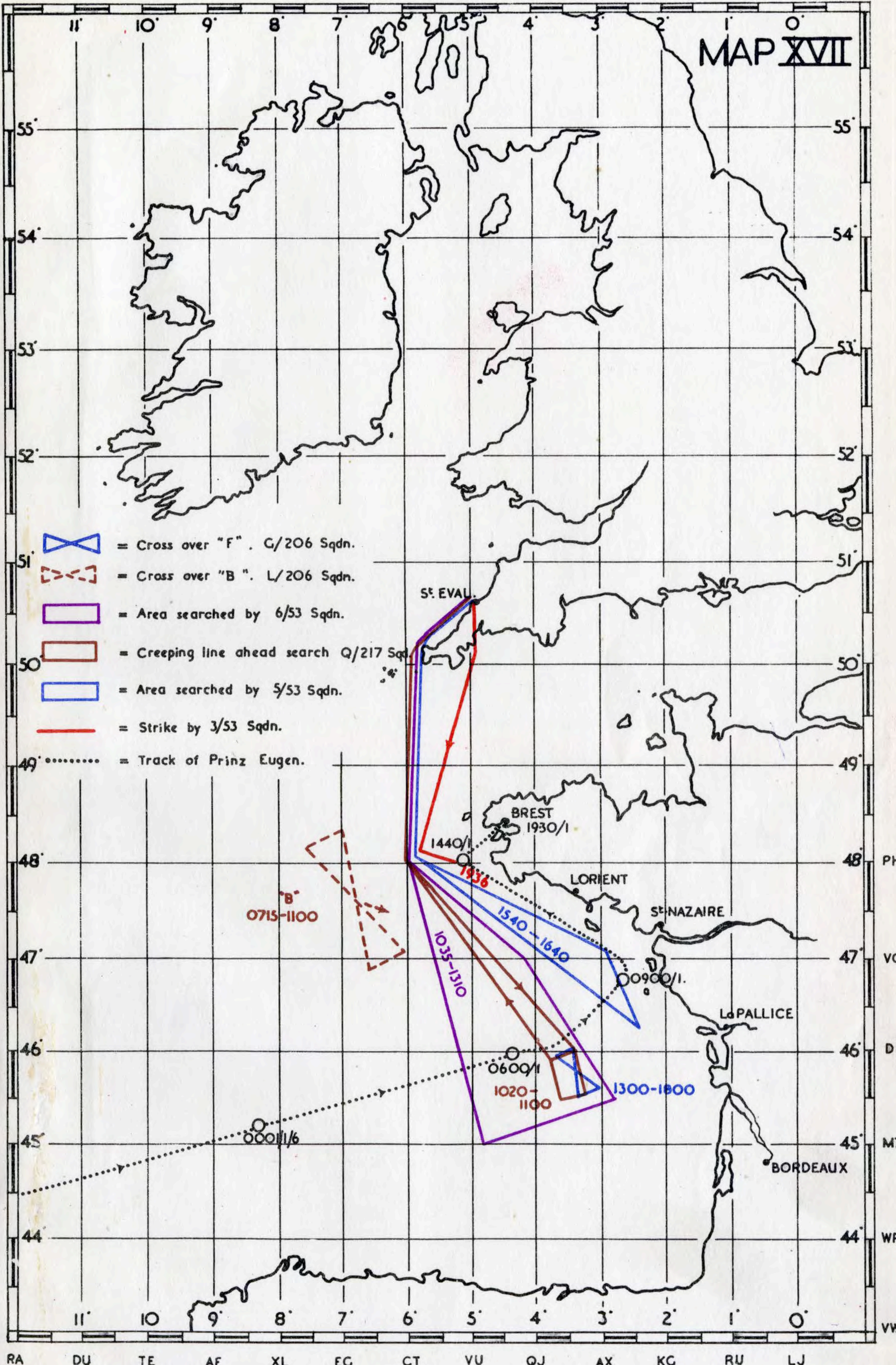
2000

MAP. XV.

SCHARNHORST AND GNEISENAU
MOVEMENTS BETWEEN 28:12:40 AND 22:3:41.

