

SECRET

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REPORT OF AIR FIGHTING in No. 11 GROUP AREA.

November, 1940.

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Report of Air Fighting in No. 11 Group Area,

November, 1940

This month produced several important changes in the German plan and method of attack. The enemy reintroduced attacks on coastal shipping and ports on the East and South coast of England, using his dive bombers after a lapse of two and a half months. For the first time, ITALIAN bombers and fighters were employed for attacks against England. In spite of these changes, our fighter Squadrons achieved better results in air combat than at any time since April, 1940; the ratio of our losses in pilots being one pilot to nine enemy aircraft destroyed. This demonstrates that the Squadrons, Sectors and Group Headquarters quickly adjusted themselves to the changing conditions of fighting, adopting a more forward system of offensive patrols.

ENEMY STRATEGY:

2. As in the previous phase of operations, the enemy continued to make high altitude sweeps by fighter formations into KENT. These sweeps were also employed as diversions to cover high level attacks on ports and low bombing attacks on coastal shipping, especially on the East coast and in the South-East.
3. In addition to diversionary sweeps, a small number of high altitude attacks on LONDON were made by fighter/bombers, under cover of heavy fighter escort.

ENEMY TACTICS:

4. The enemy Long Range Bombers were employed in formations on several occasions to bomb ports on the South and East coast, under cover of close fighter escort. The enemy dive bombers employed close formation for their attacks on ports and shipping, but were not always accompanied by very close fighter escorts as in the previous phase. The fighter escorts were sometimes much higher and separated by some distance from the bomber formations.
5. The ITALIAN bombers were at first employed under cover of GERMAN fighter escort, and then independently under escort of ITALIAN fighters, the whole relying on diversionary attacks over KENT by GERMAN fighter formations. The attack on ARMISTICE DAY on the coastal objectives by ITALIAN bombers and fighters is of particular interest, as being their first independent action, and I enclose a copy of the report on this attack at Appendix 'D'.

EMPLOYMENT of ENEMY FIGHTERS:

6. The enemy fighters continued to employ loose formations of small sub-units disposed in line abreast as in October. They also reintroduced Squadron Patrols flying in close formations. The major change, however, in the enemy tactics appeared to be a considerable reduction in the height at which fighter patrols crossed our coast and swept inland. Fewer formations were encountered at above 26,000 feet and many fighter formations were intercepted and engaged at about 20,000 feet. This would seem to indicate that the German fighter pilots and their aircraft equipment were suffering from the extreme cold at the very high altitudes frequently flown during October and early November. It may also have been done to avoid forming smoke trails.

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During the last three days of November, however, the enemy Fighter Patrols reverted to patrolling between 25,000 and 35,000 feet, though the R.D.F. reported them at much lower levels.

EMPLOYMENT of OUR FIGHTERS:

7. Though there was a substantial improvement in the amount of warning given by the R.D.F. of approaching raids, it was still necessary to continue Standing Patrols of one Pair of Squadrons whenever the weather was suitable for enemy attacks. The better R.D.F. warning and the lower height of enemy fighter/bomber raids enabled interception of raids coming inland to be made from the ground on several occasions. It was not possible, however, to protect ports and convoys against tip-and-run raids unless some Squadrons were maintained on Standing Patrol.

8. As soon as it was seen that the GERMANS had reintroduced attacks on coastwise shipping, special measures were taken to protect coastal objectives and convoys. I enclose at Appendix "B" a copy of the instructions I issued to Sectors and Group Controllers to meet these changes of plan of attack. These new counter measures resulted in the heavy defeat of GERMAN dive bombers also ITALIAN bomber attacks against ports and shipping on the East also South-East coast of England.

9. As a result of the GERMAN and ITALIAN attacks on coastal objectives, most of the fighting by No.11 Group Squadrons took place on the coast or over the sea, as opposed to combats inland as had been the practice since the enemy's heavy offensive on inland objectives began in August. For reasons stated in the last paragraph of my report on the operations in September, and October, Squadrons, Sectors and Group have made every endeavour to meet the enemy bombers as far forward as possible, in order to protect coastal convoys, ports, and, incidentally, inland objectives, against the enemy's bombs.

10. The better results in air combat during November have been brought about by various changes, among which are the following:

- a) Replacement of tired leaders by younger and fitter men;
- b) Adoption of more flexible fighter formations;
- c) Keeping a better look-out on patrol;
- d) More aggressive tactics on the part of patrol leaders;
- e) Better handling of aircraft at high altitude;
- f) Better use of sun, clouds and haze to effect surprise.

11. I enclose at Appendix "C" a copy of my latest instruction to Squadrons and Sectors in the method of engaging and defeating enemy high fighter patrols.

RESCUE of PILOTS from the SEA:

12. As indicated in paragraph 9 above, more combats have recently taken place over the sea. The organization for the rescue of Aircraft Crews outlined in Fighter Command letter FC/S.20712/Ops. dated September 12th, 1940, has in many instances worked satisfactorily, but there would appear to be still further need for

improving this organization. Delays in communicating by landline with the Naval Authorities are not infrequent, and the chain of communication in general is somewhat cumbersome.

13. It is understood that the Signals Branch at Fighter Command are examining this question with a view to improvement. As the Spring Offensive develops, this most important service will undoubtedly be called into operation more and more.

14. Apart from humanitarian motives in wishing to rescue as many of our pilots as possible, it is essential for the morale of our pilots that they be convinced of the efficiency of this service.

RESULTS of AIR COMBAT:

15. During the month under review, the casualties inflicted on the enemy and to our own pilots were as summarised below:

<u>Destroyed.</u>	<u>Probable.</u>	<u>Damaged.</u>	<u>Total.</u>	<u>Pilots Lost.</u>
164	57	78	289	19

16. The above results bring the total enemy aircraft accounted for by No.11 Group since active operations began up to the following figures:

	<u>Destroyed.</u>	<u>Probable.</u>	<u>Damaged.</u>	<u>Total.</u>
May	356	175	(?)	531
June	136	108	(?)	244
July	160	103	56	319
August	710	265	373	1,348
September	689	289	401	1,374
October	184	98	134	416
November	164	57	78	289
<u>GRAND TOTAL:</u>	<u>2,399</u>	<u>1,095</u>	<u>1,042</u>	<u>4,536</u>

17. The results for the present month give a ratio of one pilot lost to nine enemy aircraft destroyed, which is the best recorded during 1940. The best results in the month were obtained not by Pairs or Wings of three Squadrons, but by individual Squadrons which had become separated by clouds or other cause from the Squadrons with whom they had been ordered to patrol in company. For example:

One Hurricane Squadron (No.17) destroyed 15 enemy aircraft on November 8th;

One Spitfire Squadron (No.74) destroyed 15 enemy aircraft on November 14th;

One Hurricane Squadron (NO.257) destroyed 9 ITALIAN fighters and bombers on November 11th.

