

NIGHT RAID REPORT NO. 3 OCT 1942

COPIES

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 31ST AUGUST/
1ST SEPTEMBER, 1942.

301
8 OCT

Meteorological Advice Submitted to the Command

1. 0930 hours. Estimated midnight position of fronts (1) occluded: Oban - 58°N. 4°E. becoming warm to Berlin and cold to Heligoland Bight and southwards. (2) cold: Oban - Spurn Head - Yarmouth - east of Paris - Pyrenees.
- Germany:- Residual convection cloud with breaks and scattered thunderstorms, conditions better in south than north. In Heligoland Bight - West Baltic area much low cloud and rain; freezing level 8,000 - 10,000 ft.
- N.W. France: Convection cloud with breaks behind cold front.
- Home Bases: Cloud breaking and lifting; patches of fog. Belt of rain and low cloud along cold front in Yorkshire and off east coast.
- 1250 hours. No change except that position of front (2) is doubtful and conditions at home bases therefore doubtful.
- 1605 hours. South-west Germany:- Small amount of cloud probable.
- North Denmark:- Much cloud with base about 1000 ft. or possibly lower.
- Routes:- Thundery conditions over much of routes with towering cloud and icing above 10,000 feet.
- Home Bases:- All expected to be fit for take off but for return low stratus at 600 feet or local fog, with threat of local thunderstorms in south, and at least 50% of bases unfit.
- 2150 hours. Home Bases:- Almost all bases in 1, 4 and 5 Groups and 75% of 3 Group's bases are liable to be unfit by dawn. Only 1 station on 92 Group reliable for diversion, but some stations in 2 Group may be available. The only other reliable diversion area is East Scotland.

Sorties

2. 5 Lancasters were despatched to lay mines in the Kattegat. 2 were successful and laid 10 mines but the remaining 3 were unable to obtain pinpoints and either jettisoned their mines safe or returned them to base. No damage was sustained by our aircraft and there were no interceptions by enemy aircraft or other incidents of note.

BC/S. 26342/1/ORS.
17th September, 1942.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 1/2ND SEPTEMBER, 1942.SAARBRUCKENMeteorological Advice Submitted to the Command

1. 0915 hours. Estimated midnight position of fronts as: (1) cold front Wilhelmshaven - Nuremberg - Central Alps (2) occluded front 60°N. 4½°E - East Anglia, becoming warm to Cherbourg and cold to Brest etc. Home bases: to west of front convection cloud with good breaks; East Anglia and S.E. England, much low cloud with occasional rain. Target areas: - east of 15°E.: generally small amounts of cloud, between 10°E and 15°E.: scattered thunderstorms and thundery rain. Along front a belt of thunderstorms is expected. Behind cold front: variable amounts of convection cloud, perhaps a few scattered showers. Over E. and N.E. France: variable amounts of convection cloud. N.W. France: much medium and low cloud. Over all areas visibility will be generally moderate.
- 1300 hours, The situation is by no means straightforward but at this stage we do not expect serious worries at home bases, local visibility troubles may affect low lying aerodromes locally. E. Anglia may have low cloud persisting and may be unfit most of night. Targets: unsuitable conditions expected at Stettin, where there will be much cloud and probably thunderstorms. On Route to Stettin there will be thunderstorms. Stuttgart: probably best choice possible but even there the best we can hope for is some breaks in cloud. Route to Stuttgart somewhat better than to Stettin but thundery showers or even thunderstorms cannot be excluded. On all routes to Germany cold front over East England or to East of England will have to be crossed.
- 1615 hours. Nos. 2, 3, and 92 Groups expect bases to be fit apart from risk of thunderstorms, visibility will be poor towards dawn. 4 and 5 Groups take threat from west more seriously and think their bases may be affected at time of return. 91 Group expects stratus forming from 0200 hours becoming more general from 0300-0400 hours. No. 1 Group not so worried as 4 and 5 Groups and reckon cloud will prevent visibility troubles. Stuttgart: ~~chancy~~, probably 6/10-9/10ths residual cloud, risk of thunderstorms. Frisian Islands: thundery ~~with~~ cloud below 1,000 ft. at times, later in night the better.

Executive Orders

2. Weather conditions forced the selection of an objective as far South and West as possible within the range of the types of aircraft which were to be used. Saarbrücken was chosen because the concentration of industry centred there had already been heavily damaged and it was thought to be in a condition where a further successful attack might have cumulative results. There was the added advantage that the gun defences were not thought to be established on a very heavy scale, and hence it might be possible to get underneath to bomb if the cloud was not well broken.

Sorties

3. (For details see attached table)

- (a) Total Number of Sorties231
 (b) Number claiming Attack on Primary.....205(88.7%)
 (c) Number claiming Attack on alternative target..... 1
 (d) Abortive Sorties:-

Technical defects	15	
Late take off	1	
Sickness of Crew	1	
Attacked by Enemy Aircraft	2	
Crashed - Cause Unknown	2	
	<u>21</u>	21(9.1%)

(e) Missing 4(1.7%)

Weight of Bombs dropped:-

4. H.E. 231 tons
 Incendiary 134 tons

Moon

5. Above the horizon; low; 66%.

Plan of attack

6. Zero hour:- 0150 hours.
 Period of attack:- 0150 - 0220.

The attacking force was divided into three sections.

7. Section 1 Aircraft of the Pathfinder Force were to be over the target between 0150 and 0155 hours. During this period 3 aircraft were to release flares (on Gee fix if the weather proved unsuitable for visual identification of the target) to illuminate the target for the marker aircraft, followed by 1000 lb. bombs to suppress the A.R.P. services of the town. The remaining aircraft of this force were loaded with 250 lb. incendiaries to produce "blob" fires at the aiming points. These marker aircraft also carried 2 target flares (green with red stars) and 1 (red steady) which were to be released only when and if the aiming point had been positively identified.

8. Section 2 Aircraft were to carry 4 lb. or 30 lb. incendiaries (Lancasters to carry 4,000 lb. H.E. made up with 4 lb. or 30 lb. incendiaries and were to attack not earlier than 0155 hours in order to leave the P.F.F. undisturbed. This phase of the attack was to last from 0155 hours to 0215 hours.

9. Section 3 Aircraft were to carry only H.E. bombs, and to attack between 0210 and 0220 hours. Special reports on the success or otherwise of the raid at 0200 hours were to be provided by a specially selected crew from each Lancaster Squadron and by one crew from each of 12, 103, 142 and 301 Squadrons.

Aircraft of 1 Group were instructed to bomb from as low a height as possible compatible with the weather conditions and the intensity of the opposition (but not below 4000 feet). These crews were not to carry flares. Aircraft in other Groups were not to release their flares before the Pathfinder Force was due to have left the target (i.e. 0155 hours).

Routes

10. 1 Group Base-Cross Coast between Southwold and Frinton - Furnes - Searbrucken - Turn Right - Berck - sur-mer-Dungeness.

11. 3 Group Dungeness - Berck-sur-mer - Saarbrucken - Return same route.
12. P.F.F. Clacton - Furnes - Saarbrucken - Berck-sur-mer - Dungeness.
13. 4 Group Base - Furnes - Saarbrucken - Return same route.
14. 5 Group Orfordness - Furnes - Saarbrucken - Berck-sur-mer - Base.

Weather

15. Bases:- Generally cloudy. Rain in East Anglia at first. Patches of cloud below 1,000 ft. over areas South of the Wash decreasing during the night. Mist patches developed over North Lincolnshire and South Yorkshire towards dawn.
16. Route:- 8/10ths. to 10/10ths. cloud from S. North Sea extending overland to 4°E; main top 8,000 to 9,000 feet. Over French coastal area 10/10ths medium cloud above, top 16,000 ft. otherwise only broken cirrus cloud above, mainly 4/10ths to 10/10ths. Visibility - 10-20 miles above cloud.
17. Target:- Mainly cloudless; occasional patches 2/10ths. to 3/10ths. layer cloud; top 8,000 feet. Visibility mainly 10-20 miles, but some slight haze reported at times.

Results

18. Photographic Evidence

Number of photographs taken with Bombing	= 95
Number of photographs which have been plotted	= 71
Number which have been plotted within 3 miles of the aiming point.	= 0
Number of photographs plotted within 3 miles of Saarlautern.	= 59

The photographic evidence shows that a very concentrated attack was delivered on Saarlautern in mistake for Saarbrucken, 70 of the 71 photographs which have been plotted being centred on this town. The remaining plotted photograph is of Saargemund. There is no evidence that Saarbrucken was attacked. Since this raid daylight reconnaissance cover of a small portion of N.E. Saarlautern and of the suburb of Fraulautern has been obtained. In the part of Saarlautern covered severe damage is seen to a group of buildings adjoining a sports stadium.

In Fraulautern there are 4 incidents of damage to industrial property and about 60 incidents of damage to residential property, which vary from damage to single houses to the devastation of areas up to $3\frac{1}{2}$ acres.

19. Almost all reports refer to the help given by the flares and incendiary "bleb" bombs dropped by the Pathfinder Force, and many crews relied on the placing of these for identification of the target. However, confirmatory fixes were stated to have been obtained from the following visual identifications:-

- (a) Loop of the River Saar in the town.
- (b) River island in centre of Town and Shape of Town.
- (c) Railway marshalling yards N.E. of Aiming Point.
- (d) Lakes to the South West of the Town.
- (e) Two bridges over river.
- (f) Woods N.E. of town.
- (g) Pinpoint on River Moselle and on River Saar.

Concentration and Timing of Attack

20. Whole force including Pathfinders. Number of aircraft bombing early = 0
 " " " " " late:-
 (a) 0-10 mins. Late = 30
 (b) 10-20 " " = 11
 (c) 20-30 " " = 2 = 43

Pathfinder Force

Number of Aircraft bombing early = 0
 " " " " in allotted period = 2
 " " " " late:- 1
 4 between 0 - 15 mins.
 2 " 5 - 10 "
 2 " 10 - 15 "
 4 by more than 15 " = 12

21. Visibility was excellent apart from some smoke obscurity towards the end of the attack. Half the attacking force bombed from heights of 10,000 feet or less, there being practically no opposition over the target and very little searchlight activity. All reports agree that the attack was extremely concentrated. Many fires had been started 15 minutes after the beginning of the attack, several extremely violent explosions were seen and crews to bomb state that the area was a mass of flames with a high column of black smoke. An 8,000 lb. bomb was dropped in this attack and was seen to burst with a terrific yellow flash between two fires in the centre of the town. Extremely heavy damage must have been done to Saarlautern.

Other Target Attacked

22. One Lancaster which developed engine trouble and was unable to locate the Primary Target bombed an unidentified built-up area.

Casualties

23. Number of Aircraft Missing.....4 (1.7%)
 " " damaged by flak.....7 (3.0%)
 Number of Interceptions.....23 (10.0%)
 " " Attacks by fighters.....5 (2.2%)
 " " Aircraft damaged by fighters.....3 (1.3%)
 " " " damaged, not due to enemy action..19 (7.4%)

24. Over the target area slight inaccurate heavy flak and practically no light flak or searchlight activity was reported. En route there was accurate predicted heavy flak at Abbeville, and some flak in other areas.

25. The number of interceptions, is rather high, but only 5 of these developed into attacks.

26. Our own observations indicate that 1 or 2 aircraft were possibly shot down by fighters, and 1 possibly by flak. One loss (a Lancaster) was probably not due to enemy action.

27. The low proportion of aircraft missing is probably due to the bombing of Saarlautern instead of Saarbrücken and the cloud en route which appeared to hinder both night fighters and flak.

Summary

28. An extremely concentrated attack was made at low cost, by the whole force on Saarlautern, which had been marked by the Pathfinder Force in mistake for SAARBRÜCKEN. The damage to Saarlautern must be very heavy.

EC/S. 26342/5/ORS.
 9th September, 1942.

1/2nd September, 1942.

Target	Op.	Type	No. of Sorties	Aircraft claiming to attack		Aircraft failing to bomb Primary				Casualties				Interceptions		
				Primary	Primary Area	Reached Target Area		Over Enemy Territory		Missing	Down by Flak	Damaged by Enemy Aircraft	Not due to Enemy Action	Attacked	Not Attacked	
						Bombed other Target	Abortive	Bombed other Target	Abortive							
S.W. ROCKEN	1	Hull II	8 *		8											1
		Hull III	10		10					1 m						1
		Hull IV	24 *		21			2	1			1 AC	1 E	3		1
		DoR. II	5		4				1				1 AC			2
		Stirling	29		27				1	1	1 m					2
	3	Hull III	27		25			1	2	1	1 m					2
		Hull	29		25			2	3	1	1 m			2 E		3
	4	Hull III	11		11									2 E		1
		Lanc.	62		59	1			1	1	2 m					4
	5	Hampden	7 *		5		1			1		1 m				
		P.F.P.	Stirling	7		5					2					
			Hull II	4		3			1							
			Lancaster	2		2										
			Hullington III	6		4				2					1 E	
				231		205	1	1	6	14	4	1 AC	3 AC	4 E	5	17
											6 m		1 AC			

* Not fitted Gee

Total abortive 21

304

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NIGHT	REPORT NO. 143
COPY NO. 195352	WAR ROOM
DATE 19 OCT 1942	AM
TIME	HOURS

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 19 OCT 1942.

(Karlsruhe; Mining)

15 OCT 1942

1. Meteorological Advice Submitted to the Command.

- 0915 hours. Developments in S.W. England and Bay of Biscay this morning were too uncertain to know what conditions at home bases will be tonight with any degree of confidence. Variable cloud with local thundery rain seems most probable. Over the coastal strip of N. Germany west of 9°E. and over parts of the Plain, broken medium cloud and broken low cloud are expected. A cold front is expected to lie from Holland - just N. of Ruhr-Copenhagen. South of this front cloud will decrease southwards and south of 50°N, well broken medium and low cloud are expected. Visibility over Germany will be moderate generally. Over N.W. France broken convection cloud is expected.
- 1230 hours. No change from 0915. Development to S.W. of England still obscure. Areas of rain at home bases are expected, however.
- 1615 hours. Some bases in country are expected to be out, but not sure which. Some, if not all, probably affected by rain and low cloud during night. Not yet prepared to say how severe conditions will be for take-off and landing. Route to Karlsruhe; not too severe, cloud first half of route; running out of cloud towards target. Karlsruhe: really good chance with only broken medium cloud and probably some patchy low. No one suggests that this target might deteriorate badly. Frisian Islands: suitable for gardening but better to wait until after midnight. Advantage in daylight landing but we should like to discuss the situation again at 2000 hours. Winds 50 - 60 m.p.h. at 10,000' over first half of route, probably decreasing towards target.
- 2030 hours, Karlsruhe - still looks very good, unlikely to have more than small patches of medium cloud. All Groups are prepared to see rain, mainly slight, spreading over them before time of return, they expect cloud base to go down to 1,000' above M.S.L. but risk of cloud to 600 ft. over any extensive area in the operational Groups is regarded as slight.

Executive Orders

2. Karlsruhe was in the area with promising weather conditions and of a suitable size to be attacked by the medium sized force available. It was also thought that an attack on the rather neglected spot might result in preventing the removal of the defences to other larger targets.

The weather risks to the bases and the phase of the moon made it advisable to attack late and return as near dawn as possible. The aircraft were routed to cross the coast on the outward journey at different places in about equal numbers the shorter range aircraft being given the shorter route to the target. All aircraft were to return by approximately the same route.

...../Sorties

Sorties

3. (For details see attached table).

(a)	Total number of Sorties.....	203	(200 to Karlsruhe)	
(b)	Number claiming attack on Primary..	173	(170 " ")	(85%)
(c)	Number of Abortive Sorties:-			
	Technical Defects.....	17		
	Attacked by Enemy A/C... 1	= 18		(9%)
(d)	Number claiming attacks on other targets...	4		(2%)
(e)	Missing.....	8		(4%)

Weight of Bombs Dropped on Primary

4. H.E.....191 tons.
Incendiary.....181 tons

Moon

5. Above the horizon; low; 47%

Plan of Attack

6. Zero hour: 0130 hours.

Period of Attack: 0130 - 0200 hours.

7. The Pathfinder force was given the task of marking the target between 0130 and 0135 hours for the main force which followed in two phases of incendiary or H.E. carrying aircraft.

a. The Pathfinder force was divided into two sections; the first section consisted of four aircraft which were to release flares to illuminate the target for the marker aircraft; after releasing their flares these four aircraft were to release 250 and 1000 lb. H.E. to disorganise the A.R.P. services; the second section of the Pathfinder force carried 250 lb. incendiary bombs which were to be dropped in salvos to produce "blob" fires at the aiming points, and target marker flares (red with green stars) which were to be released only if the aiming point could be positively identified.

9. The Pathfinders were to be followed by a force consisting of two-thirds of the remaining aircraft, manned by the best available crews, which were to attack between 0135 and 0155 hours. This force was composed of

- (a) Aircraft carrying 4 or 30 lb. Incendiaries
and (b) Lancasters carrying mixed loads of H.E. and 4 or 30 lb. Incendiaries.