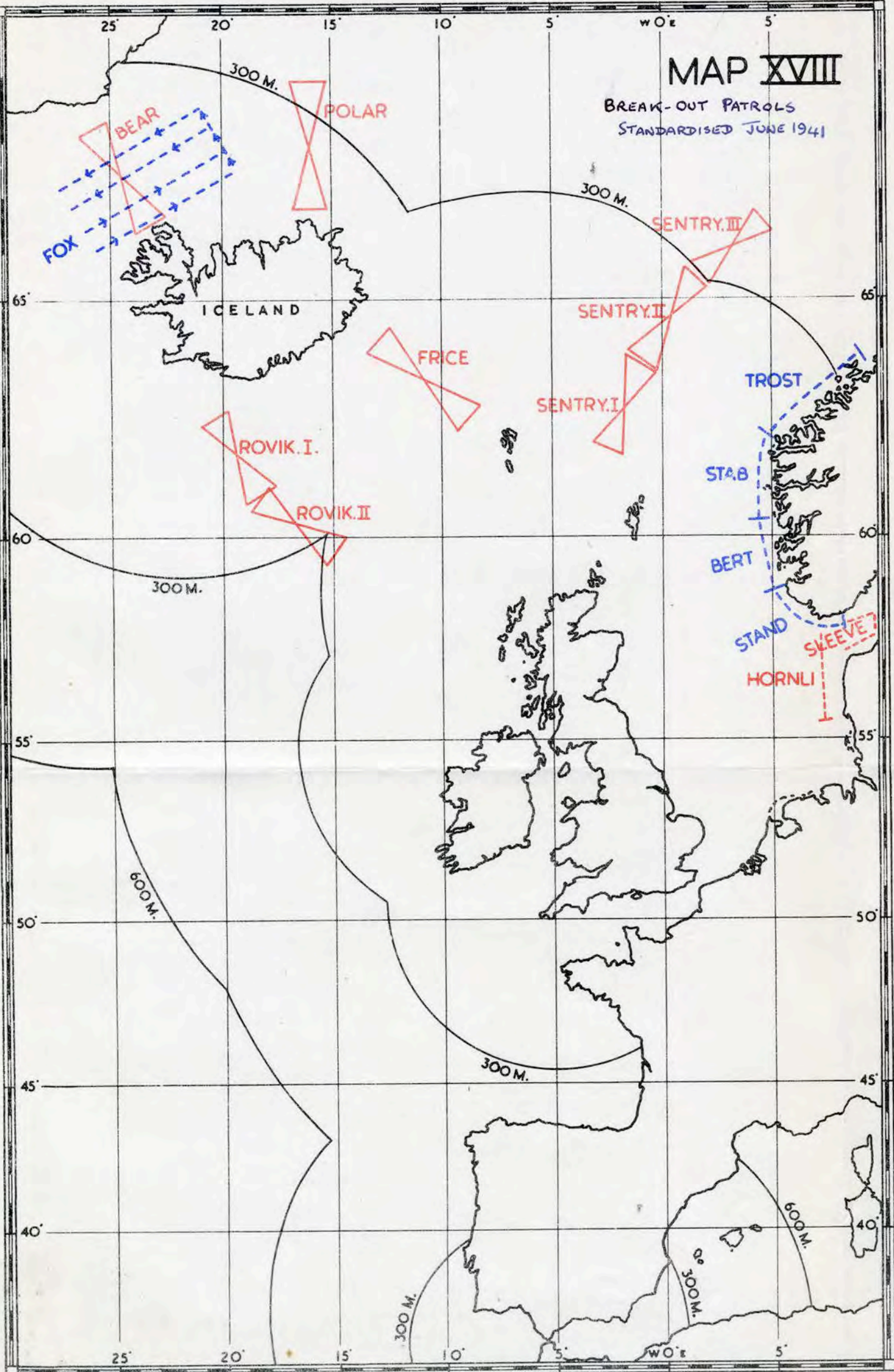


MAP XVII



MAP XVIII

BREAK-OUT PATROLS
STANDARDISED JUNE 1941



MAP. XIX

TRONDHEIM

STADLANDET

BERGEN

STAVANGER
Jederams Point

EGERSUND

LEISTER

KRISTIANSUND

LEIPSI
EMDEN

WICK

LEUCHARS

5 aircraft / 22 Sqdn.

9 aircraft / 42 Sqdn.

NORTH COATES

ICELAND
204
269
98
Sunds.
Huds.
Bottles.

MAP XX.