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18. Wings of three Squadrons were employed on several occasions from Sectors in the West and in the North of No.11 Group, but achieved only very few interceptions, because clouds impeded their movements and much time was lost in climbing, manoeuvring, etc. Moreover, many Stations in No.11 Group have only two day fighter Squadrons, so that the employment of Pairs of Squadrons fits in more conveniently with the normal States of Preparedness of units. Pairs or Sections of fighters were on many occasions successful in intercepting single enemy raiders in difficult cloud conditions, thanks to excellent co-operation between Sector Controllers and the leaders of small fighter formations. As the R.D.F. facilities are extended inland, this class of interception will become easier to effect.

REINFORCEMENT:

19. Whenever the enemy made heavy attacks against the South coast in the PORTSMOUTH-SOUTHAMPTON area, No.10 Group was requested and immediately reinforced TANGMERE Sector. These reinforcements were sometimes by a Pair or more Squadrons. Also when the enemy attacks were made in the MIDDLE WALLOP Sector, TANGMERE Squadrons were immediately despatched to reinforce No.10 Group. As a result of these arrangements for quick reinforcement, several big attacks on the South coast were intercepted and driven off, resulting in no serious damage being caused by bombs in daylight.

20. During November, No.12 Group carried out 19 sorties to reinforce No.11 Group Squadrons, and have reported 4 interceptions, resulting in the destruction of 9 enemy aircraft, for a loss of 2 pilots.

21. At the beginning of the month, No.12 Group reinforcements consisted of Wings of four Squadrons, which were later reduced to Wings of three Squadrons, and finally to Wings of two Squadrons. It was noticeable that the progressive reduction in the size of the reinforcing Wings produced a decrease in the time taken to reach patrol, and a corresponding increase in the duration of patrols in No.11 Group area.

22. I consider that the number of interceptions by No. 12 Groups Wings should be increased if these formations were controlled by Hornchurch or Biggin Hill Sectors, as recommended in my letter to Fighter Command dated October 10th and again on November 24th, 1940.

23. The difficulties of controlling these Wings from Duxford are well illustrated in the attached attack report describing the enemy bombing attack on North Weald on October 29th, 1940; at Appendix "A". Had the Duxford Wing of four Squadrons been under the control of Sector Commander, Hornchurch, it would very likely have intercepted the fighter/bomber formation which bombed North Weald, causing casualties to personnel and extensive damage to the Station buildings.

24. This incident was unfortunate, as North Weald was one of the Sectors that was heavily bombed in August under somewhat similar circumstances, as reported to Command Headquarters in my letter 11G/432, dated September 29th, 1940.

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REINFORCEMENTS (Continued):

25. The above incidents raise a matter of fundamental importance. Should it not be accepted as a principle that reinforcements from one Fighter Group should operate under the control of the reinforced Group, while in its area? This principle has been agreed and followed in practice in the handling of reinforcements as between Nos. 10 and 11 Groups for the past four months, and has worked smoothly and most effectively on the South coast and in the South-West of London; on many occasions resulting in bomb raids being effectively engaged before they could bomb docks, ports, aircraft factories or fighter aerodromes.

EXCHANGE of TIRED SQUADRONS:

26. During November, two day Squadrons were withdrawn from the front line and replaced by fresh Squadrons from the North. Application for further exchanges was deferred because it was understood that Fighter Command was having difficulty in obtaining trained Squadrons to relieve those already in No. 11 Group area. Under separate cover, recommendations have been made to Fighter Command, 11G/208, dated November 23rd, 1940, for the exchange during December and January of day fighter Squadrons that have been in the line about three months. During the past six months intensive fighting, there has been only one instance of a relieving Squadron not being fully trained and fit to take its place in the line. This Squadron was withdrawn by Fighter Command for a further four weeks training by No. 12 Group, as the Squadron also Sector Commander reported the unit was not fit for air fighting.

27. Experience over the past six months has shown that it is not possible to lay down a standard or even an average period in the front line during which Squadrons should operate without showing signs of fatigue and requiring relief. Some Squadrons have had to be withdrawn after about three weeks, whilst many have still be fighting well after three months. The fighting endurance of Squadrons seems to depend greatly on their training prior to coming into the line.

TRAINING of FIGHTER SQUADRONS:

28. Since the beginning of November, a series of one-day courses has been held at Group Headquarters to instruct pilots in the organization and functioning of Group operational control.

29. Action has been taken to improve the skill of pilots in manoeuvring and fighting their aircraft at high altitude. At Appendix "E", I attach a copy of an instruction on this subject issued to Squadrons in November, 1940.

30. It is felt that the Winter is a suitable time in which to train day fighter Squadrons for the coming Spring Offensive, which will probably herald intensive day attacks by the GERMAN AIR FORCE. It is generally agreed that Squadrons should get the best possible training when stationed out of the front line.

31. During the past six months, nearly all the day fighter Squadrons in the Command have done a tour, and some two tours, in No. 11 Group. There has been a surprising disparity in the fighting qualities of Squadrons from the North. The high fighting efficiency of the Squadrons trained in SCOTLAND has caused most favourable comment at several Stations. It is recommended, therefore that the system used for training these Scottish Squadrons should be carefully studied with a view to introducing a somewhat similar system in other Northern Groups, so that the best results can be obtained from the maximum number of Squadrons. I invited attention to this important subject in my letter to Fighter Command, 11G/433, dated November 7th.

BOMBING of SECTOR STATIONS:

32. During November, there have been very few bombing attacks in daylight on fighter aerodromes. Some Stations are still suffering, however, from the effects of the heavy bombing in the summer, and this reacts to the detriment of the fighting efficiency of the Squadrons. My letter 11G/494, dated November 11th, 1940, makes further recommendations for the improvement of accommodation and Works Services at Southern fighter aerodromes. It is understood that Fighter Command have secured the personal interest of the Director of Works, and that action has been taken to strengthen the machinery for the Works Services.

No.421 RECONNAISSANCE FLIGHT:

33. Owing to West Malling becoming unserviceable and Gravesend being required for two night fighter Squadrons, No.421 Flight has been moved to HAWKINGE. This is not ideal, owing to the close proximity of the enemy coast, but there is at present no alternative in view of the absence of landline communications to MANSTON.

34. During November, aircraft of No.421 Flight have on many occasions located, reported and shadowed enemy formations approaching from the STRAITS of DOVER. This information has been picked up by the R/T Station at Group, as well as at the Sector, and has been invaluable in giving the correct heights and strength of enemy formations. Cloud reports supplied by these aircraft have also been of great assistance to Group and Sector Controllers in disposing their Squadrons preparatory to meeting an attack. Because of the small size of this unit, its activities have been restricted to the Kentish coast. When the unit has been expanded to Squadron strength, its area of reconnaissance can very usefully be extended to cover the THAMES ESTUARY and the South coast as far as SELSEY BILL.