10. The remaining aircraft of the main force were to attack with H.E. between 0150 and 0200 hours. One Lancaster of 97 Squadron was to drop 1 8000 lb. bomb in this phase.

11. Crews of 1 Group were detailed to bomb from as low a height as the state of the weather and the opposition allowed but not below 6000 feet.

12. The target was to be reconnoitred at 0200 hours by one specially selected crew from each Lancaster Squadrons and from each of 12, 103, 142 and 301 Squadrons, who were to report on the success achieved.

13. Since the target was at extreme Gee range navigators were warned of the necessity of obtaining good fixes on the outward journey to aid accurate D.R. and E.T.A.

Route

14. 1 Group:- Base - Cross coast between Hablethorpe and Orfordness - Ouddorp - Karlsruhe - Turn right - Berck-sur-mer - cross coast between Orfordness and Selsey Bill.

...../ 3 Group.

- 3 Group:- Base - Bradwell Bay - Dungeness - Berck-sur-mer - Karlsruhe - turn right - return same route.
- 4 Group:- Base-Orfordness-Furnes- Karlsruhe-Berck-su-mer- Orfordness.
- 5 Group:- Base-Orfordness-Ouddorp-Karlsruhe by Le Touquet - Cross coast part at Dover and part at Shoreham.

Weather

15. Basos:- Variable medium cloud. Small patches of low stratus formed during the latter part of the night. Visibility - moderate or good.

Route:- Mainly 5-9/10ths medium cloud, base 14,000 ft. A narrow frontal belt was crossed near the Ardennes, giving 8/10ths medium cloud, with some low cloud beneath. There was slight rain near this front with light rain or first in cloud. Visibility - moderate or good.

Target:- (Karlsruhe) 3/10ths to 8/10ths medium cloud, base 18,000 ft., some cirrus above. Visibility good.

Results

16. (a) Photographic Evidence.

Number of Photographs taken with bombing = 97
 Number of photographs plotted within 3 miles = 48 (50%
 of target.

Number of photographs showing target = 8

17. Night photographs suggest that about half the aircraft claiming attack bombed within 3 miles of the aiming point. Many of the photographs show fires burning in the city and these appear to have increased in size and intensity throughout the raid. The later photographs show considerable smoke. About 20 photographs have been plotted to the West of Karlsruhe, outside the 3 mile circle. Many of these cover the area of the docks where fires are also seen.

18. Subsequent daylight reconnaissance photographs show that this raid achieved great success. There has been heavy damage to industrial property at Gruminkel, and to the East end of the harbours, where 60 acres of industrial buildings and yards have been devastated. In all 27 factories have been affected in various degrees and about 30 other sheds or warehouses have been destroyed. The industrial premises which have suffered partial or complete destruction include a Fire-fighting Equipment factory, a Sewing Machine and Gas cooker works, two food factories, a factory making small electric motors, a textile works, a sawmill, an engineering works, a paint and dyestuffs factory and a concrete manufacturer's works. A long shed 500 feet x 60 feet in the railway repair shops has been severely damaged and 3 or 4 small sheds destroyed, as has also a shed 450 feet x 70 feet and a small shed in what is probably a transport depot. The main Railway Station has had at least one direct hit on a platform, as a result of which the tracks and some rolling stock, as well as the platform itself have been damaged. A direct hit on the line close to the West Station at Gruminkel has damaged 6 tracks. At Gruminkel also there is a direct hit on a build-up road, which has probably damaged a bridge.

At the aerodrome a barracks block, one of the hangars and a small shed have been destroyed and another barrack block damaged. Considerable damage was also done to a military barracks in the town. Public buildings severely damaged or destroyed include the administrative offices of the State, the main Post Office, the Museum and State library, an exhibition hall, the Provincial Court of Appeal, a Church, two hospitals and five schools.

Damage to residential and commercial property includes 260 acres of devastation mostly in the central and Beiertheim districts, and the destruction of a number of houses in various parts of the city.

...../over

Ground Sources report that during the attack as many as 200 fires were burning at the same time, that the Goods Station was still on fire the following afternoon, and that warehouses in the vicinity were severely damaged.

The Food Office, the Regional Treasury, the Police Headquarters, and the Main Post Office building were severely damaged. Over 800 houses are said to have been heavily damaged. Five days after the raid three-quarters of the town was still without electric current owing to the damage to the Power Station. On the evening of September 3rd rail traffic was being stopped at the outskirts of the town, and coal traffic through the town is reported to have fallen on September 4th and 5th by 30%. 500 trucks of coal on the harbour sidings and 12 sidings are said to have been destroyed. About a thousand people were evacuated from the town about 48 hours after the attack. It is also reported that the main Gas Container was destroyed and the water mains damaged in several places.

The inhabitants of Karlsruhe are said to believe that the success of this attack was due to the fact that a good proportion of the heavy flak defences was removed from the town on September 1st.

19. Observations by crews taking part in this raid, and particularly by those crews specially detailed to reconnoitre the target at the end of the planned period of attack confirm the success of this operation. Many large fires were seen to be well concentrated in the target area, and the glow produced was visible at a distance of 100 miles. Smoke rose to a height of 9000 feet. The amount of misdirected effort appears to have been very small, though a few reports mention bombs being dropped in open country to the West of the target. Almost all crews testify to the accurate pinpointing of the target by the Pathfinders whose flares were seen up to distances of 60 miles. All crews reported excellent visibility in the target area, apart from some slight ground haze and smoke in the later stages of the attack.

Concentration and timing of attack

20. Main force

Number of aircraft bombing early.....	1 (by 2 mins.)
" " " " late	65:-
between 0 and 10 mins.....	33
between 10 and 20 mins.....	24
between 20 and 30 mins.....	2
between 30 and 40 mins.....	5
between 40 and 50 mins.....	1

21.

Pathfinder Force

Number of aircraft bombing early.....	0
" " " " late.....	16:-
between 0 and 5 mins.....	8
between 5 and 10 mins.....	2
by more than 10 mins.....	6

Other Targets Attacked

22. The following targets were attacked instead of the Primary target:-

...../over

Target	Number of Aircraft Attacking	Result	Reason for not Attacking Primary
Aachen	2	(i) None observed (ii) Fire seen to start 6-7 mins. after bombing.	(i) Attacked by Enemy Fighter (ii) Petrol Shortage
Karlsruhe	2	(i) Bursts seen and fires observed to start. (ii) Incendiaries seen to burst and take hold	(i) Late take-off and slightly off course. (ii) Late take-off.

Casualties

23. The number of sorties, missing and damaged aircraft, and interceptions, are given below:-

Sorties	Missing	Damage		not E.A.	Interceptions	
		Flak	Fighter		Attacks	Approaches & Followings
200	8 (4%)	3(1.5%)	2(1%)	-	6 (3%)	14 (7%)

24. The total number of interceptions, 20 (10.0%) is rather high, but the proportion of attacks is not much above the average. Over the target area, flak was moderately heavy, having apparently been strengthened since our last raid in October. There were searchlight cones operating on the outskirts of Karlsruhe. Flak was reported from known defended areas en route.

25. Our own observations suggested that 3 and possibly 4 of our aircraft were shot down by fighters, and 4 by flak. A Sieg Heil heard in the South Dutch area cannot be identified with any report of aircraft seen shot down.

26. The cloud conditions and good visibility favoured the enemy defences, particularly fighters, which were very active.

Summary

27. This attack on Karlsruhe can be classed as a highly successful operation carried out in excellent weather conditions with comparatively light casualties. The target was accurately marked by the Pathfinder Force.

Mine-laying

28. 3 aircraft of 3 Group were detailed to lay mines in the Frisian Islands area. All three successfully accomplished their task without incident, 10 mines being laid.

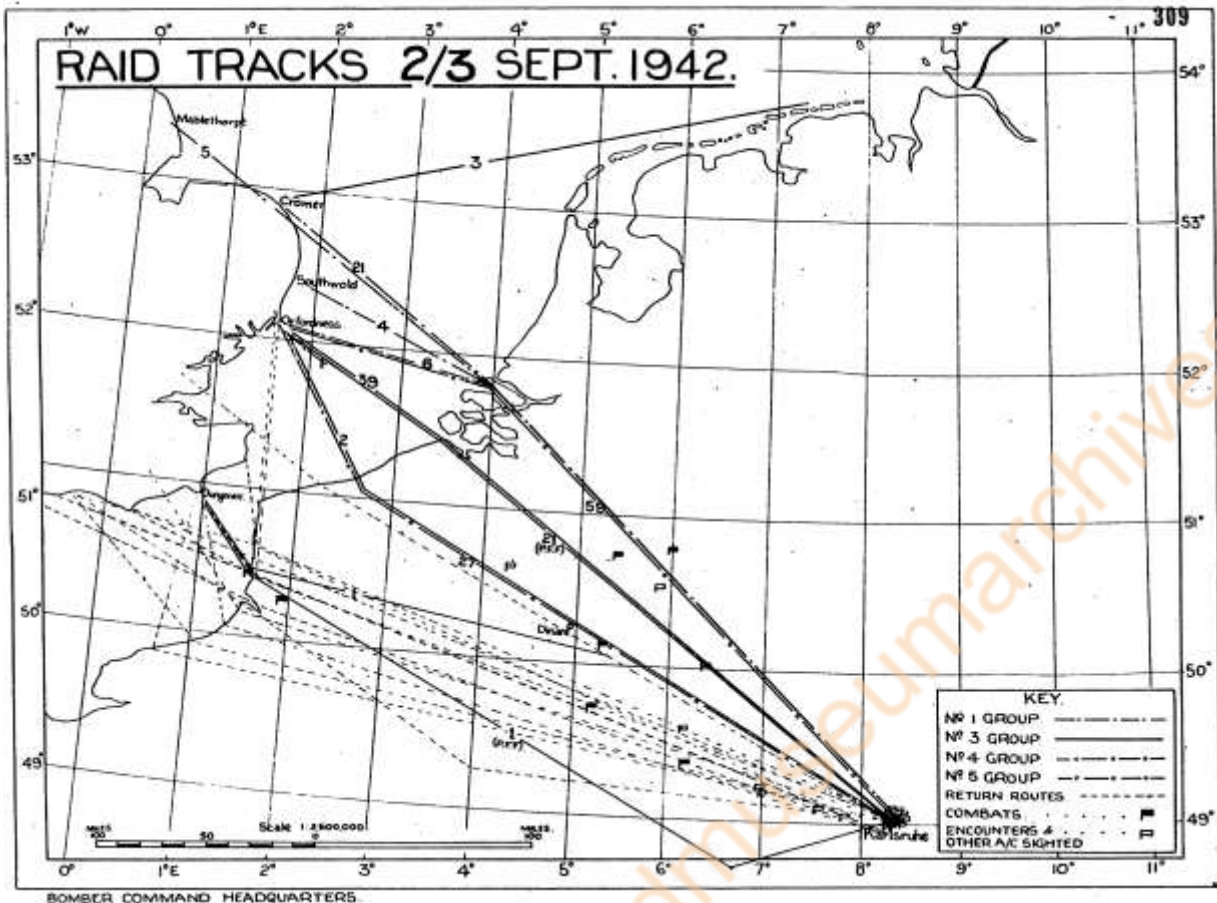
BC/S. 26342/5/ORS.
10th September, 1942.

Target	Op.	Type	No. of Sorties	Aircraft claiming to attack		Aircraft failing to bomb Primary			Missing	Casualties			Interceptions			
				Primary	Primary Area	Reached Target Area	Over Enemy Territory	Not over Enemy Territory		Down by Flak	Damaged by Enemy Aircraft's	Shot down to Enemy action	Attacked	Not attacked		
KILSHURR	1	Well. II	8 *		6				1	1					308	
		Well. III	12		10				1							
		Well. IV	24 *		18			2	1		1 m			1		1
	3	Well. III	2		2									1		1
		Well. III	18		15				3					1		2
	4	Stirling	23		20			1	1	1	1 m			1		3
		Well. III	23		21					1	2 m			1		1
	5	Well. III	4		3					1						
		Lancaster	61		54			1	1	4	2			2		
		Hampden	5 *		5				1	1						
		P.F.F. (3 Group)	Stirling	4		4										
		Well. III	5		4				1							
		Lancaster	8		7				1							
		Well. III	3		3											
	Totals	200		170			4	3	15	8	3 m	1 m	6	14		
KILSHURR	3	Well. III	2		2											
		Stirling	1		1											
	Totals	203		173			4	3	15	8	3 m	1 m	6	14		

* Not fitted Gun

Total abortive = 18

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NIGHT RAID REPORT NO. 185353
 5067942
 COPY NO. 16 HOURS
 25 OCT 1942

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 3/4TH SEPTEMBER, 1942.

(ENDEN)

Meteorological Advice Submitted to the Command

1. 0915 hours, Estimated midnight position of fronts: (1) cold front Shetland - Texel - 45°N. 2½°E. (2) occluded front N. Scotland - 55°N. 2°E. - Wash - S.W. England, becoming cold to 48°N. 10°W. with narrow warm sector in Western Channel.
- Home Bases:- Cloud breaking and lifting behind occluded front. Much low cloud and rain on the front and over S.E. England.
- Germany:- between 5°E and 10°E and north of 50°N. much medium cloud, scattered thunderstorms. Further east over N. Germany: well broken medium cloud, patches of low cloud. South of 50°N over Germany: much medium cloud in the west, well broken medium cloud further east. Along the cold front and between the cold and occluded fronts here will be much low cloud and occasional rain, also cloud will extend to great heights in places (particularly near fronts) with icing above freezing level, which is 8-10,000 ft. Visibility will be everywhere moderate to good.
- 1245 hours. The main difference from advice at 0915 hours is that the cold front may be less active over the Continent than was suggested. Some breaks in cloud are therefore expected both over N.W. France and most of N.W. Germany, but it is unlikely that the breaks would be very extensive. In no area west of 10°E. can a cloud amount less than 5/10ths be assured, except possibly in the extreme south.
- 1610 hours. All groups think that all bases will be fit tonight.
- Enden:- expected to have 10/10ths total cloud at different levels. Best time over target for maximum cloud cover expected to be 0200 hours., but timing, which is important, may not be quite exact. Advise that flight be made below 9,000 ft. owing to risk of severe icing above freezing level.

Executive Orders

2. Weather conditions were unfit for major operations, and a small blind bombing attack on Enden was substituted.

Sorties

3. (a) Number of sorties despatched.....11 (see table)
 (b) Number claiming attack on Primary target.....6 (54.5%)
 (c) Number of abortive sorties.....3 (27.3%)
 { Technical Defects.....2 }
 { Lack of cloud cover....1 }
 (d) Missing.....?,/Moon

Moon

4. Moon rose during course of operation; 57%

Weather

5. Target 10/10ths medium cloud, top 11,000 ft.
6. Route Cloudy with rain in west North Sea with bumpiness and static near coast of East Anglia and severe icing at 17,500 feet. Becoming 10/10ths medium cloud in layers from 5°E.
7. Bases Some rain in East Anglia till 0100, with cloud mainly above 1000 ft. Otherwise fine, well broken cloud. Visibility moderate to good.

Plan of Attack

8. This operation was planned as a Gee attack with the use of cloud cover. Approach was to be made either from West to East or from North to South.

Co-ordinates of the target were given as:-

W - E	B.4.44	G 39.59
N - S	B.4.43	G 39.60

Bombs were to be released when the pulses first appeared in line.

Results

9. Weight of bombs dropped:- H.E.:- 15.1 tons
Incendiary:- Nil

10/10ths cloud was encountered over the target. Bombs were dropped by navigational aid i.o.

Gee fix.....	1
Weak Gee fix and E.T.A.....	1
E.T.A.....	4

No results were observed. 1 aircraft saw the flashes of its bombs through the cloud.

Casualties

10. There are no reports of damage on this night, but 2 aircraft are missing from this operation. In the absence of evidence both losses must be ascribed to causes unknown.

BC/S. 26342/5/ORS.
11th September, 1942.

3/4th September, 1942.