NEW GROUP BOUNDARIES FEBRUARY 1941 AND DEPLOYMENT OF SQUADRONS INTO THE NORTH WEST APPROACHES APRIL 1941.

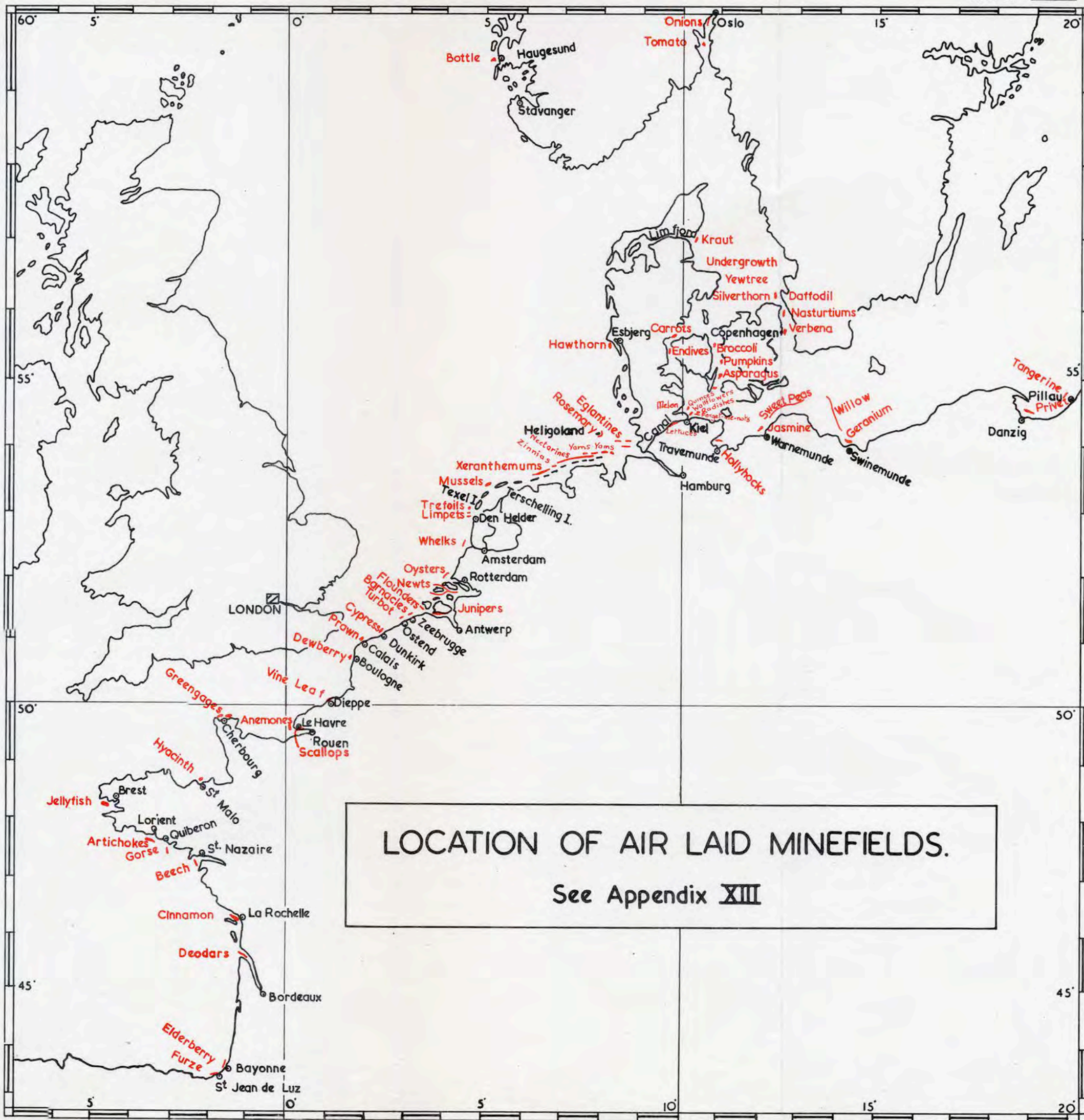
18 GROUP

15 GROUP

GROUP

19 GROUP

No. 200 GROUP at GIBRALTER. Consisting of No. 202 Sqdn. London/Catalinas/Swordfish.



GERMAN NAVAL MOVEMENTS BETWEEN THE 7TH.&12THAPRIL 1940.