35. The employment of these aircraft both singly and in pairs on scouting duties has led to an interesting development in air fighting. Whilst going about their lawful occasions, these scouting aircraft have been used to intercept and shoot down enemy reconnaissance aircraft, thus interfering with the enemy's system of obtaining bombing objective also cloud reports, and reports of the movements of our fighter patrols.

36. I should like to see this work extended so that we have sufficient scouting flights in the South-East and on the South coast to form a light screen from the ESTUARY to PORTLAND, with the following duties:

- (a) To locate, report and shadow approaching enemy formations;
- (b) To locate and destroy enemy reconnaissance aircraft before they cross our coast.

37. As we adopt a more offensive policy in the coming Spring, this light screen of pairs of fast scouting aircraft should be pushed further and further forward, in order to provide the kind of information that the enemy reconnaissance aircraft were constantly providing the GERMAN AIR FORCE during September to November, 1940.

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PHYSICAL FITNESS of PILOTS:

38. In order to permit of organized games, a system has been introduced whereby each Squadron is released for recreation one half-day each week.

39. The cessation of intensive attacks by night on objectives in the London area, especially our fighter aerodromes, has brought about a marked improvement in the amount of sleep and relaxation obtained by pilots and other personnel.

PERFORMANCE of OUR FIGHTERS:

40. The reports from Squadrons about difficulties with their Spitfire Mark II aircraft have ceased, because the makers have remedied the tail-heaviness and the defective starter cartridges have been exchanged for serviceable equipment. The following items still affect adversely the fighting efficiency of Spitfire aircraft:

- 1) Lack of Aileron and rudder control at high diving speeds;
- 2) Severe icing inside of windscreen after steep dive;
- 3) Lack of cockpit heating;
- 4) Unfavourable performance in comparison with the Me.109 above 23,000 feet, stressing the need for two-stage super-charger;
- 5) Difficulty of opening hood at speeds above 300 m.p.h.; Suggest jettisoning;
- 6) Provision of non-return valves in air system to prevent loss of all guns and flap services due to one fracture or leak.

NIGHT FLYING:

41. The enemy not only increased the weight of his night attacks, but changed his plan of attack. On many occasions the main effort was shifted from London onto Coventry, then Birmingham, and later Bristol then Southampton. Concentration of effort seemed to have been the guiding principle during the second half of November as opposed to dispersion of night attacks in October.

42. I enclose a separate report on the progress of night flying operations during November, at Appendix "F".

HIGH FLYING EQUIPMENT:

43. In my last operational report, I drew attention to the fact that recent fighting at very high altitude had brought to light various deficiencies in fighter aircraft equipment. Since that date, detailed recommendations for improvements to flying clothing and pilots' equipment have been forwarded to Fighter Command in my letter 136/2201, dated November 15th, 1942.

GROUP HEADQUARTERS:

44. During the past seven months, the number of Sector Stations, forward aerodromes and occupied satellites has increased from 10 to 24, and the total personnel of the Group has been approximately doubled, now exceeding 20,000 persons. This expansion occurred during the periods of intensive operations and necessitated a substantial increase in Group Headquarters' staff on the operational and intelligence side. I enclose at Appendix "G" for record purposes a list of the Headquarters Staff.

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ADMINISTRATION and INTERIOR ECONOMY of FIGHTER STATIONS:

45. Prior to the enemy's heavy daylight attacks on our fighter Stations, organization and administration had been excellent, having been built up over a long period of years in peace by highly trained regular personnel. The dislocation of Station organization and administration brought about by heavy bombing attacks caused a serious drop in fighting efficiency at a time when the whole Service was rapidly expanding and the regular personnel had been heavily diluted by officers and airmen enlisted for the war. From the following paragraphs it will be seen that the Service as a whole does not yet fully appreciate the paramount importance to fighting efficiency of good Station organization and good administration.

46. In Air Ministry letter A.116111/40/T. Admin, dated October 30th, 1940, it was stated that the quality of Officers sent on Courses of Instruction at the School of Administration had left much to be desired. I fully realise the urgent need of improving the standard of administrative knowledge throughout the Service, but would point out that the source of supply of officers to attend these Courses normally is the officer personnel posted to fill the appointments of Squadron and Station Adjutant also the Station Administrative Officer. In a large percentage of instances, officers selected for these appointments have proved unsuitable in the first instance. Although willing and hard-working, they lacked the necessary qualifications, especially previous Service experience.

47. I wish strongly to emphasize how essential it is on operational Stations to have experienced administrative officers especially at the present phase, when Stations lack good and experienced N.C.Os. Unfortunately, the majority of such N.C.Os. and Warrant Officers have been granted commissions and their place has been taken by young and inexperienced airmen.

48. I proposed as a remedy, a fuller appreciation of the Service qualifications required by Officers selected for Administrative duties and a system to ensure that only the right types were selected in the first instance.

SERVICEABILITY of AERODROMES:

49. The opening of the month under review saw many aerodromes becoming unserviceable owing to heavy rain. West Malling, Stapleford Abbots, Castle Camps, and Merston, all became unserviceable together and are not expected to be useable until a long period of dry weather or until runways are made. Rochford, the night flying landing ground for one of the Night Fighter Wings, became temporarily unserviceable, except with the greatest care. At many other aerodromes it was dangerous to land off the runways. Fighter Command has now agreed to runways at West Malling.

TEAM WORK:

50. In my previous operational reports I paid the highest tribute to the fine offensive spirit of the fighter pilots. For the month under review, however, I feel that the First Prize should be awarded to the Squadron and Flight Commanders whose aggressive and skillful leadership has obtained outstanding results (nine to one), against an enemy possessing fighters of superior performance at high altitude. This excellent leadership, however, would have been unavailing but for the excellent team work between Sector Controllers and Squadrons, also between Group Controllers and Sectors.

By weekly Sector conferences and regular Group conferences, also short courses for pilots and for Intelligence Officers at Group Headquarters, efforts have been made to improve the team spirit throughout the whole of No.11 Group. The results for the present month show that these efforts have been in a large measure successful.

CO-OPERATION with the ARMY:

52. Throughout the period under review, the closest co-operation has been maintained between No.11 Group and the 1st, 5th and 6th A.A. Divisions. Owing to Headquarters, 6th A.A. Division being located alongside Group Headquarters and sharing the same Mess, the co-operation between the Group and this Division has been particularly cordial. The re-organization of the A.A. Command necessitates the movement of Headquarters, 6th A.A. Division to the East of London. The loss of personal contact will, however, be counter-balanced by the establishment of Headquarters, 1st A.A. Corps, under Lieutenant-General WASON, in Hillingdon House, alongside No.11 Group Headquarters.

WELFARE and FIGHTING EFFICIENCY:

53. Group Captain H.R.H. the Duke of Kent was appointed by the Air Ministry and took up his duties as Inspector of Welfare on November 1st. The Duke of Kent has devoted a great deal of his time during the month to visiting fighter Stations in the South and South-East of England to examine and advise unit commanders on the general living and working conditions of officers and airmen, especially in fighter Squadrons. As a result of his keen interest and energetic action, there has already been a marked improvement in the general welfare of pilots and airmen. Station and Squadron Commanders have expressed their warm appreciation of the help received as a result of visits by H.R.H. the Duke of Kent, whose work has contributed substantially towards maintaining fighting efficiency.