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Target	Gp.	Type	No. of Sorties	Aircraft claiming to attack		Aircraft failing to bomb Primary			Casualties				Interceptions		
				Primary	Primary Area	Reached Target Area		Over Enemy Territory	Not over Enemy Territory	Missing	Dam. by Flak	Damaged by Enemy Aircraft	Not due to Enemy Action	Attacked	Not Attacked
						Bombed other Target	Abortive								
BIRM	3	Wall III	6		2				1	1	2				
		Stirling	3		2					1					
		Halifax	1		1										
	4	Wall III	1		1										
		Total:-	11		6					2					

Total abortive 3

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BOMBER COMBINED REPORT ON NIGHT OPERATIONS 4/5TH. SEPTEMBER, 1942.(Bremen and Minelaying)Meteorological Advice Submitted to the Command

1. 0925 hours. Estimated midnight position of fronts as (1) occluded 60°N 13°E - Copenhagen - 50°N 7°E then southwestwards (2) cold front 56½°N 55°N 14°E - Mannheim. Home Bases: convection cloud dispersing, moderate to good visibility. Germany: near and S.E. of frontal system: some rain and low cloud, much medium cloud still further east. On N.W. side of frontal belt there will be a narrow strip of medium cloud but in the area, including Bremen, Wilhelmshaven, Aachen and to the west of Ruhr, cloud is expected to disperse except that on the coastal strip from Emden-Westwards, some broken convection cloud is expected to persist. Over N.E. France north of front, cloud is expected to disperse but over N.W. France there will be some convection cloud, with breaks. Over southern France weather will be generally fine. Over Germany, behind front, visibility will be moderate to good. Wind on route to Bremen at 10-15,000 ft. is expected to be 40 m.p.h. first half of route. 60 m.p.h. second half, from S.W.
- 1230 hours. Alto-stratus cloud has been reported at 10.00 hours in S.W. Ireland, and while this must be regarded as a threat of rain and low cloud to home bases during the night, this is no definite indication that the threat is serious. As regards targets, it now seems probable that this front will be fully as far east as was indicated at 0925, and probably further east. This improves prospects of cloud dispersing in the Bremen, Wilhelmshaven area tonight.
- 1620 hours. At time of take-off all groups expect slight rain from medium cloud. Bremen expected to be clear of cold front. There is a warning that medium cloud from new development west of Ireland may have got to this target before time of attack. Bases for return are extremely doubtful and we should like to discuss this later, but we expect rain and low cloud for return. Suggest that time over target be arranged for daylight return. Outlook: vague and unsettled.
- 2015 hours. Targets:- no change from 1620. Route: strong winds reaching 50-55 m.p.h. 10-15,000 ft. backing between bases and target: strong wind at bases for return. Bases:- 4 Group will have most rain, likely to be continuous, moderate but for return. Do not expect cloud base below 1,000 ft. visibility 2-4 miles. 1 Group expects continuous slight rain but cloud base not falling below 1,000 ft. above M.S.L. 1,5, and 92 Groups expect intermittent rain; for return cloud will fall to about 1,000 ft. above M.S.L. with visibility 2-4 miles. 2 and 3 Groups: conditions much the same as for 1,5 and 92 Groups but more definite about cloud base being 1,000 ft. or more above M.S.L. for return. 91 Group is threatened with warm air and after 0300-0400 hours is not considered suitable for diversion owing to low stratus.

...../Executive Orders

Executive Orders

2. The weather was fine in North West Germany for a short distance inland. There was no useful moon, and it was therefore considered a favourable opportunity to re-attack the heavily defended port of Bremen which, being situated on a river, was not expected to be difficult to find on a dark night. 25 Lancasters of 5 Group were given the Focke-Wulf Aircraft Works as their particular aiming point. Wilhelmshaven was chosen as the last resort target, to be attacked if the primary were found to be obscured by cloud.

Sorties

3.	(a)	Number of Sorties Despatched	251
	(b)	Number claiming attack on Primary	212 (84.5%)
	(c)	Number claiming attack on alternative target	3 (1.2%)
	(d)	Abortive Sorties:-	
		Technical Defects	20
		Attacked by fighter	2
		Sickness of Crew	2
			= 24 (9.6%)
	(e)	Missing	= 11 (4.4%)
	(f)	Result not known (crashed on return)	= 1 (0.4%)

Weight of Bombs Dropped (On Bremen)

4. (a) H.E. 246.5 tons (including 49 4,000 lb. bombs and 1 8,000 lb. bomb)
 (b) Incendiary 234.0 tons.

Moon

5. Low; 28%

Plan of Attack

6. Zero hour:- 0150 hours.
 Period of attack:- 0150-0220 hours.

The attacking force was again divided into three sections as follows:-

- | | <u>Time of Attack</u> |
|--|-----------------------------|
| (a) Section 1 - Pathfinder Force | Zero to zero + 5 mins. |
| (b) Section 2 - Aircraft carrying Incendiary or mixed H.E. and Incendiary loads. | Zero + 5 to zero + 25 |
| (c) Section 3 - Aircraft carrying H.E. | Zero + 20 to zero + 30 mins |

7. Section 1, the Pathfinders, were to mark the target with flares and 250 lb. incendiary bombs. The primary method was by the release of bundles of flares (Stirlings 12 x 3, Halifaxes 8 x 3, Lancasters 6 x 4, Wellingtons 9 x 3 flares) at .6 second intervals. These flares were set so as to open at 1500 feet above the target. Each aircraft of the Pathfinder Force also carried marker flares (red emitting green stars) which were to be released only on positive identification of the target. The number of these flares carried by the various aircraft were: Stirlings, Halifaxes and Wellingtons 1 x 3, Lancasters 1 x 4.

Sticks of 250 lb. incendiaries released at 0.5 second intervals were to be used as a secondary method of target marking. The loads per aircraft were: Stirlings 11 x 250 lbs; Halifaxes 6 x 250-lb. Lancasters 7 x 250 lbs; Wellingtons 8 x 250 lbs.

8. Section 2 was composed of about two-thirds of those aircraft from
/Groups

Groups 1, 4, and 5 which were taking part in this operation. These aircraft were to carry loads of 4lb. or 30 lb. incendiaries (Halifaxes and Lancasters to carry mixed loads of H.E. and I.B.)

9. Section 3 was composed of aircraft carrying loads of H.E. only (remaining aircraft of Groups 1, 4 and 5.)

10. One crew from each squadron of 5 Group was detailed to reconnoitre the target at the end of the allotted period and to report on the measure of success achieved. Navigators were warned that Gee signals might fade before the target was reached and that, as wind speed was high, errors in computing wind velocity would cause serious errors in D.R. plotting.

Routes The briefed routes were as follows: see also the accompanying diagram.

11. 1 Group Base - cross coast between Mablethorpe and Saltfleet - Vlieland - Cloppenburg - Bremen - Turn left - Juist - 5400 N 0500 E - cross coast between Mablethorpe and Hornsea.
- 3 Group Base - Cromer - South end of Vlieland - Cloppenburg - Bremen - Juist - 5400 N. 0500 E - Cromer - Base.
- 4 Group Base - Hornsea - Vlieland - Bremen - 5420 N. 0500 E - Hornsea - Base.
- 5 Group Base - Vlieland - Cloppenburg - Bremen - Juist - 5400 N. 0500 E - Base.

Weather

12. Bases:- Some rain in 4 Group from 0300 with cloud base above 1,000 ft. patches of low cloud developed over bases in all Groups except 4 and 1 towards 0600. Otherwise weather was fine with well-broken cloud and good visibility.

Route:- Good visibility, little cloud on outward journey, increasing high cloud in N.W. on return.

Target:- No cloud. Visibility good, a little haze.

Results

13. Photographic Evidence

Total number of photographs taken with bombing that could reasonably be plotted = 105

Total Plotted (see accompanying diagram)

By Ground detail.....	65	within 3 miles.....	61
By Fire Tracks.....	22	between 3 & 5 mls....	18
		outside 5 miles.....	8
Total:	<u>87</u>	Unplotted	<u>18</u>

of the 18 unplotted photographs (with bombing),

- 13 show open country
- 4 have many fire tracks on a background of open country (indistinct)
- 1 shows fire tracks - no ground detail.

Of the photographs taken on this raid, 65 have been plotted by ground detail and 22 by fire-tracks (see diagram). The positions of these last are approximate only, and they are indicated on the diagram by broken lines; 61 of the photographs (58%) are plotted within 3 miles of the centre of Bremen, 79, or 75%, within 5 miles; this represents a very good concentration for this target.

14. The night photographs show at least 75 sticks of incendiaries and 7 probable 4000 lb. bombs within Bremen and its immediate neighbourhood, apart from many

from many other bomb explosions which cannot be related to ground detail. In some areas, e.g. north and east of Bremen, there were almost certainly more sticks than can be identified from the photographs. In the later stages of the operation there was a tendency for the weight of the attack to spread out from the centre of the target. In the majority of cases where established fires are recorded on the night films, day cover has revealed damage. A stick of incendiaries fell across part of the Focke-Wulf works towards the end of the attack, but apparently failed to take hold.

15. Daylight reconnaissance next morning revealed that considerable damage had been caused to factories, warehouses, railways and residential property. At the Weser aircraft works the machine shop has been almost completely destroyed and other buildings have suffered minor damage. At the Atlas Werke shipyard a long building containing workshops has been gutted. Elsewhere about 25 industrial buildings, including railway and dockside warehouses have been completely destroyed or very severely damaged. At the Focke-Wulf Works a direct hit on the South end of a hangar-type building 265' x 205' has caused considerable damage to it.

Commercial and residential damage was also on a heavy scale, though its exact extent cannot be estimated from these photographs owing to the amount of smoke from fires still burning at the time of photography. A number of municipal and public buildings have suffered severe damage including the Rice Exchange and a barracks. The largest area of destruction measures about $6\frac{1}{2}$ acres, but there were a great number of lesser incidents.

16. Although a few reports mention some scattered fires outside the target area, on both sides of the river, there is no doubt that the main weight of the attack fell on Bremen, and that it was concentrated and intense. The glow from the many fires started was visible from distances of over 100 miles. Many 4,000 lb. bomb-bursts were seen in the town, North of the river. An 8,000 lb. bomb dropped by a Lancaster was seen to burst in the target area. Searchlight dazzle and slight haze made identification of ground detail difficult. In most instances it was impossible to identify, positively, the Focke-Wulf factory, but fires and H.E. bursts were reported by several crews in its estimated position.

17. All reports agree that the major proportion of the P.F.F. accurately marked the target, although there are a few references to sticks of marker flares being dropped a few miles West of the town. As on the previous attack on Karlsruhe both marker flares and "blob" incendiaries are stated to have been extremely helpful for identification of the target. The timing of the beginning of the attack by the P.F.F. was accurate, although about three-quarters of the section overshot their allotted period of operation.

18. The first part of the homeward route between Bremen and the coast was reported to be very heavily defended by searchlight and flak concentrations, although the more Southerly route into the target was comparatively quiet.

Concentration and Timing of the Attack

		<u>Total</u>
19.	<u>P.F.F.</u> (a) Number of aircraft bombing early	1
	(b) " " " " late:-	(flares only - 2 mins)
	0-5 mins.	6
	5-10 mins.	6
	10-15 mins.	2
	15-20 mins.	<u>3</u>
	(c) " " " " in	
	allotted period	6
	<u>Main Force</u> (a) Number of Aircraft Bombing early	
	by 15 mins.	1
	by 2 mins.	2
		= 3

..../(b)

(b) Number of aircraft Bombing later:

between 0 and 10 mins.	31	
" 10 and 20 mins.	4	
" 20 and 30 mins.	2	= 37

(c) Number of aircraft bombing in allotted period 172

Other Targets Attacked

20.

Target	Number of Aircraft Attacking	Result	Reason for not attacking Primary
Wilhelmshaven	2	(1) flash of bomb seen; location unknown. (2) Bombs seen to explode in S.W. area of Target; one large fire started.	(1) Unable to identify primary. (2) Covered in searchlight.
Groningen (believed)	1	Results not seen	Hit by flak

Casualties

21. The number of sorties, missing and damaged aircraft, and interceptions were as follows:-

Sorties	Missing	Damaged		Interceptions	
		Flak	Fighter	Non Enemy Action	Approached
251	11(4.4%)	30(11.9%)	3(1.2%)	5(2.0%)	3(1.2%) 12(4.8%)

22. Our own observations indicate 6 losses to fighters, 4 to flak (over the target) and 1 to "unknown causes". In view of the enemy's claim to have shot down 11 of our aircraft, this latter loss was also probably due to enemy action. Losses on this night were not unduly high, but flak damage was higher than usual. This was probably influenced by the clear, dark night and little haze, aiding the searchlights and flak defences.

23. More than half the night photographs plotted within 5 miles of the target show heavy flak, the measured intensity being 9 single-gun discharges per aircraft, from batteries consisting, mostly, of six guns or under.

Light flak is also seen on more than half these photographs. Searchlights are recorded on just over one-quarter of the photographs, some of which show them to have operated in clusters.

This evidence indicates that heavy flak was fairly intense, but that searchlight activity (in the target area) was less than usual.

A number of crews reported the route to the target as being extremely quiet, but a considerable proportion of 5 Group stated that the first part of the return route was over extremely heavy flak defences.

Summary

25. This attack on Bremen, carried out in good weather conditions with casualties about average for this target, achieved a large measure of success, the exact extent of which cannot be more precisely determined until the area covered by reconnaissance has been extended.

MINELAYING

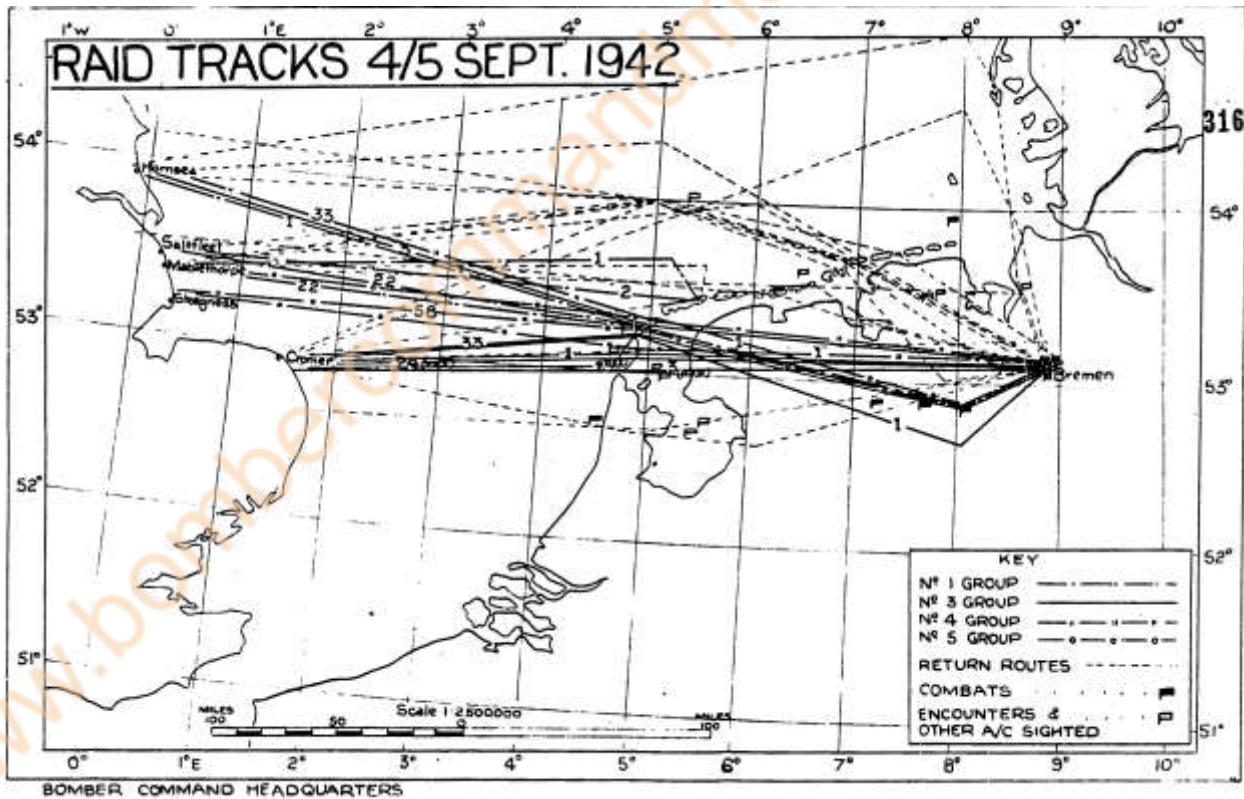
24. A total of 6 mines were laid by 3 Wellingtons of 4 Group in the Frisian island area. These aircraft accomplished their task without incident.