11G/493  
November 30th, 1940.

*H. R. Park*  
Air Vice-Marshal, Commanding,  
No.11 Group, Royal Air Force.

List of Appendices:

- APPENDIX "A" - No.11 Group Report on Afternoon Battles, Tuesday, 29th October, 1940.
- APPENDIX "B" - Instruction to Controllers No.38. (Enemy Bombers attacking Shipping).
- APPENDIX "C" - Use of Wing Formations Against Present Enemy Tactics.
- APPENDIX "D" - No.11 Group Report on Attack 11.45 - 13.45 hours, November 11th, 1940.
- APPENDIX "E" - High Altitude Flying by Fighters
- APPENDIX "F" - Night Flying Operations, November, 1940.
- APPENDIX "G" - Detail of Headquarters, No.11 Group Staff.

No. 11 Group Report on Afternoon Battles, Tuesday, 29/10/40, on the  
Coast and Kent Area.

(Compiled from data available immediately following the Attacks.)

A

Area of Attack.

1. About 200 E/A were engaged in the attack which was made in three waves.

In the first wave about 30 E/A crossed the North Foreland at 1624 hours, followed by a second formation of 20 which flew across the Estuary to the River Crouch. Some of these reached North Weald which was dive-bombed at about 1700 hours.

The second wave followed almost immediately in two formations of 30 and 20 E/A, but did not penetrate further than the Dover- Deal area.

At 1646 hours the third wave of three formations crossed the coast and headed towards Biggin Hill. In this attack several Italian aircraft were reported. This is the first occasion on which the Axis Partner's Air Force has been recorded as taking part in daylight raids on this Country.

R.D.F. Information.

2. The first plot of Raid 50, 15 plus at 6,000 feet, appeared over Cap Gris Nez at 1601 hours. This Raid reached North Weald about 1700 hours.

The first plot of Raid 4, 12 plus (no height) appeared over Dunkerque at 1606 hours. At 1617 hours the strength was increased to 50 plus. This raid was lost in the Chelmsford area at 1648 hours.

The first plot of Raid 3, appeared 10 miles North East of Dunkerque as 12 plus, no height, at 1607 hours. This raid was lost over Margate at 1628 hours.

The first plot of Raid 9 (Bombers), 20 plus, no height, appeared near Arras at 1625 hours and reached the Dover area at 1633 hours.

The first plot of Raid 12 appeared as 4 plus, no height, at Cap Gris Nez. No R.D.F. warning was received of Raids 60, 61 and 62, which were picked up by the Observer Corps and were plotted in the Tonbridge - Dungeness area.

Observer Corps Information.

3. Observer Corps picked up the enemy formations and plotted them accurately. The tracks of Raids 4 and 50 were lost in the North Weald area.

They reported two enemy formations which crossed the coast near Dungeness, and a third, No. 60, which appeared inland in the same area. These three raids totalled approximately 60 aircraft. Raid 61 appeared at 1646 hours and Raid 62 at 1647 hours.

Weather.

4. Clouds 3/10ths at 3/4,000 feet, thin layer at 27,000 feet. Visibility good above low cloud.

Action by Group Controller.

5. At 1607 hours Nos. 17 and 46 Squadrons were ordered to patrol North Weald at 15,000 feet, and at 1612 hours to proceed to the Maidstone Patrol Line at 25,000 feet.

At 1615 hours, Nos. 501 and 252 Squadrons were ordered to patrol Brooklands at 15,000 feet, and at 1630 hours to patrol Biggin Hill Patrol Line on Readiness Patrol.

At 1621 hours Nos. 222 and 92 Squadrons from Hornchurch and Biggin Hill respectively were ordered to patrol Hornchurch at 15,000 feet. At 1626 hours No. 74 Squadron was ordered to patrol Biggin Hill for aerodrome protection. At 1631 hours No. 229 Squadron was ordered to patrol Northolt.

At 15,000 hours Nos. 249 and 257 Squadrons were ordered to patrol North Weald at 15,000 feet for aerodrome protection. At 1711 hours Nos. 41 and 603 Squadrons were ordered to patrol Rochford at 20,000 feet.

In addition the No. 12 Group Wing took off from Duxford at 1603 hours. They originally were asked by No. 11 Group to patrol Maidstone - Sheerness, then to intercept two raids that were crossing Thames Estuary heading for Essex before attacking North Weald. Later No. 12 Group was asked to make a sweep through North Kent.

#### Action by Fighter Squadrons.

6. At 1630 hours No. 12 Group Wing was reported to be over Hornchurch at 25,000 feet, proceeding towards Sheerness. Immediately two raids that had been approaching Sheerness turned Northwards across the Thames Estuary; No. 12 Group was requested to intercept these raids between North Weald and the Coast, as it was feared that the enemy was about to attack Fighter Aerodromes in Essex. As the Duxford Wing continued, however, to proceed towards Sheerness, Hornchurch was requested to try and inform it by R/T of the new Patrol Line, but was unable to communicate with the Wing because of continuous R/T traffic between the Wing and Duxford. Immediately it was evident that the Duxford Wing might fail to intercept the raids, a pair of No. 11 Group Squadrons were ordered from East Kent to try and overtake but unfortunately the enemy reached North Weald first and bombed the aerodrome causing some casualties and damage. The enemy, however, was intercepted by No. 11 Group Squadrons immediately after completing his bombing and heavy casualties were inflicted.

Immediately it was seen that the Duxford Wing was not going to intercept the above raids, No. 12 Group was requested to make a sweep through North Kent to intercept two more raids heading towards Biggin Hill Aerodrome, but A.O.C. No. 12 Group recalled the Duxford Wing because of a report that the weather was no longer fine at Duxford and he was afraid of difficulty in landing so many Squadrons at one aerodrome. The Duxford Wing, therefore, missed an interception with these two raids which fortunately did not proceed far inland, probably because they saw additional No. 11 Group Squadrons climbing in the Biggin Hill area.

Nos. 17 and 46 Squadrons left the ground at 1614 hours. They did not sight the enemy raids and while in the Canterbury area No. 46 Squadron were dived on by Me109's while they were flying at 25,000 feet. They claim 1 Me109 destroyed. No. 17 Squadron who had heard the order to return to North Weald, did not sight the enemy, with the exception of one pilot who shot down 1 Me109 while at 25,000 feet.

Nos. 249 and 257 Squadrons left North Weald at 1640 hours, just prior to the aerodrome attack. A dog fight ensued in which No. 249 Squadron claim to have destroyed 3 Me109's, 2 Me109's probably destroyed, and 3 Me109's damaged, without loss to themselves. No. 257 Squadron were also in combat but did not inflict any casualties; they lost one pilot.