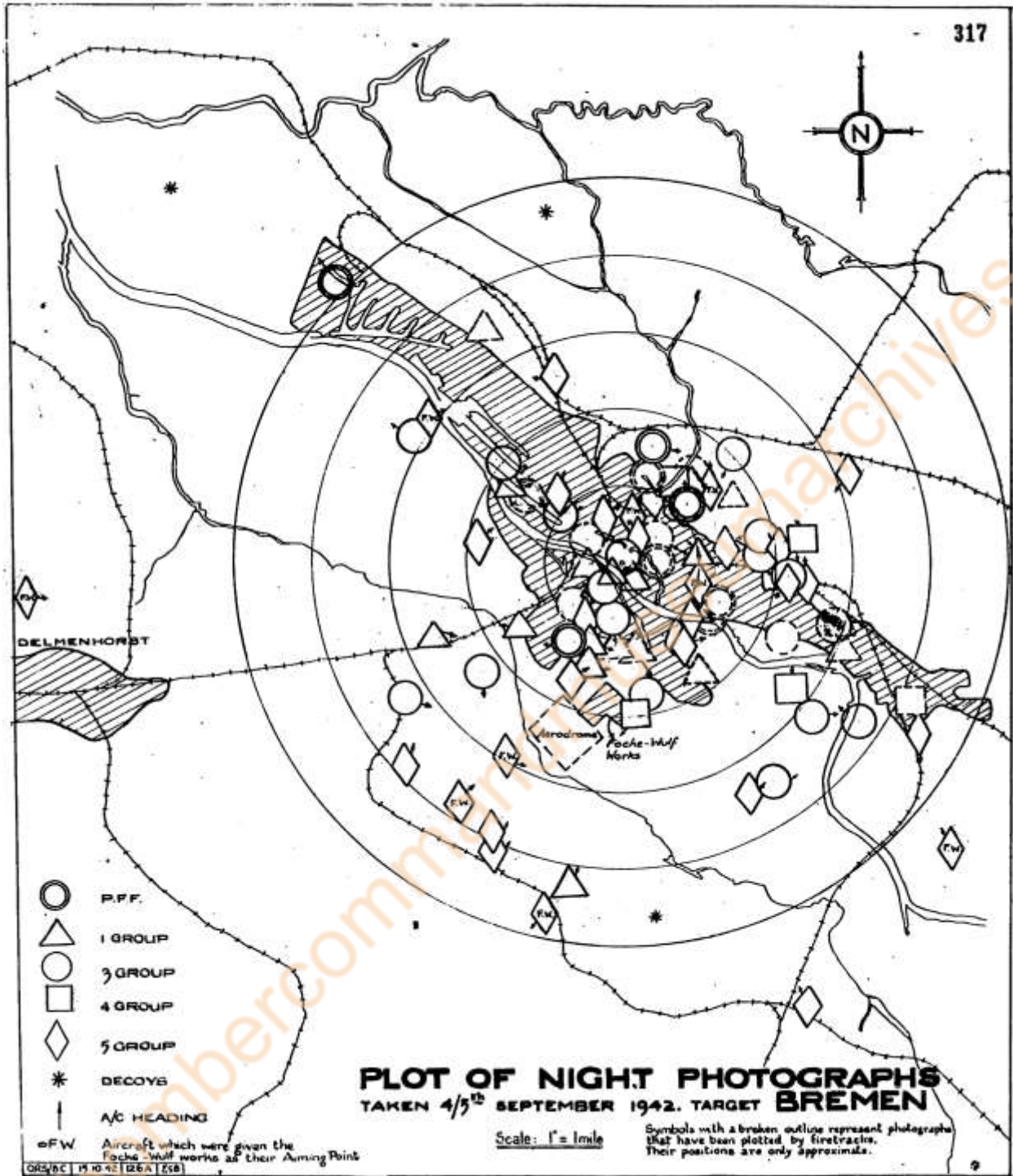
BC/S. 26342/5/OPS.

Target	Op	Type	No. of Sorties	Aircraft claiming to attack		Aircraft failing to bomb Primary			Aircraft not known	Casualties			Inter-ceptions			
				Primary	Primary Area	Reached Target Area	Bombed other Target	Abortive		Over Enemy Territory other than Target	Not over Enemy Territory	Down by Flak	Damaged by Enemy Aircraft	Not Justified	Attacked	Not Attacked
BREMEN	1	Well. II	8 *		6				1							
		Well. III	13		13											
		Well. IV	32		28				2		2		1 E	1	315	
			Halifax	5		4					1					
	3	Well. III	33		28						3				2	
		Stirling	30		28						1				1	
	4	Halifax	30		25						5			1 E	2	
		Well. III	5		5						1					
	5	Lancaster	70		59						1				2	
		P.P.F.												1 AC		
		Stirling	6		6											
		Halifax	6		6									2		
		Lancaster	6		6											
		Well. III	7		4								1 AC			
		Total	251		212	1		3	3	20		11	1 B 4 AC 25 u	2 AC 1 m 1 AC	4 E 1 AC	2 12
DOELYDGE	1	Well. IV	3 *		3											
Total			254		215	1		3	3	20		11	1 B 4 AC 25 u	2 AC 1 m 1 AC	4 E 1 AC	3 12

* Not fitted Gee

Total Abortive = 24





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BOMBER COMMAND REPORT ON NIGHT OPERATIONS 6/718. 6 NOVEMBER 1942.

318

DUISBURG
 Mineslaying
 Leaflets.

NOV

Metereological Advice Submitted to the Command.

- 0915 hours. Night position of cold front Berlin to Mannheim. Over an area approximately 50 miles behind this line there will be broken medium cloud. To the north-west of this area there will be little or no cloud, with good visibility apart from local smoke pollution. On the north-west coastal strip of Germany, the north-westerly winds will bring patches of strato-cumulus in as far as Hamburg and Bremen. Surface drift in the Ruhr W.N.W to West. Local visibility troubles in the north due to smoke. Home Bases:- Little or no low cloud.
- 1215 hours. No change, It seems most unlikely that any difficulties will arise to-night.
- 1600 hours. Information from aircraft being ferried across the Atlantic showed rain at 0400 hours this morning at 25° W. 4 Group consider that this may constitute a threat to bases but other groups are satisfied that this threat is negligible. All Groups expect to expect local mist troubles towards dawn, confined to low lying stations. Target area - Duisburg - little or no cloud; good visibility. Heligoland Bight area, 4-8/10ths convection cloud. Winds 260° - 270° at 45 m.p.h.

Executive Orders.

The Ruhr was the obvious target area, because cloudy weather over Germany and very high wind at operational heights limited the range. Duisburg was selected as the target, because there was expected to be a north-westerly wind, which would give comparatively clear conditions there.

Statistics

(a)	Number of Sorties despatched	307	
(b)	Number claiming attack on Primary	177	(57.5%)
(c)	Number claiming attack on other targets (Enemy Territory)	1	
(d)	Abortive Sorties:-		
	Technical defects	17)
	Flak damage	1)
	Threatened attack by fighter	1)
	Faulty Navigation	1)
		20	(9.7%)
(e)	Missing	8	(3.9%)
(f)	Result not known (crashed on return)	1	

Plan of Attack

4.	Zero hour	-----	0240 hours.
		<u>Period of Attack.</u>	
	(a) Pathfinders	-----	0240 - 0300 hours.
	(b) Main Force:		
	Section 1. (incendiary wave)	-----	0245 - 0305 hours.
	(c) Section 2. (H.E. wave)	-----	0300 - 0310 hours.

5. The P.F.P.'s primary method of marking the target was to be by bundles of reconnaissance flares released at 4 second intervals, to open at 1500 feet over the docks and aiming-points in the town. If weather conditions over the target rendered it necessary and Gee functioned satisfactorily, early aircraft of this force could release their flares on Gee fix; crews of the Main Force were therefore to be warned that the earlier flares might not be exactly over the aiming points. As a secondary method of marking the target, the P.F.P. aircraft carried 2 green marker flares, which emitted red stars, and one red marker-flare, all of which were only to be released on positive identification of the aiming-point. Stirlings and Wellingtons of the P.F.P. carried 1900 lb. or 500 lb. G.P. bombs. The first section of the Main Force was to consist of about two-thirds of the remaining aircraft, manned by the best crews and carrying maximum loads of 4 lb. or 30 lb. incendiaries, or mixed loads of H.E. plus incendiaries. 6% of the 4 lb. incendiaries were to be of the explosive type. The second section consisting of all the remaining aircraft was to drop heavy H.C. or G.P. bombs. One crew from each Lancaster Squadron, and one from each of 12, 103, and 105 Squadrons were to make special reconnaissance of the target at 0310 hours and to report on the degree of success achieved.

6. All Gee aircraft were to approach the target from west to east along the "C" lattice line, and to return along this line from the target to the Dutch coast. Since it was considered possible that interference might render homing to the target difficult, navigators were instructed to pay careful attention to D.R. and E.T.A. Bombs were to be released on visual identification of the target, which would be reached approximately when the pulses first appeared in line. Crews were to be warned of the danger of confusing the River Maas with the river Rhine.

Routes. The briefed routes were as follows. (see also the accompanying diagram):

7. 1 Group: From coast between Mablethorpe and Orfordness - Noordland - Duisburg - Ouddorp - coast between Mablethorpe and Orfordness.
- 3, 4 and 5 Groups: Orfordness - Noordland - Duisburg - Ouddorp - Orfordness

Weather Encountered.

8. Target:- Little or no cloud. Visibility good, but patches of thick haze.

Route:- No cloud, becoming 6/10ths. to 10/10ths. over sea, base 6,000 ft. tops 8,000 ft.; breaking to small amounts at 5-6° E. Visibility good.

Bases:- Fine. Moderate to good visibility. The moon was 13% illuminated and above the horizon.

Navigational Aids.

9. Of the aircraft fitted with Gee which claim to have attacked the primary area, 30 (19%) reported that they obtained Gee fixes over Duisburg; three of these aircraft bombed blindly on their fixes.

Weight of Bombs Dropped by Aircraft claiming to attack Primary.

10. (a) H.E. 259 tons, including 1 X 8000 lb. 83 X 1900 lb.
51 X 4000 lb. 89 X 1000 lb.
- (b) Incendiary 164 tons.

Night Photographs.

11. Number of photographs taken with bombing that have been plotted (see accompanying diagram):

By ground detail.....44	within 3 miles.....24
By fire tracks..... 0	between 3 and 5 miles.....9
	outside 5 miles.....11
	Total. 44

Unplotted photographs (with bombing):

that have recorded ground detail (all of open country).....31
showing fire tracks only.....40
Total. 115

The 44 plotted photographs taken with bombing are distributed as in the table above, while the 31 unplotted photographs which have recorded ground detail all show areas of agricultural land in open country. A further 40 negative frames, exposed with bombing, have registered fire tracks alone, and are evidence that the aircraft concerned bombed districts in which incendiaries were burning. In view of the concentration of attack revealed by the plotted photographs, it is reasonable to expect that a certain number of these aircraft attacked Duisburg. This number may be estimated at between a third and one half, a figure suggested by comparative data from other raids for which fire plots are available.

12. Subsequent reconnaissance revealed no large areas of devastation but a considerable number of fire and H.E incidents, concentrated almost entirely in the Southern half of the town. 5 buildings in the United Steel Co. works at Heiderich have been destroyed. Elsewhere about 20 industrial buildings have been destroyed and an equal number damaged, 7 of them severely. The factories affected include an iron works, weaving-sheds; a machine-works, a tobacco factory, a starch factory, a soda works and a chemical works. There is also some damage to railway tracks and installations. From 130 to 150 houses or small buildings in residential districts have been destroyed or severely damaged. It has also been reported that as many as 90 barges were sunk as a result of this attack rendering the harbour temporarily unserviceable.

13. This attack on Duisburg was less concentrated than the previous operations, those against Karlsruhe and Bremen. This was probably due, in part, to the denser ground haze over the target area. Numerous fires were seen to be scattered in the town, and a large column of black smoke from a presumed oil fire in the dock region was reported by several crews including two who had been detailed to make a special reconnaissance of the target and who obtained photographs with bombing of Duisburg. Several fires were reported in woods west of the river; dummies in this region appear to have attracted some attention while the three photographs plotted near the sheet of water at Ruzeln 4 miles south-west of the aiming-point suggest that this may have acted as a decoy for the Rhine. Most reports agree as to the usefulness of the P.P.F. flares as an aid to target identification, but their effect was sometimes marred by upward reflection from ground haze and seas were rather scattered.

Timing of Attack.

14. P.P.F. (a) Number of aircraft bombing early:- by 0-5 mins.	= 3 (flares only).
(b) " " " " late:- by 0-5 mins - 2	
(c) " " " " by 10-15 mins - 3	= 5
	in allotted period = 11

Main Force:-

(a) Number of Aircraft bombing early	= 0
(b) " " " " late:- by 0-10 mins. 13	
	by 10-20 mins. 3
	by 20-30 mins. 2
(c) " " " " in allotted period	= 18

Other Targets Attacked.

15. 1 Wellington which failed to reach the primary owing to engine trouble, claims to have attacked an aerodrome on Seibowen Island close to Harastede. Results were not observed.

Casualties.

16. The number of missing and damaged aircraft, and interceptions, are given below.

Sorties	Missing	Damage				Interceptions	
		Flak	Fighter	Both	Not Enemy Action	Attacks	Approaches
207	8 (3.8%)	26 (12.8%)	3 (1.4%)	1 (0.5%)	2 (0.9%)	10 (4.8%)	20 (9.7%)

The proportion damaged by flak is very high and the number of attacks and other interceptions is rather high, as on previous nights.

Claims by enemy fighters to have shot down two of our aircraft over the Dutch coast correspond with our own observations. Over the target a further aircraft was probably shot down by a fighter and 5 more by flak.

Our losses, therefore, may be allocated as 5 to flak and 3 to fighters.

17. Examination of the night photographs has revealed that heavy flak was fairly intense in the target area, being recorded by more than three-quarters of the 39 aircraft, which obtained photographs, plotted within 5 miles of the aiming point. The measured intensity in this area is 9 single-gun discharges per aircraft from batteries consisting of 6 guns and under; there are several references to the use of a flashless propellant on this night. The photographs show no light flak, but 50% record searchlights.

Summary

18. Although this attack on Duisburg lacked the concentration attained in the previous two major operations against Karlsruhe and Bremen, there is no doubt that the main weight of the attack fell on Duisburg and that useful damage was done. The more scattered nature of the attack can probably be attributed to the thicker ground haze in the target area. The P.F.P. flares were more widely scattered than at Karlsruhe or Bremen; most reports, however, agree as to their usefulness, which appears to have been greater than that of the 250 lb. incendiaries as a method of marking the target.

The cost of this operation was about equal to the average for the Ruhr area.

MINELAYING

19. A total of 27 mines were laid (11 in the Heligoland Bight area and 16 in the Frisian Islands region) by 9 aircraft which all accomplished their task successfully, without incident (for details see table).

LEAFLETS

20. 5 aircraft detailed to drop leaflets over Paris, the Hague, Amsterdam and Rhine successfully carried out their mission without incident.

MISSING PAGE 5 WITH CONCLUDING PARAGRAPHS AND DATE REPORT WAS COMPLETED

Target	Group	Type	No. of Sorties	Aircraft claimed to attack Primary Target	Aircraft claimed to attack Alternative Target	Abortive		Result not known	Disposition				Interceptions		
						Over Enemy Territory	Not over Enemy Territory		Missing	Damaged by Flak	Damaged by Enemy Aircraft	Not due to Enemy Aircraft	Att-acked	Not Att-acked	
DUISBURG	1.	WALL.II	5*	2					1						
		WALL.III	11	9		1			1	1 AC 1 m			2	1	
		WALL.IV	19*	14	1	2	2			1 B 2 m	1 m		3	2	
	3.	WALL.II	4	3					1	1 m					
		WALL.III	31	26		1		1	3	1 AC 1 m	1 AC	1 B	1	3	
	4.	WALLING	25	23			2							3	
		WALL.II	27	22			1		1	1 AC 1 A 2 m	1 AC		1	3	
	5.	WALL.III	5	5						1 AC 1 m				1	
		LUX	54	50			4			1 B 2 AC 5 m				5	
	ESP.	FAMPIEN	4*	4											
		WALLING	5	4					1					2	
		WALL.IV	6	6						1 m					
		LUX	6	5			1			1 m				1	
		WALL.III	7	4		1	2					1 A			
	Total.		207	177		1	5	15	1	8	1 B 1 B 6 AC 1 A 16 m	2 AC 1 m 1 A	1 B 1 A	10	20
MIRBELYING Frisian Island	1.	WALL.IV	3*	3											
		WALL.III	1	1											
	3.	WALLING	2	2											
Hollands and West	5.	LUX	2	2											