Nos. 501 and 253 Squadrons took off at 1623 hours respectively. They attacked two enemy formations while at 21,000 feet. No. 501 Squadron claims to have destroyed 2 Me109's, and damaged another Me109; No. 253 Squadron engaged a formation of Me109's, two of which were shot down, and later intercepted a Do17 which they destroyed with no loss in either Squadron.

No. 92 Squadron left Biggin Hill at 1632 hours; while they were at 22,000 feet they attacked a formation of 12 Me110's and claim 3 Me110's destroyed, and 1 Me110 damaged, without losing a pilot.

No. 74 Squadron took off at 1635 hours for aerodrome protection - they sighted and intercepted a formation of Me109's escorting 1 He111, shooting down 3 Me109's and probably destroying 2 Me109's and a He111.

No. 222 Squadron took off at 1650 hours, but did not sight the enemy.

Enemy casualties were 16 destroyed, 6 probably destroyed, and 5 damaged, for the loss of 1 R.A.F. Pilot who was killed.

#### Conclusions.

7. (a) This seems to have been an attack by Bombers escorted by Fighters, and Fighter Bombers in which the Italian Air Force were represented by providing a

pafa. 7 cent.

formation which operated in the Dover area at a safe distance from the main combat.

(b) R.D.F warning showed considerable improvement over the mornings' attacks, with the exception of three raids which were picked up by the Observer Corps near Dungeness.

(sgd) K.R.PARK

Air Vice-Marshal, Commanding,  
No.11 Group, Royal Air Force.

APPENDIX "B"

INSTRUCTION TO CONTROLLERS No. 38

(422/6 4.11.40)

Enemy Bomber Formations Attacking Shipping

On November 1st and 2nd, the Germans began a new phase by employing dive bombers, Do.17 and Italian three-engine bombers, in attacks against convoys and coastal towns.

2. The bomber formations were from 20 to 30 aircraft in strength, and were flying between 7,000 and 15,000 feet. All the bomber formations were accompanied by fighter escorts of about equal numbers, and the attacks were made after sweeps inland by very high flying Me.109s, apparently intended to divert our fighter patrols.

3. This form of attack will probably be repeated, and will require to be countered in the following manner:

- a) Me.109 Screen: To be engaged by at least one pair of Spitfire Squadrons. If Hurricanes are on the "Readiness Patrol", they may have to be detailed to the high fighters;
- b) Bomb Raids and Escorts: Our old practice of detailing a pair of Squadrons to attack the escort and then a pair of Squadrons to attack the bomber formation will have to be resorted to whenever possible;
- c) Convoy Patrol: Standing patrols of a Flight or even a Squadron over convoys will not be effective against these large bomber formations, having strong fighter escort. A pair of Squadrons patrolling on the coast opposite convoys will be better able to engage the enemy than a standing patrol out to sea, which can easily be surprised by enemy fighters.

(sgd) K.R. PARK

Air Vice-Marshal, Commanding,  
No.11 Group, Royal Air Force.

Copy to:  
Sector Commanders, for  
Sector Controllers.

From Headquarters, No. 11 Group.  
 To: Officer Commanding, R.A.F. Station:  
 DEWDER, NORTH WEALD, HORNCHURCH, NORTHOLT,  
 TANGMERE, KENLEY, BIGGIN HILL.  
 Ref: 11G/486  
 Date: 15th October, 1940.

Use of Wing Formations Against Present Enemy Tactics.

The use of Wings of two or three Squadrons is effective against enemy bombers with close fighter escorts for the following reasons:

(a) Much more warning from R.D.F. plots is received whilst the enemy bomber and fighter formations are assembling over the French coast; this gives the Group Controller plenty of time to order Squadrons up to operational height, in some cases well before the enemy raids commenced to approach our coast;

(b) The bomber formations fly mostly between heights of 15,000 to 20,000 feet;

(c) Formations of enemy bombers and escorting fighters can be sent over to this country only in good weather conditions, which are suitable for interception by Wings.

2. Against the present enemy tactics, very high fighter patrols or raids, the use of Wing formations has been found to have serious disadvantages for the following reasons:

(a) The warning received from R.D.F. plots is insufficient to place Squadrons at the required height in time to intercept the first wave of enemy fighters;

(b) The heights of enemy aircraft are much greater, thus requiring more time to intercept from above;

(c) The present enemy tactics are generally confined to days when considerable mist and cloud are present.

3. Results have shown that Wings or pairs of Squadrons have only been successful in intercepting when there is a second or third wave of enemy fighters, and this can only be done if the Squadrons take off and climb independently to their operational height and then effect a rendezvous. When two or three Squadrons take off and climb together, the rate of ascent is found to be slower, thereby wasting valuable minutes during which time one or two Squadrons, operating singly, could attain position above the enemy fighter formations.

4. The first wave of enemy fighter aircraft has usually been intercepted only by the Spitfire Squadron carrying out Standing Readiness Patrol, and sometimes by one or two Spitfire Squadrons from "Stand-By".

5. Rigid Squadron formations and Wing formations have been found to be ineffective against very high fighter raids for the

(over.....)

following reasons:

(a) They can be broken up easily by attacks from above by small formations of enemy aircraft. Instances have occurred of even one or two enemy fighters having broken up a pair of our Squadrons;

(b) If enemy fighter aircraft happen to be below they can usually see a large formation of our fighters, and on account of their superior speed at high altitude they are able to withdraw before we can engage.

6. Enemy fighters have been coming over to this country at about 25,000 to 30,000 feet in fairly large numbers, and generally they have been spread out over a large area. Small formations up to seven in number appear to work together. These small formations are compact but very flexible. Provided the enemy has the advantage of height, numerical superiority or inferiority does not seem to bother him much as he makes his attack, and never does he allow himself to make the fatal mistake of staying down and fighting on our level. Dive and zoom in small sub-formations are greatly favoured.

7. During two recent occasions when flying over Kent, I have seen pairs of Hurricane also Spitfire Squadrons, climbing in close company in rigid Squadron formation, "Sections line astern", almost directly below enemy fighter formations, flying within supporting distance of one another. This appeared to be inviting attack from above, and no action by Group or Sector Controllers can protect our Squadrons in such circumstances.

8. On several occasions recently when one of our Squadrons has encountered enemy fighters below, the following obvious mistakes have been made:-

(a) Squadron was ordered to break up and carry out individual attacks on superior numbers, resulting in a dog-fight, when the Squadron's task was, by repeated attacks from above, to engage the enemy fighter screen to protect other fighter Squadrons climbing up from ground level to rendezvous;

(b) The whole Squadron has dived to attack simultaneously, instead of keeping one or more Sections as above-guard;

(c) When a small number of our fighters, after a general engagement have found themselves above superior numbers of enemy fighters, they have failed to take advantage of their height, diving down and staying on the same level as the enemy fighters, instead of breaking up the enemy formation by dive and zoom tactics.