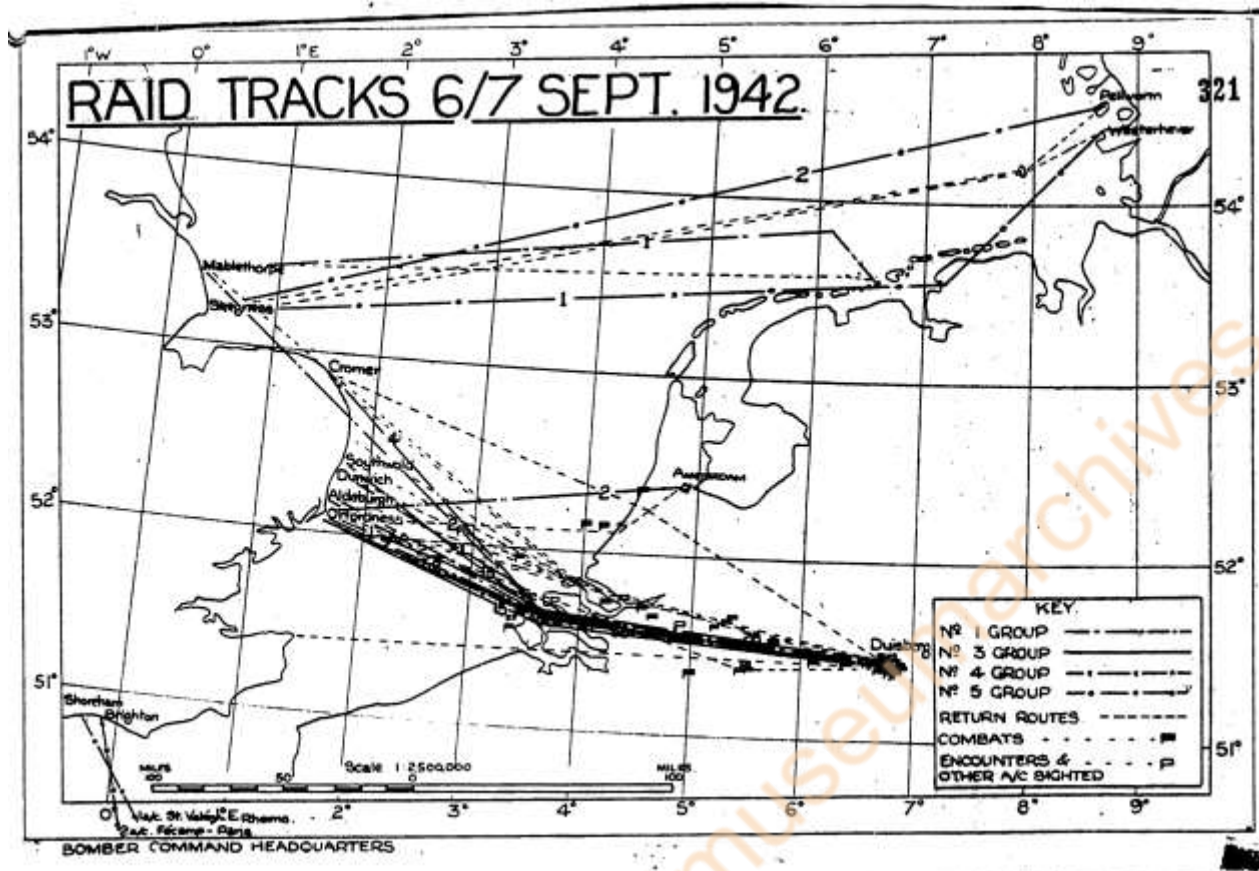
Target	Group	Type	No. of Sorties	Aircraft claimed to attack Primary Target	Aircraft claimed to attack Alternative Target	Abortive		Result not known	Disposition				Interceptions		
						Over Enemy Territory	Not over Enemy Territory		Missing	Damaged by Flak	Damaged by Enemy Aircraft	Not due to Enemy Aircraft	Att-acked	Not Att-acked	
LEZELFTS Paris, the Hague, Amsterdam, Brussels	4.	WALL.IV	2	2											
		WALL.III	2	2											
	5.	LUX	1	1											
TOTAL			22	191		1	5	15	1	8	1 B 1 B 6 AC 1 A 16 m	2 AC 2 m 1 A	1 B	10	20

* Not Pattern 522

Total Abortive = 20

@ 1 A/C was damaged by flak and by fighter and has been included in each category.

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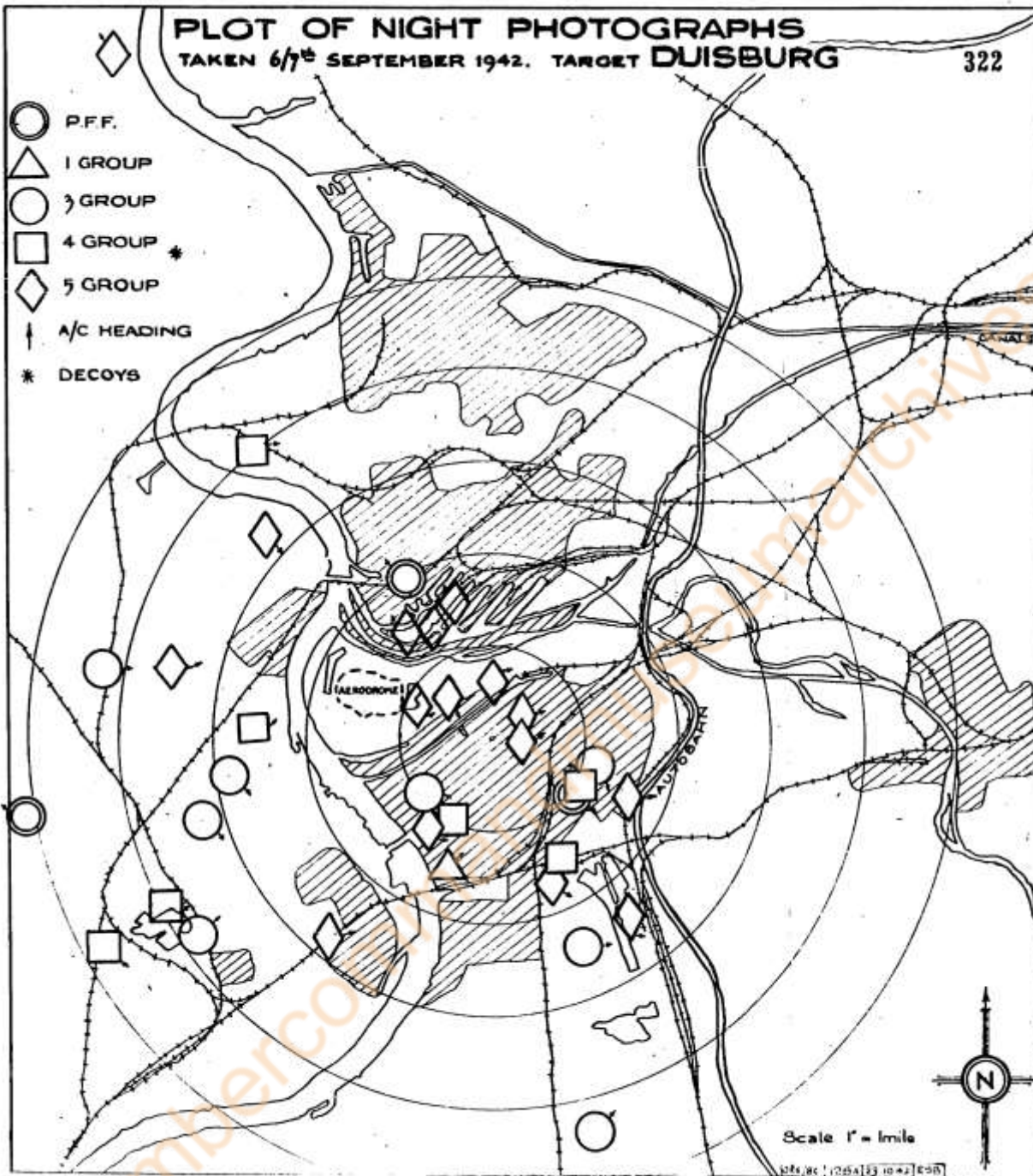


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PLOT OF NIGHT PHOTOGRAPHS TAKEN 6/7th SEPTEMBER 1942. TARGET DUISBURG

322

- P.F.F.
- △ 1 GROUP
- 3 GROUP
- 4 GROUP *
- ◇ 5 GROUP
- ↑ A/C HEADING
- * DECOYS



Scale 1" = 1 mile



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OPER COMMAND REPORT ON NIGHT OPERATIONS 7/8th. SEPTEMBER 1942.

MINELAYINGLogistical Advice Submitted to the Command.

20 hours. The frontal system to the west is likely to keep well to the north, and any rain experienced in operational groups will be confined to 4 Group. Even there cloud is not expected to be low. Tentative frontal positions of this system at midnight were given as minor warm front just E. of east coast of Scotland. Warm front, Stornaway to E. coast of Ireland, weak in S. Minor cold front, S.W. Norway to Heligoland Bight. Cold front E. of Danzig, to Breslau, to Berlin. In southern home bases medium cloud, local visibility troubles. N.W. coast of Germany; large amounts of low and medium cloud; inland, small amounts of medium and low cloud, becoming fine with slight haze S.E. of a line from Cologne to Hamburg. Stettin area fine, until near the most distant cold front, where broken medium and low cloud will be found. Towards Nuremberg and northern France, well broken, medium cloud. Central and southern France, fine.

230 hours. Stettin area now expected to be affected by about 5/10ths - 7/10ths medium cloud, which is spreading rather more quickly east than had been anticipated. Cloud height probably 13-14,000 ft. but icing not serious, as cloud will be dispersing rather than forming. Home bases rather more promising than before.

0 hours. Target: Stettin: increasing amounts of medium cloud, probably less than 5/10ths until midnight. Further west, larger amounts of medium and probably some small amounts of low cloud. Warnemunde: 6-8/10ths medium cloud, 2-3/10ths low.

Route across N. Sea: through two fronts with cloud possibly extending to great heights at times, and freezing level 7-8000 ft. Heavy icing possible above this level. Bases: as stated before. All groups expect their stations to be fit for return, with only local troubles.

10 hours. 4 Group expect rain and low cloud in the northern part of their group for return, with poor visibility in the south. The other groups anticipate no trouble except 1 Group, possibly after 0300, but there are plenty of diversions elsewhere. Conditions on the route as before, with plenty of cloud and rain, and no pinpoint likely on the Danish Coast. Targets in North Denmark seem unsuitable as there may be 10/10ths medium cloud by the time of arrival. At Borkum occasional rain.

Orders.

Wellingtons, 9 Stirlings and 2 Halifaxes of the P.F.F were despatched to attack Warnemunde, but a final study of the weather forecast led to the cancellations of this operation, and to the recall of those aircraft which taken off.

Full force was despatched to lay mines off the West Coast of France and coast of Holland.

MINELAYING

Number of sorties despatched

Number claiming to have mined Primary area = 37 (86%)
 Number of abortive sorties:
 Technical Defects 3
 Navigational Error 1
 Mistaken Recall Signal 1 = 5 (11.6%)
 Missing = 1 (2.3%)

Weather Encountered.

4. (a) La Pallice No cloud, excellent visibility.
 (b) St. Nazaire No cloud, excellent visibility.
 (c) Frisian Islands Considerable low cloud moderate visibility.
 (d) Lorient No low cloud, visibility good, but slight haze.

There was no moon.

Results

5. 37 aircraft claim successfully to have laid 72 mines in their allotted areas. In addition two aircraft aimed their 250 lb. bombs at flak ships off the north east extremity of the Ile de Groix and one aircraft bombed a concentration of flak and searchlights 2 miles north-west of Morlaix. Results were not observed by two of these aircraft, but the crew of the third estimate that their bombs fell within 25 yards of a flak ship.

11 "Geo" aircraft were detailed for the Frisian Islands area (the only Geo aircraft operating on this night). Of the 9 which claim to have mined the primary area, the majority relied on Geo fixes for obtaining the correct positions for laying their mines.

Casualties

6. No aircraft was damaged as a result of this operation, but one Wellington of 1 Group despatched to La Pallice is missing. There is no information as to the cause of loss. There were no interceptions or attacks by enemy aircraft.

Target	Group	Type	No. of Sorties	Aircraft claiming to mine Primary Area.	No. of Mines Laid.	Abortive		Casualties
						Over Enemy Coasts.	Not Over Enemy Coasts.	
La Pallice	1	Well. II	2*	0	0	-	1	1
		Well. III	2*	2	4	-	-	-
		Well. IV	3*	3	6	-	-	-
St. Nazaire	1	Well. IV	6*	4	8	1	1	-
		Well. IV	13*	13	26	-	-	-
Frisians	3	Well. III	8	7	14	1	-	-
		Stirling	3	2	8	-	1	-
Lorient	5	Hamden	6*	6	6	-	-	-
Total			43	37 (86%)	72	2	3	1

* Not fitted. Geo Total Abortive = 5 (11.6%) Missing = 1 (2.3%)

OPER COMMAND REPORT ON NIGHT OPERATIONS 8/9th. SEPTEMBER 1942.

FRANKFURT

Logical Advice Submitted to the Command.

20 hours. Owing to warmer air working across the British Isles, cloudy conditions are expected at home bases tonight. Cloud very low in the south-west, but not expected to fall below 1,000ft. in 2 and 3 Groups. 4 Group threatened by a cold front approaching slowly from the north-west which may give slight rain and cloud at 1,000 ft. 5 and 1 Group stations will probably escape both threats.

Much low cloud on the north-west coast of Germany and across Denmark which may penetrate as far as the Ruhr; further south-east conditions fine with slight haze. In the north of Germany considerable amounts of medium cloud, and some broken low cloud on the Baltic coast.

25 hours. The cold front approaching Scotland from the north-west now expected to be further North, which decreases the threat to 4 Group materially and makes it probable that conditions there will be good. All factors favour the earliest possible start; there is a rather strong threat of local fog in the Midlands and S.E., becoming more serious in the later part of the night. Any spread of low stratus from the west eastwards will not affect 2 and 3 Groups seriously until late in the night. The haze in the target area may be expected to thicken slowly during the night.

315 hours. All bases fit up to 0300 apart from local visibility troubles W. of 1° E, and some broken strato-cumulus in North, base above 1,000 ft. Later a slow deterioration will set in but will not become serious until towards dawn, with much cloud at 1,000 ft., and visibility troubles underneath.

Route: no troubles - Not much cloud.

Target: Conditions less certain as reconnaissance aircraft this morning reported fairly extensive medium or "high low" cloud over Belgium and the Ruhr. All Groups agree, however, that by 2200 B.S.T the target area should be clear, with only small amounts of medium cloud, if any.

Five Orders.

It was necessary to go South to find a target clear of frontal conditions, but the range was limited because of the approach of bad weather at the bases. Frankfurt was chosen as suiting these considerations, and the attack was timed as early as possible, making allowance for an indirect route to be used.

15.

- a) Number of Sorties despatched = 249
- b) Number claiming attack on Primary = 192 (77.1%)
- c) Number claiming attack on other targets = 14 (5.6%)
- d) Abortive Sorties:-

- Technical Defects.....28
- Flak Damage..... 2
- Attacked by Fighter..... 1
- Sickness of Crew..... 2
- Crashed (cause unknown)..... 1 = 34 (13.7%)

- e) Result not known (aircraft crashed on return) = 2 (0.8%)
- f) Missing = 7 (2.8%)

...../Plan of Attack

Plan of Attack.

4. Zero hour:- 2315 hours.
Period of Attack:- 2315 to 2345 hours.

The attacking force was divided into three sections:-

	<u>Time of Attack</u>
(a) Pathfinders <u>Main Force.</u>	2315 to 2320 hours.
(b) Section 1. (incendiary wave)	2320 to 2340 hours.
(c) Section 2. (H.E. Wave)	2335 to 2345 hours.

5. The P.F.F. was detailed to mark the target by two methods. The main marking technique was by the release of loads of 250 lb. incendiary bombs in a salvo, to produce "blob" fires at the aiming point. As a secondary method, strings of flares, fused to open at 1500 feet, were to be released with intervals of 4 seconds between each bundle. Single reconnaissance flares could also be dropped by early crews of this force to aid them to find the target.

6. The first section of the Main Force, consisting of about two-thirds of the remaining aircraft, manned by the most experienced crews was to carry 4 lb. or 30 lb. incendiaries, or mixed H.E. and incendiary loads. The second section was to carry only H.E. loads. All aircraft of the Main Force were allowed to release reconnaissance flares, fused to open at 1500 feet, but these were not to be dropped before 2320 hours. The target was to be reconnoitred at 2345 hours by one crew of each Lancaster Squadron and by one crew of 12, 103, 150 and 460 Squadrons. Since the defences were believed to be heaviest to the west it was recommended that crews should approach from north to south or from south to north.

7. It was expected that it would be possible to obtain Gee fixes at least as far as O7 E., and it was emphasised that navigators should use fixes on the outward journeys to check wind velocity and to assist in obtaining accurate D.R. and E.T.A.

Routes

8. The briefed routes were as follows:- (see also the accompanying diagram):

1 and 4 Groups Base - Furnes - Oppenheim - Target - turn left - North of Wiesbaden defences - St. Quentin - South of Berck-sur-mer-Base (keeping clear of Charleroi).

P.F.F. 345 Groups - Base - Bradwell Bay - Dungeness - South of Berck-sur-mer - St. Quentin - Oppenheim - Target - North of Wiesbaden - St. Quentin - South of Berck-sur-mer - Dungeness - Bradwell Bay - Base.

Weather Encountered.

9. Bases, Route and Target: Considerable cloud (up to 8/10ths.) at zero hour over the target. The amount of cloud became rapidly less as the attack developed. Visibility moderate at home bases, good over the sea, but much haze inland on the continent.

There was no moon.

Navigational Aids.

10. Reports received from 104 aircraft show that the maximum range from Donvonty at which a Gee fix was obtained was 491 miles. This, however, was greater by nearly 100 miles than the average range, which was 395 miles. The distance to Frankfurt is 450 miles.

Weight of Bombs Dropped by Aircraft claiming to attack primary.

11. H.E. Bombs.....201.1 tons including: 2 x 8000lb. H.C. 58x2000 lb.H.C.
50 x 4000lb. H.C. 97x1000 lb.H.C.

Incendiary Bombs.....222.2 tons.

...../12.

Results.

Photographic Evidence.

The night photographs indicate that there was a considerable concentration of attack on and around Russelsheim.

Number of photographs taken with bombing that have been plotted (see accompanying diagram):

By ground detail	70	Within 3 miles of Russelsheim	41
		between 3 and 5 miles of "	18
By fire-tracks (no fire-plot available)	0	Outside 5 miles of "	11
			70

Plotted photographs with bombing:

that have recorded ground detail (all of open country)	41
Total	111

with no ground detail but with fire-tracks that might be plotted.

26

The 59 photographs plotted within 5 miles of the centre of Russelsheim show that this district bore the weight of attack intended for Frankfurt. It appears that the course of the river Main near Russelsheim, which bears some resemblance to the course at Frankfurt led 'aircraft astray', certainly early in the operation incendiaries were burning in the area of the Opel Works. These attacks attracted attention and a somewhat scattered attack developed over the neighbourhood with small local concentrations near Florsheim, near Opelbahn and east of Russelsheim. The second of these may have been attracted by the decoy air II, near Bauschheim - Photographs taken in later stages of the operation show many sticks of incendiaries burning both at Russelsheim and in the surrounding country. The 40 photographs taken with bombing which have recorded fire-tracks alone indicate that the aircraft concerned bombed districts where incendiaries were alight. Comparative data from other raids suggests 30 to 40 per cent as the proportion of these photographs that could be plotted from fire-track patterns and the results would almost certainly be to reinforce the rather scattered distribution revealed by the accompanying diagram.

Subsequent daylight reconnaissance covered only a part of those works but a series of points of damage are seen. An area of about 8 acres which contained 4 big buildings and several smaller ones has been completely gutted, and a shed and 10 small huts have also been burnt out. Two storehouses have been partially destroyed and a number of other buildings have suffered damage. Hits at the Bischofsheim marshalling yards have damaged at least 4 tracks and destroyed 1 building. The photographs also show that in the eastern part of the town one medium sized and three small industrial buildings and also two sheds have been destroyed. In addition about 40 houses have been destroyed. The photographic picture of the town is, however, by no means complete and the total damage may well be considerably more extensive.

A survey of crews' reports shows that there was considerable doubt as to exact identification of the primary target. There was also some criticism of the marking of the target, as follows:

- Flares widely scattered - many over open country.
- Flares too high (some ignited at 11,000 feet).
- Flares too late - becoming useful only after the allotted bombing period.
- Absence of coloured marker flares made identification difficult.

There is fairly general agreement that the flares dropped by the P.P.F. in this attack were not as helpful as on previous occasions. There can be no doubt that this was largely due to the difficult weather conditions at the beginning of the attack - 8/10ths cloud coupled with considerable ground haze. These conditions affected the planned concentration of marker bombs and flares in space and time. Although the amount of cloud became progressively less as the attack developed, searchlights made identification of ground detail extremely difficult.

Some good fires were reported in built-up areas but many incendiaries were scattered in open country and woods to the south of the target, which were set ablaze. There was little concentration of attack in the allotted time; only 56% of the Main Force attacked within the allotted period.

Timing of the Attack.

		<u>Total</u>
15. P.F.P.	(a) Number of aircraft attacking early.....	0
	(b) Number attacking during planned interval.....	3
	(c) Number of aircraft attacking late.....	
	(flares and bombs):	
	0-5 mins.....	5
	5-10 mins.....	3
	10-15 mins.....	7
	15-20 mins.....	7
	More than 20 mins.....	9
		= 31

(The total number of sorties of P.F.P aircraft does not correspond with the number shown above because aircraft which released flares and bombs at different times appear twice in this table).

<u>Main Force</u>	(a) Number of aircraft bombing early	0
	(b) Number bombing during planned interval	= 94
	(c) Number of aircraft bombing late :	
	0-10 mins.....	47
	10-20 mins.....	18
	20-30 mins.....	6
	More than 30.....	2
		= 73

Other targets attacked.

16. Target.	Type of Aircraft.	Reason for not attacking Primary.
Mainz	Stirling - 3 Group	Not stated.
"	Halifax - 4 Group	Late arrival - fires seen Mainz.
"	Halifax - 4 Group	Hit by flak.
"	Lancaster - 5 Group	Mistaken identification.
"	Lancaster - 5 Group	Mistaken identification.
Wiesbaden (believed)	Lancaster - 5 Group	Led astray by P.F.P. flares
"	Stirling - P.F.P.	Pilot convinced that it was Wiesbaden which was being illuminated by P.F.P.
"	Wellington P.F.P.	Off track en route - too late to attack Primary.
Darmstadt	Stirling - 3 Group.	Attacked by fighters.
" Area	Halifax - 4 Group.	Unable to locate primary.
Hochst	Lancaster - 5 Group	E.T.A. inaccurate causing incorrect identification.
Alzey (Railwayline from N.W.)	Lancaster - 5 Group.	Engine failure S.W. of B
Offenbach	Hampden - 5 Group	Inability to penetrate intense searchlight defences
Built-up area near Frankfurt	Stirling - 3 Group	Could not pinpoint owing to extreme darkness.

Casualties.

17 The number of missing and damaged aircraft and of interceptions are given below.

...../over

Sorties	Missing	Damage			Interceptions	
		Flak.	Fighter.	Other.	Attacks	Not Attacked.
249	7(2.8%)	20(8.0%)	6(2.4%)	4(1.6%)	12(4.8%)	13(5.2%)

The proportion of aircraft attacked is high, and half of them were damaged by the attacking fighters.

Our own observations and Wireless Intelligence indicate that aircraft was shot down, possibly by controlled fighter, in the Luxemburg-Trier area, 2 (1 by flak) in the Wiesbaden-Frankfurt area, 1 probably by fighter near St. Quentin, and 2 (cause unknown) one S. of Liège and one at Metzibros. A claim to have destroyed a British aircraft at Charleroi cannot be identified. Our losses may be allocated as 2 aircraft to fighters (1 controlled), 1 to flak, and 4 to unknown causes.

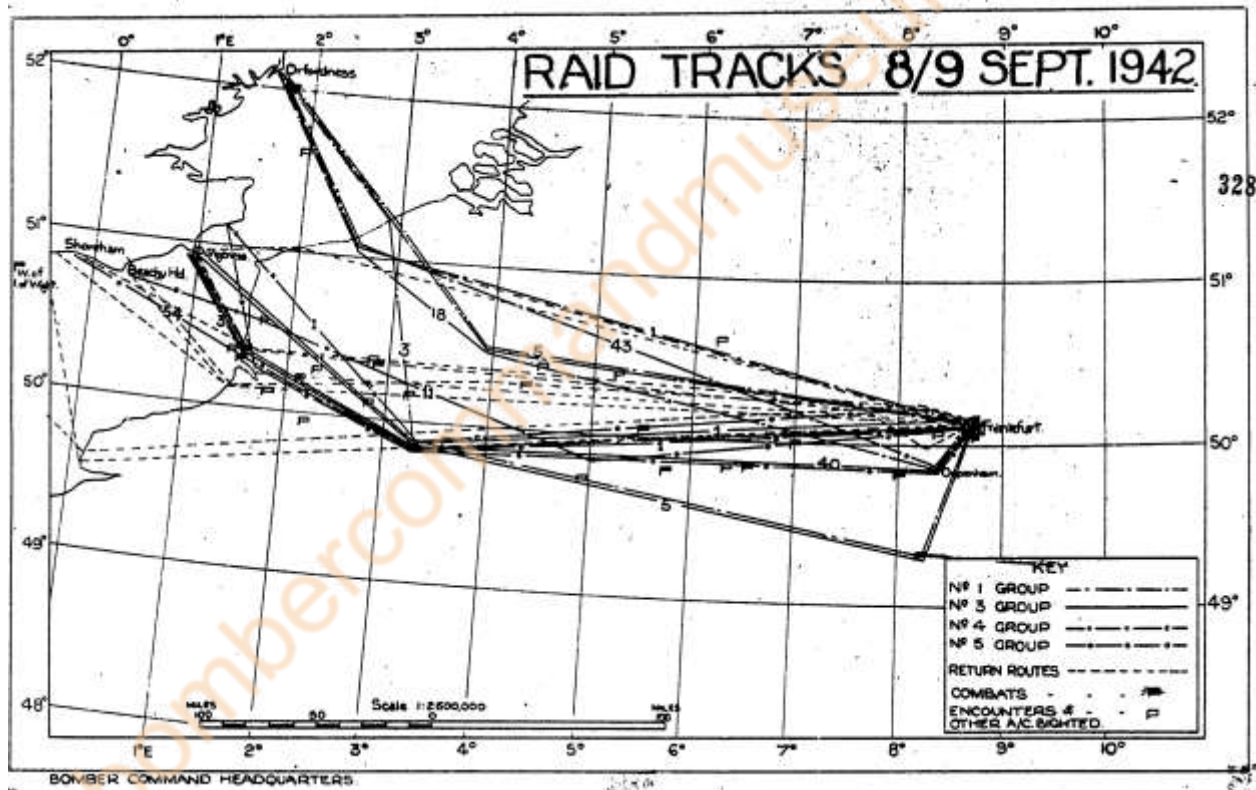
18. A moderate amount of heavy and light flak was reported to have been encountered in the target area. En route, the coast defences were particularly active. Photographic evidence indicates that both flak and searchlight opposition was slight. Half the 71 photographs plotted within a 5-mile radius of Russelsheim show heavy flak of a measured intensity of 3 single-gun discharges per aircraft (which is necessarily a minimum figure). Only 4 of these photographs record light flak, while searchlight activity is shown by one-third.

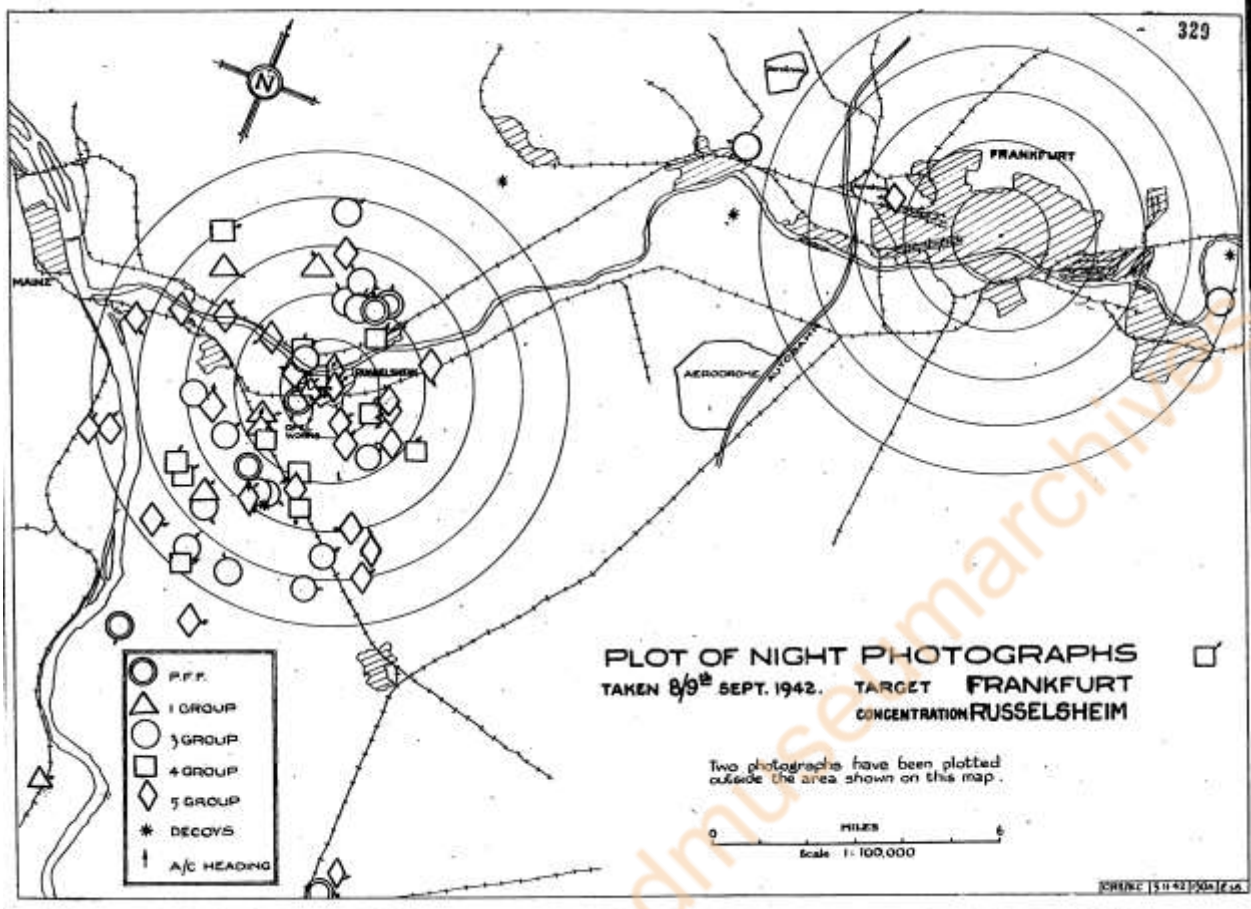
19. Cloud (in excess of the small amount forecasted) at the beginning of the attack, and extensive ground haze made the task of the P.F.F. most difficult. The majority of that force marked Russelsheim in mistake for Frankfurt and the major part of the attack by the Main Force was accordingly directed against the former town, where useful industrial damage was done. Losses were below average for targets in this area.

BC/S.26342/5/ORS.
6th October, 1942.

			Prümary.	Altitude (ft)	Over Enemy Territory	Not Over E/T	Not known	Missing	Destroyed by Flak	Destroyed by E/A.	Not due to enemy Action	Attacked	Not attacked.
FRANKFURT	1	W.11	6(a)	3	1	1		1					
		W.11	14	9		3		2	1 E				
		W.1V	25(a)	19		3	2	1	3m 1 AC			1	2
		Hx	6	6		1		2m				1	
	3	W.11	26	20		5		1		1B		1	1
		Stir	30	24	3	3			3m 1B	1m		2	2
	4	W.11	4	3		1							
		Hx	39	28	3	1	5	2	2m 1B	1 AC	3E	4	3
	5	Lanc	62	55	5	1	3		3m	1 AC		2	1
		Hamp	9(a)	6	1		2						
		P.P.F.	Star	7	1					1m	1 AC	1	
		Hx	6	5(b)		1			1m	1m		1	1
		Lanc	6	5(c)									
		W.11	9	7(d)	1	1							
			249	192	14	12	22	2	3E 1 AC 16m	1B 2 AC 3m	3E 1 AC	12	13

- (a) Not fitted GEE
 (b) includes 3 Halifax which attacked with the main force.
 (c) " 1 Lancaster
 (d) " 1 Wellington " " " " "





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COPY No. 16

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 9/10th, SEPTEMBER 1942.

(MINELAYING)

Meteorological Advice Submitted to the Command.

0915 hours. Estimated midnight position of the cold front, now over the West of the country was from 60° N, 15° E, to Bremen, to Brussels, to Brest.

Home Bases:- No worries early in the night, but smoke troubles occurring later.

To the south-east of the front gradually decreasing amounts of medium cloud, but small amounts cannot be relied upon unless a very distant target is selected. Much medium cloud in North Germany, east of the front. Frisians, Bight and N.W. Baltic; suitable for minelaying, but not the Baltic east of the front, West coast of France suitable, except for a fairly narrow strip near the front, in the Brest area.

1215 hours. Cold front probably further advanced to east and south-east than the position given earlier. Little change as regards weather for minelaying, but good conditions are more certain in the Kattegat and Frisian areas. The Bordeaux area probably only just south of the front, but, at the worst, cloud should be 1000 feet or above.

1550 hours. No change as regards minelaying. All areas expected to be suitable, no cloud below 1,500 feet.

Statistics (See table for details).

Number of Sorties despatched	= 34.
Number claiming to have mined primary area	= 28 (82.5%)
" " " " " alternative area	= 1 (2.9%)
Abortive Sorties:-	
1 due to flak damage	
1 " " engine failure	
1 " " threatened attack by enemy fighters	
1 " " inability to pin-point	= 4 (11.8%)
Missing	= 1 (2.9%)

Weather Encountered.

North Sea: Little or no cloud, visibility moderate. Frisian Islands and Heligoland Bight: 5/10ths to 7/10ths cloud, base 1500 to 2000 feet, tops 3000 to 3500 feet; visibility moderate. Baltic: No cloud; visibility moderate to good. Bay of Biscay: No cloud; visibility moderate. There was no moon.

Notes

To Kattegat Rinkjoberg - Khudshoved or Randersfjord or Mariagerfjord (according to minelaying area).

To Gironde Ile de Brehat - Argol - Pointe de la Coubro.

...../Results.

Results

5. 28 aircraft claim to have successfully laid 111 mines in their allotted areas, and one Lancaster, which was unable to mine its primary area (the Kattegat) owing to its bomb doors jamming, jettisoned 4 mines in the Skaggerak, the estimated position being 8 miles due east of Lökken (near the Skaw). 50% of the aircraft which were operating in the Heligoland, Frisian or Texel areas used Geo fixes (either alone or followed by timed runs) for laying their mines. Most of the remainder were able to obtain visual pinpoint on the enemy coast, and made timed runs from those "fixes".