9. To deal successfully with the present enemy tactics, it is necessary to adjust our methods as follows:-

(1) Squadrons operate in three Sections of four aircraft in loose weaving formation to prevent surprise from above. The Sections of four should be trained to break away and work in pairs;

(2) When a Wing of two or three Squadrons is patrolling a given area or patrol line, the Squadrons should be spaced 2,000 to 4,000 feet apart, instead of patrolling in a rigid mass. If the top Squadron is attacked from above, it should endeavour to draw the enemy down across the bows of one of our Squadrons.

{continued.....3

10. The object of the present enemy tactics is to wear down and to reduce to a minimum the effectiveness of our fighter Squadrons. The latest German Air Force Order of Battle shows that the enemy has at his disposal for operations against this country rather more fighter aircraft than we have. Interrogation of prisoners of war, however, has shown that the German fighter pilots have frequently been making two, and sometimes three, sorties a day over this country. Prisoners of war are still of opinion that the Spitfire Mark I is superior in performance to any German fighters. It has been realised for some time that the latest German fighters have a superiority in speed and climb over the Hurricane, and Headquarters, Fighter Command, have been pressing the highest in the land to get earliest delivery of Mark II Hurricanes, and later the Mark III Spitfire, both having the Merlin XX engine.

11. A disadvantage which our fighter pilots have not had to contend with has been the carrying of bombs some hundreds of miles into enemy territory as done daily by a proportion of the German fighter pilots. Moreover, the German pilots operating over our territory have not the great advantage of being kept constantly informed by R/T of the approximate strength, height and position of their opponents. From whatever angle the problem is examined, it is clearly evident that our pilots are operating with many advantages on their side, and the time has arrived when our fighter squadrons must adopt more flexible and cunningly aggressive tactics when fighting over our own territory.

12. Now that the Squadrons in Nos. 12, 13 and 14 Groups are gradually building up and once more becoming fit operationally, it is hoped to relieve Squadrons in this Group after a period of between six to eight weeks in the line. This period naturally depends upon the intensity of air fighting among other factors.

13. This instruction has been prepared as a result of very careful scrutiny by the Group Commander of dozens of recent patrol reports and combat reports from our twenty day fighter squadrons. Observations of our Squadrons on patrol over Kent, and various discussions with Sector and Squadron Commanders have also been taken into account before putting this brief instruction in writing.

14. In May and June our fighter squadrons, with all the disadvantages of fighting over enemy territory, defeated the German Air Force in N.W. France. From July to August, our fighter squadrons decisively defeated the German dive bombers and their escorts. From mid-August until the end of September our Squadrons again won a decisive victory, this time over the German long range bombers with their heavy, close escorts. The task of our squadrons is now to defeat a slightly superior fighter force working under all the disadvantages of long range patrols over enemy territory. The present situation, where formations of thirty to fifty German fighters can reach and bomb the capital of the Empire before being effectively attacked is no longer tolerable. I look to all Sector and Squadron Commanders to review immediately our present ideas of fighter tactics and to set about the Bosche fighters in the same aggressive spirit that defeated his bomber attacks by superior numbers.

15. Sectors are to ensure that each Squadron receives three copies of this instruction, which is also to be brought to the attention of Sector Controllers.

(sgd) K.R. PARK.

Air Vice-Marshal, Commanding,  
No. 11 Group, Royal Air Force.

No. 11 Group Report on Convoy Attack between 1145-1345 hours, 11th November.  
 Compiled from data available immediately following Attack.)

Area of Attack.

1. Two attacks on convoys in the Thames Estuary, the second attack being in two phases. The first attack was by Luftwaffe Bombers and Fighters, and the second by the Italian Air Force, approximately 20 Ju87's escorted by Me109's totalling 50/60 were used in the first attack, and 9 Br20's escorted by 40 Fiat Cr42 Fighters in the second attack.

R.D.F. Information.

1st. Attack.

2. The Controller, Fighter Command, had given verbal warning in advance of the first attack at approximately 1130 hours. At 1135 hours Raid 8 appeared as 18 plus at 8,000 feet, 10 miles West of St. Omer and increased to 50 plus off the North Foreland. The Command warning was most helpful in this occasion.

2nd. Attack.

Rd. 42 appeared at 1307 hrs over Ostend as 30 plus at 20,000 feet.  
 Rd. 1 appeared at 1317 hrs off Deal as 6 plus, no height.  
 Rd. 5 (which was possibly a split of Rd. 42) appeared at 1334 hrs as 10 plus, no height.

With the exception of Raid 1, R.D.F. warning and information was good.

Observer Corps Information.

3. As the raids were over the sea, no Observer Corps information was obtained except for occasional reports of hostile aircraft plunging into the sea.

Weather.

4. Cloud 10/10ths 10,000 feet. Visibility good below.

Action by Group Controller.

1st. Attack.

5. Group Controller received prior warning of these attacks from the Hawkings "Y" Service and from the Controller, Fighter Command, which enabled him to position his Squadrons before the attack developed.

Nos. 253 and 605 Squadrons were ordered to the Maidstone Line to cover London, at 1113 hours and were not employed in the attacks on the convoys.

Nos. 17 and 257 Squadrons were ordered to patrol the convoys at 1135 hours to engage bombers.

Nos. 64 and 603 Squadrons were ordered to patrol high over the convoys to engage enemy fighters at 1134 hours.

Nos. 615 and 229 Squadrons were ordered to the Croydon Line at 1142 hours. These Squadrons were later ordered to the Manston Patrol Line to intercept returning raids leading S.E. from the convoys.

2nd. Attack.

At 1256 hours Nos. 46 and 249 Squadrons from North Weald were ordered to patrol the coast line opposite the convoys to engage bombers.

At 1304 hours No. 41 Squadron was ordered to patrol Rockford at 20,000 feet to cover Hurricane Squadrons.

At 1324 hours Nos. 17 and 257 Squadrons from Martlesham were ordered to patrol the convoys to engage bombers and their close escort.

Action By Fighter Squadrons.

1st. Attack.

6. Nos. 17 and 257 Squadrons who took off at 1115 hours and 1140 hours respectively intercepted the main raid of Ju87's and Me109's. No. 17 Squadron destroyed 3 Ju87's 1½ Me109's (shared with No. 603 Squadron), probably destroyed 4 Ju87's and 1 Me109. No. 257 Squadron destroyed 1 Ju87 and 1 Me109, damaging 1 Ju87 and 2 Me109's.

Nos. 64 and 603 Squadrons who took off at 1145 hours intercepted the enemy fighter formation over the convoys. No. 603 Squadron destroyed 2½ Me109's (shared with No. 17 Squadron), and probably destroyed 1 Me109 and 1 Ju87. No. 64 Squadron damaged 2 Me109's.

Nos. 615 and 229 Squadrons who took off at 1215 hours did not sight any E/A near Manston as the raids returned to France well out to sea.

2nd. Attack.