Casualties

6. 1 Lancaster of 5 Group detailed for the Kattegat area is missing but there is no information as to the cause of loss.

Two aircraft received minor damage from flak, one at the French coast (Morlaix area) and the other in the north Denmark area. One Stirling crashed, owing to engine failure, shortly after taking off; the aircraft was completely wrecked, but the crew successfully bailed out.

BC/S. 26342/5/ORS.
11th. October 1942.

...../Table over

Target	Group	Type	No. of sorties	A/C claiming to mine primary area	A/C claiming to mine alternative areas	No. of mines laid (Prim. area)	Mines		Returns		Casualties	
							Over Enemy Coasts.	Not over Enemy Coasts.	Flak	Not Enemy Action	Attacked	Not Attacked
Frisian Islands	3	Stirling	9	7	-	36	1	1		1E		
Heligoland	3	Woll.III	5	5	-	10	-	-				
South of Texel	3	Woll.III	3	3	-	6	-	-				
Gisborne Estuary	3	Stirling	6	5	-	24	1	-	1 minor			
Kattegat	5	Lancaster	7	4	1	17	1		1 minor			
Kattegat (Salborg area)	5	Lancaster	4	4	-	16	-	-				1
Total			34	28	1	111	3	1	1 minor	1E	-	1

Bomber Command Report on Night Operations 10/11th September 1942

DUSSELDORFMeteorological Advice Submitted to the Command.

1. 0920 hours. Home Bases: Visibility moderate, in all areas till 0300, then local mist troubles developing in the S.E. but not in the northern bases.
- Target areas: Feeble cold front east of Danzig to Breslau to Nuremberg. Some strato-cumulus on N.W. coastal strip which might penetrate as far as Bremen, Hamburg and Kiel. Further inland, fine with slight haze over the Ruhr and upper Rhine. Patches of medium cloud and strato-cumulus south of Mannheim and in northern Germany. Conditions very favourable for production of artificial smoke screens.
- 1315 hours. Haze of Dusseldorf would be thick, with no cloud. The chance of clear skies at Bremen now seems to be better, and the visibility would be a good deal better. Otherwise no change.
- 1600 hours. As at 1315.

Executive Orders.

2. The choice of targets was limited by the necessity for an early return before the onset of fog at the bases, particularly so because less experienced crews from O.T.U's were going to be included. Dusseldorf was the target chosen since, apart from hazy conditions, weather was expected to be good and no difficult navigational problems would be given to the O.T.U. crews.

Sorties.

3. (a) Number of Sorties despatched.....476
 (b) Number reporting attack on Primary.....365(76.7%)
 (c) Number reporting attack on other targets.....14(2.9%)
 (d) Abortive Sorties:-
 technical defects.....55++
 faulty navigation.....2
 crew wounded by flak.....1
 sickness of crew.....1
 damage in take-off.....2
 late take-off.....1
 62 62(13.0%)
- (e) Result not known
 (Aircraft crashed on return)5(1.1%)
 (f) Missing.....30(6.3%)
- | | | | | |
|-------------------|---|----|-----------------------|---|
| ++ (a) Engines | 1 | 36 | (f) Hatches | 2 |
| (b) Turrets | | 5 | (g) Gyro | 1 |
| (c) Signals (T.F) | | 3 | (h) Undercarriage | 1 |
| (d) Intercom. | | 3 | (i) Bomb release gear | 2 |
| (e) Oxygen | | 2 | | |

Plan of attack

Zero hour:- 2215 hours.

Period of attack:- 2215 to 2310 hours.

The attacking force was to be divided into the following sections:

Pathfinder Force planned to consist of 24 aircraft zero to zero + 4 mains.

...../Main Force.

Main Force:

- (a) All aircraft of 5 Group..... zero + 3 to zero + 15 H
 - (b) All aircraft of 1,4,91,92 and 93 Gps. zero + 15 to zero + 30
 - (c) All aircraft of 3 Group + 13
- aircraft of P.F.F..... zero + 45 to zero + 55

5. Pathfinder Force.

Loads were to be as follows:-

- No. 7 Squadron 6 aircraft - 12 x 3 flares.
6 x 1000 lb. G.P.
1 x 3 red flares
1 x 3 green flares.
- No. 35 Squadron 4 aircraft - 15 x 250 lb. incendiaries.
- No. 83 Squadron 2 aircraft - 1 x 4000 lb. incendiary
6 S.B.C. of 30 lb. incendiaries.
- No. 83 Squadron 6 aircraft - 8 x 4 flares
2 x 2000 lb. H.C.
1 x 4 red flares.
1 x 4 green flares.
- No. 156 Squadron 6 aircraft - 6 x 3 flares.
3 x 500 lb. G.P.
1 x 250 lb. G.P.
1 x 3 red flares.
1 x 3 green flares.

The main marker technique, to be adopted by the P.F.F., was to illuminate the target by strings of reconnaissance flares, fused to open at 1500 foot, the bundles to be released at 4-second intervals. On definite identification of target, steady red flares were to be dropped in addition at the west end of the town and steady green ones at the east end. The auxiliary marker technique consisted in "blob" fire-raising by the release of loads of 250 lb. incendiaries in a salvo at the beginning of the attack. Two very heavy incendiaries burnt with a pale yellow flame were also to be dropped experimentally. Some of the P.F.F. were also to release H.C. bombs to discourage potential fire-fighters.

Main Force.

6. The first section (a) of the Main Force was to consist of 3 Lancasters, each carrying 1 x 8000 lb. H.C. bomb, the remaining Lancasters with mixed loads of H.E. and 4 lb. or 30 lb. incendiaries and Hampdens with H.E. only. One crew from each Lancaster squadron was to reconnoitre the target at 2230 hours to report the progress of the raid. The bomb-loads of aircraft in the second section were to be similar to those to be carried by the Lancasters of 5 Group. Aircraft of 4 Group, however, were to carry both 4 and 30 lb. incendiaries in their mixed loads of H.E. plus incendiaries. Halifaxes were to carry 6% of the explosive type of 4 lb. incendiary bomb. Reconnaissance of the target at 2305 hours was to be carried out by one crew from each of 12, 103, 150, 300 and 460 squadrons. All aircraft of 5 Group together with 9 aircraft of the P.F.F. which had not been allotted the task of marking the target, were detailed to wind up the attack. Wellington 423's were each to carry 1 x 4000 lb. H.C. bomb; 6 Stirlings were to carry 500 lb. G.P. bombs, while the remaining aircraft were to carry maximum loads of 4 lb. or 30 lb. incendiaries. 6% of the 4 lb. incendiaries were to be of explosive type. Special emphasis was laid on the importance of adhering strictly to the times over the target which were laid down for each Group. No crew of main force was to release bombs or flares before zero hour + 3 minutes (2218 hours), and after that time only experienced crews of the operational groups were to be allowed to release flares, if required, fused to open at 1500 foot over target. Inexperienced crews and O.T.U.'s were not to release any flares within 50 miles of the Target.

Go Instructions.

7. Target correction-factors were to be used at Ground stations to cancel the 2nd. decimal place of the target-coordinates. Navigators were warned that interference might render it difficult to use the hearing procedure in the target area, and that they were therefore to pay careful attention to D.R. and S.T.A. If the hearing procedure were adopted, navigators were to approach from N.W. to S.E. along the 'B' lattice, from a point not more than 30 miles from the target.

Briefed Routes (See also the accompanying diagram)

8. All Groups: Base - Oudorp - Dusseldorf - Julich - Noordland - Base.

Weather Encountered.

9. Bases:- Fine, but widespread fog forming after 0300 hours.
Route:- Fine; good visibility.
Target:- Fine; but hazy.
There was no moon.

Weight of bombs dropped by aircraft reporting attack on Primary.

10. H.3.....380 tons, including 1 x 8000 lb. 17 x 1,900 lb.
84 x 4,000 lb. 151 x 1,000 lb.
12 x 2,000 lb.

Incondiarics.....328 tons.				
Numbe	of aircraft	releasing	sticks of 4 lb. incendiaries alone	= 73
"	"	"	" " 30 lb. " "	= 15
"	"	"	" " 1 lb. incendiaries + H.E.	= 11
"	"	"	" " 30 lb. " "	= 62
"	"	"	" " 4 + 30lb. incendiaries + H.E.	= 33
"	"	"	" " 250 lb. incendiaries alone	= 4
"	"	"	" " 4000 lb. " "	= 1

Navigational Aids.

11. Reports received from 136 aircraft show that the average range from Davontry, at which Gee fixes could be obtained, was 34.5 miles, this distance being very nearly equal to that of the target (34.8 miles). The maximum range at which a Gee fix was obtained was 397 miles.

Night Photographic Evidence. RESULTS.

12. Number of photographs taken with bombing that have been plotted (see accompanying diagram):

By ground detail.....100	
	within 3 miles.....52
	between 3 & 5 miles.....16
	outside 5 miles.....32
	100
Unplotted photographs with bombing:	
that have recorded ground detail (partly built-up area).....3	
	open-country.....22
with no ground detail but with fire-tracks that might	
	be plotted.....42

The night photographs indicate that a very considerable concentration of the attack was achieved against Dusseldorf, the evidence suggesting that at least 50% of the aircraft reporting attack did in fact bomb within 3 miles of the aiming point, while a further 10% bombed the docks, marshalling yards and built-up areas of Rouss. 8% of the weight of attack was diverted on to open country from 1 to 6 miles west of Rouss, while the neighbourhood of Bulkon and Vierson 15 to 20 miles west of the aiming-point received perhaps 15% of the attack intended for Dusseldorf. This was made up of separate attacks by individual aircraft throughout the planned period of the operation.

No fire-plot has been undertaken for this raid but with the considerable photographic cover available possibly one-half or more of the photographs taken with bombing which have registered fire tracks alone might be plotted, and the effect of their inclusion would be to reinforce the existing distribution.

The central built up area of Dusseldorf and the industrial suburbs to the east received the main weight of attack and the night photographs show there a great concentration of incendiaries, smoke from well established fires, and a number of H.E. incidents. Incendiaries were also recorded burning in the docks and warehouse area of Neuss. There is no evidence of any decoy in action west of Neuss which might account for the few aircraft which bombed the open country there, short of the target.

13. Day Reconnaissance.

The success of the operation is shown by subsequent daylight reconnaissance which reveals very heavy damage throughout the towns of Dusseldorf and Neuss. In Dusseldorf the greatest concentration of damage is in the centre of the city where there is very extensive damage to business and private property. Over 100 acres between the Rhine and the main railway line have been devastated and many public buildings, offices, shops, and blocks of flats have been destroyed as well as numerous industrial premises and warehouses. The total devastated areas amount to about 120 acres and, in addition, a further 75 houses have been destroyed. 19 industrial premises have suffered heavy damage or complete destruction and 6 more have been less heavily damaged. Those that have been severely damaged include an iron foundry, a chemical factory, an enamel works, a steel tube works, (the greater part of which has been destroyed) and a factory making insulating materials (completely destroyed). In addition some of the warehouses in the inland harbour have been burnt out. The main railway station has received a direct hit and half the main block of buildings is wrecked. In addition there is a hole 100 yards long in the main roof over the platforms. There has been damage to the track in other places, a shed has been gutted and 2 others damaged in one part of the town, and rolling stock in Derendorf marshalling yard has been damaged by fire. The Post Office and postal administration buildings and the telegraph office have been seriously damaged, as have a Savings Bank, the main Tramway Depot and the State Observatory. In Neuss 5 large factories including a chemical factory have been seriously damaged as well as many industrial premises and warehouses. The town Gas Works has also sustained serious damage. Railway buildings near the Roundhouse have been damaged and the track damaged in a few places including the junction of the Munchen-Gladbach, Aachen and Cologne lines. Three schools have been seriously damaged. In the residential and business districts in the centre of the town 13 acres have been devastated and there are many other single points of damage.

Narrative of Attack.

14. Six of the crews detailed to make special reconnaissance of the target (paragraph 6) took photographs, with bombing, which have been plotted in the target area. Their reports, and the statements made by other crews who also photographed the target, show that the bulk of the reconnaissance flares released were accurately placed, on time, and excellently illuminated the target. Some flares, however, opened at far too great a height. The red and green marker-flares also released by the P.F.F. were the chief means of target identification by many of the following aircraft. Some reports stated that these flares were dropped indiscriminately over a wide area, but it seems probable that this apparent scatter was the result of enemy imitation flares. One crew reported seeing red and green flares at intervals along their return route. There are several references to "chandelier flares", which were reported to have been shot up by the enemy on this occasion to heights of about 12,000 feet, where they ignited and slowly sank. It is more likely, however, that these were released from aircraft, and belonged to that type of multiple flare, recently used by the enemy with the probable object of assisting fighter attacks. Several crews found their illumination helpful in marking the target. There are very few references to the 250 lb. incendiary "blob" bombs, but the 4,000 lb. incendiary dropped by a Lancaster of the P.F.F. at 2226 hours was identified by several crews, some of whom refer to the gigantic yellow flame produced, which helped them to identify the target.

The three sections of the Main Force which followed the P.F.P. were mainly successful in identifying and bombing the target area, although a proportion of the attack fell short, to the west of Dusseldorf. Thus, perhaps 15% of the aircraft attacking bombed the Dülken-Viersen district and between 5 and 10% dropped their bombs west of Neuss where a number of incendiary sticks were soon to be scattered in open country. Considerable ground haze (which had been forecast) and enormous numbers of searchlights made observation of results difficult. The defences were found to have been very considerably strengthened since the large scale raid of July 31st/August 1st. However, many large fires were soon to be well concentrated in the town and towards the end of the attack smoke was rising to 8000 foot. Several crews who bombed at this stage stated that the effect was furnace-like in its intensity.

Timing of the Attack.

15. P.F.P. Number of aircraft releasing flares or bombs early = 1 (by 3 mins)
 " " " " " flares or bombs in
 allotted period = 12
 " " " " " late: 0 - 5 mins 2
 5 - 10 mins 13
 10 - 15 mins 4 = 19

(as flares and bombs are included in above, the number of aircraft shown in this table is greater than the number actually attacking in this period)

<u>MAIN FORCE.</u>	Number of aircraft bombing early	- 1 (by 3 mins)
" " " "	late 0 - 10 mins	21
" " " "	" 10 - 20 "	3
" " " "	" 20 - 30 "	2
" " " "	" more than 30 mins	2 = 28
" " " "	" In Allotted Period	= 316

Other Targets Attacked.

16. 14 aircraft claim to have attacked the following targets in lieu of the primary: Neuss, unidentified built-up area west of Dusseldorf (2 aircraft), aerodrome 20 miles west of Dusseldorf, Gutterp aerodrome (2 aircraft), aerodrome on Overflakkeo, Coederoede aerodrome, Venlo (S.E. side), lights on Walchoron, triangle of lights near Julich, Julich town, Grovenbroich and Hamstede aerodrome. In 8 instances, engine trouble was the cause of alternative attack, 3 aircraft were late in take-off or on E.T.A., two were unable to locate the primary, and one made a mistake in identification. In most instances definite results were not observed, although at Overflakkeo aerodrome a reddish fire was seen to have been started.

Defences.

17. Moderate to intense flak (chiefly heavy) and several large cones of searchlights were reported in the target area. Nearly three-quarters of the night photographs which have been plotted within 5 miles of the target show heavy flak from batteries of 5 guns or under, the measured intensity (and this is necessarily only a minimum figure) being 8.8 single-gun discharges per aircraft. Only one photograph in every 15 shows light flak. Three-quarters of those photographs show searchlights; only 8 photographs out of a total of 4 (in the target area) show no flak or searchlights. Thus the intensity of both flak and searchlights in the target area appears to have been high. The effect of this high rate is seen in the large number of aircraft damaged and estimated to have been brought down by flak.

Casualties.

18. The numbers of missing and damaged aircraft and reported interceptions are given below:-

<u>Sorties</u>	<u>Missing</u>	<u>Damaged</u>			<u>Interceptions</u>	
		<u>Flak</u>	<u>Fighter</u>	<u>Not Enemy Action</u>	<u>Attacks</u>	<u>Other</u>
476	30(6.3%)	39(8.2%)	1(0.2%)	10(2.1%)	10(2.1%)	26(5.5%)

The proportion of attacks is normal, but from the available information it appears that only one of them caused any damage. This is an unusually low proportion and cannot be explained by cloud or other weather conditions. Our own observations and wireless intelligence indicate that aircraft were shot down as follows:- Over Dusseldorf 5 were lost to flak, 1 to fighter, and 3 to unknown causes. 3 aircraft were shot down in an area south of Mindhoven (1 by flak). In the Overflakkeo -Jochouwen area 7 aircraft were shot down by fighters (4 controlled) and 1 by flak. 1 aircraft was reported to have been lost 15 miles N. of Antwerp, and another was shot down at West Kapelle. Our losses, therefore may be allocated as 7 aircraft to flak, 8 to fighter and 15 to unknown causes.