Nos. 46 and 249 Squadrons who were airborne at 1301 hours, sighted the Italian formation South East of Harwich. No. 46 Squadron destroyed 1½ Breda 20's, (½ shared with No. 257 Squadron) and 3 Fiat Cr42's. No. 249 Squadron destroyed 1 He59, 1 Ju86, and probably destroyed 1 Fiat Cr42.

No. 41 Squadron who were airborne at 1315 hours engaged a formation of Fiat fighters, damaging 1 Fiat Cr42.

Nos. 17 and 257 Squadrons who were airborne at 1330 hours sighted the enemy formation but No. 17 Squadron lost it in the clouds. No. 257 Squadron engaged a formation of enemy bombers East of Harwich and destroyed 5½ Fiat Breda 20's (½ shared with No. 46 Squadron), damaging 1 additional Br20, and 4 Fiat Cr42's. In view of the long sea crossing several of the "probables" and "damaged" must have failed to reach their bases in Belgium.

Duxford Wing.

7. A request was passed to No. 12 Group at 1117 hours for the Wing to be in position between Canterbury and Maidstone at 1200 hours. The Wing left Duxford at 1155 hours and reached the coast off Shoeburyness at 1217 hours. It was plotted close to the convoys by the Observer Corps when enemy tracks were in its immediate vicinity, but no engagement took place. The Wing reported sighting friendly fighters which were presumably the No. 11 Group Squadrons who engaged the enemy bombers and their escort in the neighbourhood of the convoys shortly afterwards.

When it was seen that there was a large raid of 50 plus approaching the convoy "ADAPT" from Belgium, the A.O.C. No. 11 Group, requested No. 12 Group to cover their convoy as there were other raids approaching three convoys further South in the No. 11 Group area. No. 12 Group, however, said they were unable to protect the convoy "ADAPT" in their area as all their Squadrons were on the ground refuelling after patrolling the Thames Estuary. Two Squadrons of No. 11 Group were, therefore, detailed to intercept the raids approaching the convoy "ADAPT" N.E. of Southwold, and 4 other Squadrons (2 Pairs) were detailed to protect convoys in the No. 11 Group area, with the results reported above.

Conclusions.

8. (a) Both attacks were successfully intercepted largely due to the excellent warning given by Hawkinge "Y" and good R.D.F. information.

(b) This was the first occasion the Italian Air Force has been in action against No. 11 Fighter Group. Some confusion arose as to the type of Italian aircraft involved in the attack but it has now been established that they were Fiat Cr42 Fighters escorting Fiat Breda Bombers; one of the latter was brought down over the land, thus confirming the identification of this bomber.

(c) The total enemy casualties for the first battle were 9 destroyed, 8 "probables", and 5 damaged for the loss of 2 Pilots.

In the second attack 15 E/A were destroyed, 1 "probable", and 6 damaged, for no loss by any Squadron.

(d) When North-bound convoys pass from No. 11 Group into No. 12 Group area (North of Southwold) Group Controller should confirm that No. 12 Group are able to afford fighter protection as required by Headquarters, Fighter Command.

(sgd) K.R. PARK

Air Vice-Marshal, Commanding Officer,  
No. 11 Group, Royal Air Force.

1 :- Headquarters, No. 11 Group.

To:- Royal Air Force Stations:-  
TANGMERE, KENLEY, BIGGIN HILL, HORNCHURCH,  
NORTH WEALD, DEBDEN, NORTHOLT.

Date:- 26th November, 1940.

Ref:- 11G/S.39.

HIGH ALTITUDE FLYING BY FIGHTERS.

Since the Fighter v Fighter phase began in October the majority of combats in 11 Group area have been at much higher altitudes than during summer and spring, 1940. Air combats have frequently taken place between 25 and 32,000 feet, where special handling of aircraft is necessary in order to get the best performance.

2. In the near future it is hoped that squadrons will be re-equipped with later series Hurricanes and Spitfires that will have higher Wing loadings which will demand even greater skill by pilots when manoeuvring at above 25,000 feet. It has therefore become necessary for squadrons to study the handling characteristics at very high altitude of their aircraft.

3. The following notes have been prepared by the chief test pilot of Hawkers, and are issued to all Fighter Squadrons as a guide to assist pilots to get the best performance out of their aircraft when flying at very high altitude. It is appreciated that when engaging the enemy, pilots will not be able to pay close attention to all the following points. This makes it all the more necessary for pilots to acquire the habit of getting the best out of their aircraft at high altitude, especially when in the presence of enemy aircraft.

"It cannot be too strongly emphasized that the nearer to the ceiling the pilot gets the more accurately he must fly. Climbing speeds must be carefully studied and memorised, the aircraft being held as steady as possible.

Controls must never be used coarsely and any change of attitude must be done as slowly as circumstances permit. For instance, if the climbing speed has accidentally been allowed to drop 10 m.p.h. below the best speed, the nose must not be pushed down, but rather the speed should be allowed very slowly to build up.

When manoeuvring the pilot should know by practice what is the maximum rate of turn he can do at any particular height without losing altitude. It is no good when in combat trying to turn any quicker - this will only result in a stall or rapid loss of height. Also, when diving on an enemy at altitude, great care should be exercised in pulling out of the dive, otherwise a greater loss of height will result, due to partial stalling and loss of speed.

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It must be realised that if an aircraft is badly stalled, due to too coarse use of controls, it will require probably 20 to 30 miles an hour increase in speed over the normal indicated stalling speed to recover flow over the wing, resulting in a serious loss of time and speed.

The handling of the engine should also be carefully studied and the maximum revs. permissible be always used, particularly in combat, so as to keep the Supercharger working at its maximum efficiency. The pilot should watch carefully for any sign of rough or irregular running at high altitudes and should report it immediately on landing, for when flying at high altitudes, unless the whole ignition system is in tiptop order, irregular firing will result, with consequent loss of power, which again means loss of performance.

In the case of the Hurricane the normal practice is always to climb with the radiator flap down. At high altitudes this is not necessary owing to the low air temperature and it should be remembered to put it neutral. This will result in less drag and therefore greater efficiency. The sliding hood should also be kept closed for the same reason."

4. I wish this instruction to be distributed down to Flights in all Squadrons, both day and night.

 Air Vice-Marshal, Commanding,  
No. 11 Group, Royal Air Force.

NIGHT OPERATIONS REPORT - NOVEMBER, 1940.GENERAL.

Night attacks on this country continued on a heavy scale throughout the past month, but instead of concentrating on London, as in the previous period, the enemy turned his attention more and more to industrial areas mostly in the Midlands, until on November 14/15th. he opened a new phase in his night tactics with the big raid on Coventry.

2. The enemy's method in these new tactics is to select an industrial target (Coventry, Birmingham and Bristol have so far been chosen) and to concentrate his whole force on it for that night. The attack is opened by an enemy formation specially trained in beam navigation, who start fires and make the target conspicuous for the raid.

3. Rather fewer aircraft entered the Group area, and these were passing through to the Midlands, but the interception problems of the Group remained unaffected by the new tactics.

4. Aircraft of the Night Squadrons, also some day fighters, were sent on patrol before dusk in an effort to intercept the important leading aircraft of these concentrated attacks.

5. As the weight of attack shifted to the Midlands, Squadrons stationed in, or earmarked for, No. 11 Group were transferred further North.

6. It must unfortunately be admitted that the number of successful interceptions has again been negligible. Training is an urgent requirement of all Night Fighter Squadrons, and it has been made possible during the month to start in a very small way a Group School for A.I. air crews at Debden.

A.I. TRAINING FLIGHT.

7. Authority was given by Command in the middle of the month to release one section of both 25 and 219 Squadrons for training purposes. It was decided by Group Headquarters to form a training flight at Debden, as the quietest Sector, and attach these two sections to it for an intensive course of day training of one week. A detailed syllabus was prepared including Lorenz practice on the Link Trainer and blind flying and blind take-offs in a Master. Controlled interception was not attempted, as this would require a quieter Sector and a longer course. The aim of this course was to produce quickly operators and pilots trained together as crews who would have reasonable grasp of their apparatus. An experienced Flight Lieutenant was placed in charge of the course and an A.I. instructor and a Link Trainer instructor were posted to assist him. Each Squadron attached two Beaufighters and one Bienheim and three air crews.

8. Preliminary reports on the first course are startling but encouraging for the future. They reveal that the A.I. operators had very little idea of how to follow up a blip on their instrument, and owing to lack of day training and to the disappointing night results, had no great faith in the apparatus. It is no exaggeration to say that any interceptions that these crews might have made would have been due to a lucky chance. For the first time crews have been able to analyse the indications on their A.I., and to find out something about the practical working of it.

(continued)

The course had to rely on 25 Squadron for much of its equipment (especially an A.I. ground trainer), and the move of the Squadron by Command Headquarters to Wittering after two days of the first course was an embarrassment. Training has, however, continued with the one section of 219 Squadron. It is hoped to arrange for a flight of 219 Squadron to attend the next course.

#### A.I. SQUADRONS.

10. There have been no new developments in the operation of these Squadrons. 25 Squadron has moved North to Wittering to give extra protection to the Midlands. Much has already been written about the state of training of this Squadron, and it has constantly been urged that they be moved and given an opportunity to train in a quiet Sector. They have now been moved to a Sector that is likely to be almost as busy at night as the one they have left.

11. The Kenley experiment has continued without any greater success. It is suggested that the experiment is basically sound and that the missing link here also is training. The layout, control, and method of receiving information in the Kenley Sector appear to be good, and the whole system constitutes the only sober and scientific approach to the night menace that has yet been made, but a good organisation and first class instruments cannot alone produce results. The proposal to divide the area of operations into two zones - an inland zone for single-engined aircraft in numbers, and a seaward zone for A.I. aircraft, is therefore viewed with misgivings, unless it is intended only as a stop-gap while the A.I. Squadrons train. The proposal may vitiate a very thorough system which has not yet been given adequate trial.

#### NO. 27 SQUADRON.

12. This unit is keen, and well trained so far as its obsolescent equipment permits. One Boston (D.B.7) has been delivered but its equipment, especially its armament, is unsatisfactory and considerable modification will be required.

#### NIGHT FLYING WINGS.

13. No. 151 Squadron has been detached in the Midlands. The Northern Wing, consisting of No. 264 Squadron alone, moved at the end of the month from Rochford to Debden to operate in the Debden and North Weald Sectors in the place of No. 25 Squadron. One Squadron of the Southern Wing now operates in the Hornchurch Sector in place of 264 Squadron.

14. As anticipated these Wings find difficulty in operating a sufficient number of aircraft to be effective. Sector control is needed on most nights at this time of year, and this cuts the numbers down to a maximum of 4 per Sector.

15. Operations were carried out by No. 141 Squadron over the French Coast during the moon period to try and engage E/A reported to return burning navigation lights. Patrols were ordered over Etaples, Le Treport and Pecamp. Pecamp was found to be too distant for Defiants. It was intended to send a Beaufighter without A.I. of No. 25 Squadron to patrol Pecamp, but a series of accidents culminated in the loss by day of the aircraft and crew. The operation will again be made at the next moon. No E/A were intercepted but enemy aerodromes were located and there is every likelihood of fluting success being achieved, as happened in June, 1940.

AERODROMES.

16. Authority has been requested to take over Marsh Baldon, near Benson, to accommodate 219 Squadron. Redhill is most unsatisfactory and has been unserviceable for a large part of the month. This made a large concentration of aircraft at Tangmere necessary, as Ford has been partially unserviceable. Nos. 219 and 2<sup>nd</sup> Squadrons, 422 Flight and F.I.U. have frequently been concentrated on the one aerodrome through unserviceability of night aerodromes.

17. Rochford has never been considered by Group a suitable aerodrome for night flying operations, and the move of the Northern Night Flying Wing to Debden, although only a temporary move, is an improvement. This Wing is due eventually to establish itself at Castle Camps. Hunsdon is nearing completion and will be available as another night aerodrome. It is expected, therefore, that the aerodrome position will be satisfactory in the near future.

NIGHT FLYING FACILITIES.

18. On November 20th. the enemy attacked Southampton in fairly heavy force. No. 11 Group area and the adjacent Fighter Groups were fog-bound, although the fog was in many places less than 100 ft. thick; and above this, conditions were perfectly clear. Pilots were sufficiently trained to take off in these conditions, but it was not possible to land them anywhere. This example is cited to show the necessity of providing blind landing apparatus and training pilots in its use. Pilots are being trained in Lorenz on Link Trainers, and ZZ approaches have also been practiced during the month.

19. V.H.F. offers most efficient homing facilities of which full advantage is not yet taken. It is considered imperative that the Command Guard system should be put into practice with the least possible delay. The operation of this system is so simple that in essence all that is required of a pilot who is lost, is that he should press a button and request emergency homing; wherever he is in the country he will be certain of being homed accurately to an aerodrome. Arrangements for this organisation to operate require to be made by H.Q.F.C., and representations have been made to this effect.

CONCLUSIONS.

20. (i) Emphasis has been laid throughout this report on training. Complicated instruments have been put into service and results have been expected from them at once. The human element has been much overlooked owing to the extreme urgency of the situation. From the small experience that has been gathered from the very recently formed A.I. Training Flight in this Group, it is apparent that all these schemes and scientific instruments may be wasted, and the problem of interception no nearer solution unless the personnel are trained.

(ii) The suggestion has been put forward that a Night Squadron be formed with pilots of older age and suitable experience, preferably drawn from Bomber Command. This Squadron should be equipped with Beaufighter aircraft and posted to a quiet Sector in order to train and work out a proper technique. A ground organisation and controllers would need to be put at its disposal. At the end of two months this Squadron should be fit to take its place in the line with its own Controllers, and should achieve results which are at present beyond the capabilities of the Squadrons now in the Group.