Summary.

19. This attack on Dusseldorf achieved great success. The target was accurately marked by the P.K.F. in spite of somewhat hazy conditions, and there was only a relatively small amount of misdirected bombing by the Main Force. Very heavy damage was done in Dusseldorf and Neuss. Losses were relatively higher than is usual on raids in this area, perhaps mainly due to a considerable strengthening of the flak defences since the last attack.

BC/S.26342/4/ORS.
November 1st 1942

		Sorties	Reporting Attack on Primary Target	Reporting Attack on Alternative Target	Over Enemy Territory	Not over Enemy Territory	Not Known	Missing	Damaged By Flak	Damaged By Enemy Aircraft	Not due to Enemy Action	Attacked	Not Attacked	
RF	PPF	Stirling	10	7		1	1		1E, 2AC			1	2	
	Q	Halifax	9	9									1	
		Lanc.	8	6	1			1						
		Well. III	10	8		1	1		1m				1	
	1.	Well. III	7*	6	1				1m				1	
		Well. III	12*	12					1m			1		
		Well. IV	35*	26	1	2	3	3			1E, 1AC		1	
		Halifax	8	8								1		
	3.	Well. III	31	26		2	1	3	1m		1AC		5	
		Stirling	35	28	1	1	1	2	2m, 1E		1E			
	4.	Halifax	42	35		1	3	3	1E, 3A, 2m		1E		2	
		Well. III	6	6										
	5.	Lanc.	91*	62	2	2	4	4	7m			1	2	
		Bombardier	8*	7		1			1m, 1AC					
	91.	Whitby	14*	10	1		2	1	1m		1E		1	
		Well. 1c	64*	43	2	5	9	1	4	2AC, 1E, 5m	2AC	2	6	
		Well. III	9	9					1m					
	92.	Well. 1c	34*	20	1		6	1	6		1E			
		Bombardier	20*	10	3		6	1	2m		1E	2		
	93.	Well. 1c	26*	18	1	2	5		1AC, 1m	1m		2	2	
		Well. III	7	3			2						2	
TOTAL			476	366	14	19	43	5	30	3E, 1E, 6AC, 3A, 26m	1m, 2AC	6E, 1E, 4AC	10	26

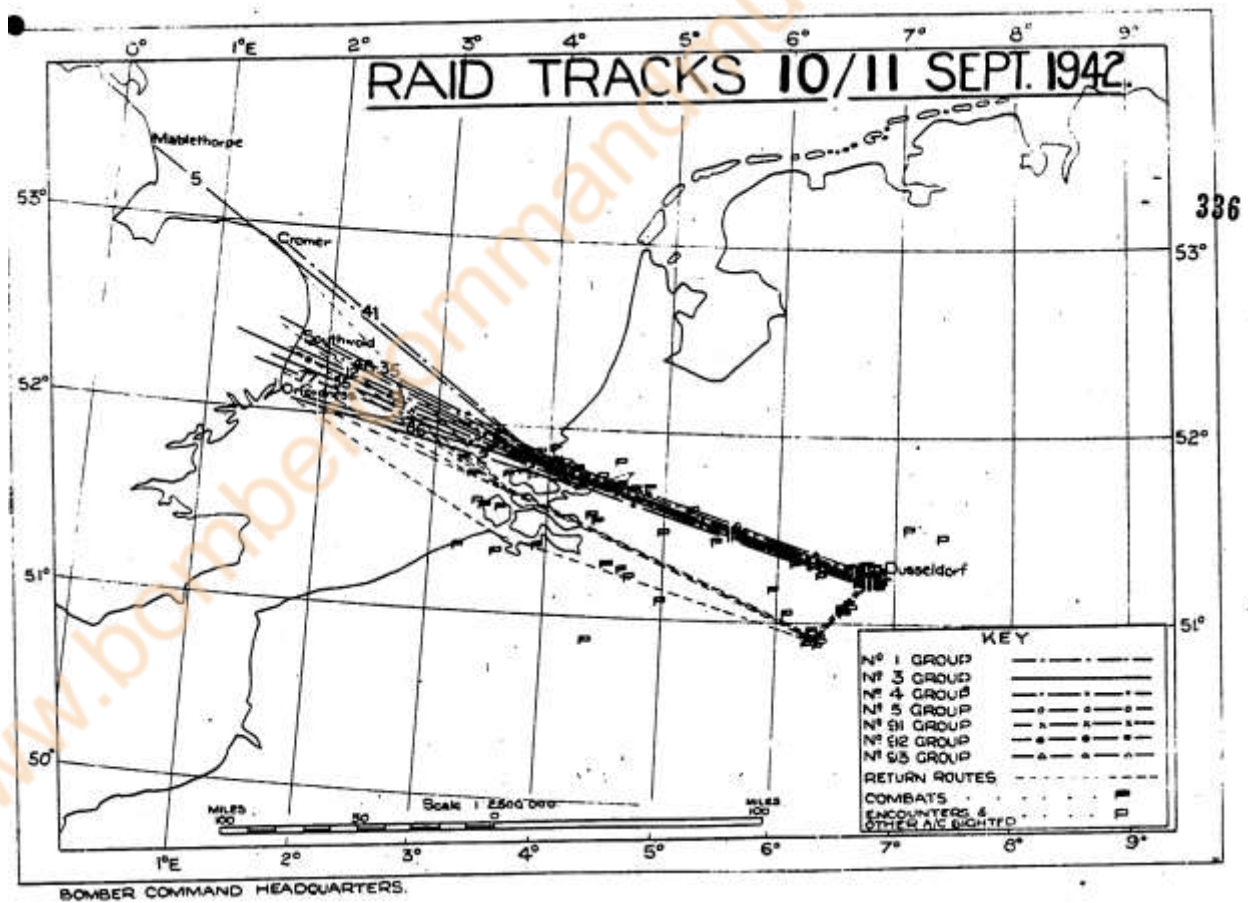
Total Abortive = 62

* = Not fitted Gee

+ = 4 Well. IIIs and one Lancaster not fitted Gee.

Q includes 2 Stirlings, 5 Halifax, 1 Lancaster and 2 Wellingtons which were detailed to attack with the Main Force.

x Not known whether flak or fighter.



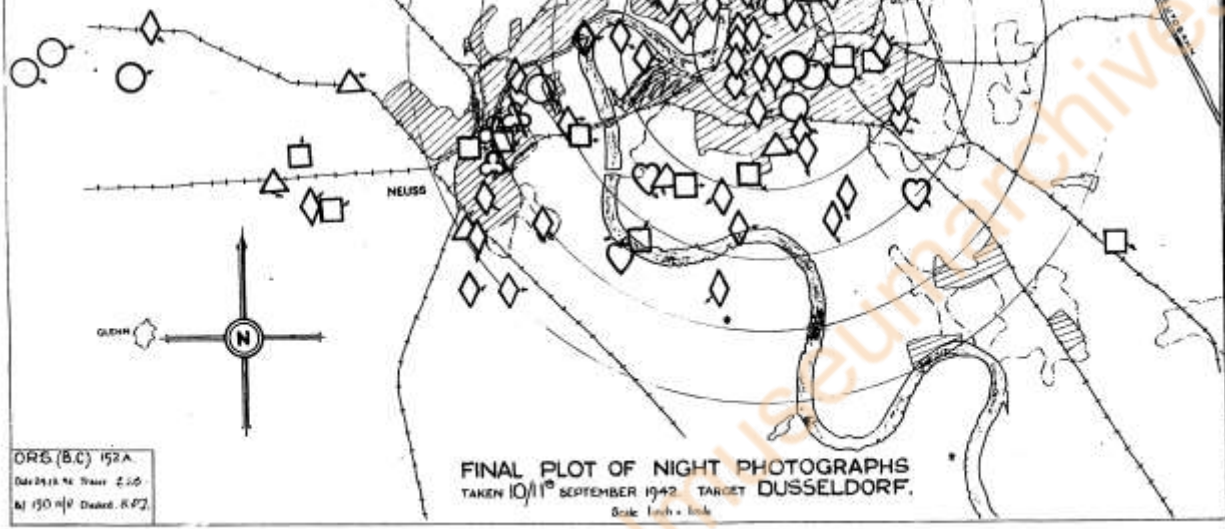
SECRET

Photographs taken with Bombing.

○ R.F.F.	♡ 91 GROUP
△ 1 GROUP	♣ 92 GROUP
◯ 3 GROUP	♠ 93 GROUP
□ 4 GROUP	★ DECOY
◇ 5 GROUP	↓ A/C HEADING

--- Limit of section area under 45° heading

21 photographs have been plotted outside the area shown on this map 19 of these are of the Neuzem-Dillen area, 16-20 miles West of Dusseldorf.



ORS (B.C.) 152A
 Date 29.12.42 No. 210
 At 150 H/V Date 8.12.42

FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 10/11 SEPTEMBER 1942 TARGET DUSSELDORF.
 Scale Inch = mile

www.bombercommand.org.uk

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 13/14th SEPTEMBER 1942

(BREMEN)

Meteorological Advice Submitted to the Command

1. 0915 hours. At home bases no troubles are expected, apart from local smoke haze towards dawn. Over Germany, visibility should be good in the Hambourg-Bremen-Kiel area, although there will be small amounts of strato-cumulus cloud. To the south of the northern Coastal strip, much cloud and thunderstorms are to be expected.
- 1100 hours Little change is probable from the advice given at 0915 hours as regards conditions over the north German coastal area; after midnight 3/10ths to 4/10ths layer cloud is likely to be found, but there would probably be clear patches over any particular area.
- 1230 hours. Although conditions at the bases are not expected to be so good as was considered earlier they are still likely to be fit. The advantages of a late attack are doubtful, as the amount of cloud at Bremen might tend to increase rather than decrease during the night.
- 1545 hours. Bases are expected to be fit for the take-off, and most of them should be fit for return. South of a line from the Wash to Bristol, 8/10ths to 10/10ths strato-cumulus cloud is probable; but the base should be above 1,500 feet and visibility good. North of this line, variable amounts of strato-cumulus cloud will occur, with local visibility troubles at dawn. In the target area there is a risk that Bremen may be as much as half-covered with cloud at any time in the night. En route to Bremen, such strato-cumulus is likely to be found between 2,000 and 5,000 feet in the westerly part of the route but this cloud should become progressively thinner to the East.
- 2200 hours 4 Group will probably need diversions to the south for their aircraft, after 0500 hours. 93 Group are also likely to need alternative landing-grounds. The other Groups will probably be able to handle their aircraft at their own bases, making only local diversions, where necessary. The cloud base will probably be about 1,500 feet in all groups

Executive Orders

2. As this was one of the rare occasions when no time limit was set on the operation by weather conditions at bases or target, it was decided to attack the target in two waves, the second wave being timed to begin its attack one hour after the first had withdrawn. It was hoped that this interval would allow considerable fires to develop at the target, would catch the ground defences confused and disorganised, and that the two streams of aircraft going in opposite directions would help to disorganise the fighter-control.

Serties

3. (a) Number of Serties Despatched = 446
 (b) Number reporting attack on Primary = 353 (79.1%)
 (c) Number reporting attack on alternative targets = 10 (2.2%)
 (d) Abortive Serties:-

Technical defects.	(Engines	31	
	(Electrical system	7	
	(Oxygen	3	
	(Intercommunication	5	
	(Turrots and guns	4	
	(Miscellaneous	4	
	Attacked by fighter	1	
	Sickness of crew	2	
	Unable to locate target	2	
	Crash on take off	1	
Causes unknown	2	= 62 (13.9%)	

Results (Cont.)

- (o) Result not known (aircraft crashed on return) = 1 (0.2%)
- (f) Missing = 20 (4.5%)

Plan of attack.

- 4. Zero hour 0115 hours:
 - (- P.P.F. (planned to consist of 1 aircraft) 0115 to 0120
 - 1st section (Aircraft of 5 Group (except Hampdens) 0118 to 0130
 - (Aircraft of 5 Group 0230 to 0240
 - 2nd section (Aircraft of 1, 91, 92, and 93 Groups and Hampdens
 - (In incendiary (of 5 Group 0235 to 0300
 - wave) (Aircraft of 5 Group and 11 aircraft of P.P.F. 0255 to 0305

This operation was planned in two main sections. The Pathfinder Force and 5 Group were expected to be able to start fires between 0115 and 0130 hours which would be well established by 0130 hours when aircraft of Section 2 were detailed to start their attack. There was to be a lull of one hour on the course of the raid. The Pathfinder Force was allotted two functions, the first time over the target between 0115 and 0120 hours. They were to illuminate the target area with reconnaissance flares and start "blob" fires at the aim point with salvoes of 250 lb. incendiary bombs. Aircraft of 35 Squadron, equipped with Mark XIV searchlights were to concentrate on laying their incendiaries on the exact centre as early as possible in the attack and provide a focal point. The very large incendiary bombs (4000lb) were to be dropped 2-3 seconds during this period. The flares carried by aircraft of this force were fused to ignite a 150' over the target and the coloured identification flares were to be used.

- 7 Sq. 4 1/2 x 3 flares + 6 x 1000 lb. G.P.
- 35 Sq. 4 1/2 x 3 x 250 lb. incendiaries.
- 83 Sq. 2 1/2 x 3 x 3 flares + 1 x 4000 lb. incendiary
- 11 Sq. 1 1/2 x 3 x 4 flares + 8 x 250 lb. incendiaries.
- 134 Sq. 9 1/2 x 3 flares + 6 x 250 lb. incendiaries.

5. Between 0118 and 0120 hours all Hampdens of 5 Group were to attack and they were not to bomb before the P.P.F. had had time to illuminate the target adequately. The first crews were to start this phase of the attack between 0118 and 0120 hours, in order to guide the less experienced crews to the target. Only specially selected crews in 1st section were to carry flares and they were to be released in accordance with verbal instruction passed by 5 Group operations.

6. Between 0230 and 0240 hours all 4 Group aircraft, carrying maximum economical incendiary loads, were to attack. Special crews were to be selected to make reconnaissance of the target at 0230 hours in order to report on the progress of the raid. The next section consisted of all aircraft of Nos. 1, 91, 92 and 93 Groups with the Hampdens of 5 Group, carrying incendiary or H.E. loads. One crew of 148, 149, 150, and 300 squadrons were to be detailed to report on the success of the raid at 0300 hours. Aircraft of this section were to be over the target between 0230 and 0300 hours. During the last 10 minutes of the attack (0255 to 0300 hours) aircraft of 5 Group, including all of the P.P.F. which were detailed as part of the main force, were to attack with incendiaries. Half the aircraft were to carry 4 lb and the other half 30 lb incendiaries.

Every effort was to be made to adhere to the allotted times over the target. Crews which were detailed to attack between 0230 and 0300 hours were warned to expect well established fires at the aiming point but to take care to avoid decoys.

Go instructions

7. All navigators were to use Go instructions obtained on the outward journey to check wind velocity and ensure accurate D.T. at the turning point and accurate Target ETA.

Routes Briefed

8. The briefed routes were as follows: (see also the accompanying diagram):
- 1 Group - Mablethorpe - North of Texel - South of Delmenhorst - Bremen - turn right - Bassum - Enkhuizen - Mablethorpe.
 - 3 Group - Base - Cromer - North of Texel - Assen - South of Delmenhorst - Bremen - turn right - Bassum - Emden - Southwold - Base.
 - 4 Group - Scarborough - Texel - Bremen - Enkhuizen - Southwold.
 - 5 Group - North of Texel - Bremen - Bassum - Enkhuizen - Base.

Weather encountered

9. Bases :- Fine north of Wash; local mist and fog patches developed from 0200, more particularly in north Lincolnshire. Fair to cloudy south of Wash, with very low cloud South of T. base; occasional rain; moderate visibility.

Route:- 7/10ths - 10/10ths layer cloud over North Sea, tops 4,000 to 5,000 feet, base 2,000 to 3,000 feet. Variable amounts of medium cloud, with one report only of slight rim at 12,000 feet. Cloud breaking from Helligoland towards target.

Target; Mainly cloudless; occasional patches 2/10ths cloud, tops 2,000 to 3,000 feet; considerable haze. Wind at ground level moderate, westerly. There was no moon.

Weight of Bombs dropped by Aircraft claiming attack on Primary

10. H.E. bombs: 364 tons.	(including 4 x 8000 lb.)	
	(107 x 4000 lb.)	
	(5 x 2000 lb.)	
	(12 x 1000 lb.)	
	(122 x 1000 lb.)	
In incendiary bombs: 565 tons.		
No. of aircraft carrying 4 lb. incendiaries and H.E.		= 18
" " " " " " " " " alone		= 84
" " " " 4 lb. and 30 lb. incendiaries (mixed)		
	and H.E.	= 31
No. of aircraft carrying 30 lb. incendiaries and H.E.		= 84
" " " " " alone		= 26
" " " 250 lb. " " "		= 10
" " " 4000 lb. " " "		= 2

Navigational Aids

11. Reports from 94 aircraft show that the average distance from Daventry at which Gee fixes were obtained was 373 miles. A small proportion of aircraft were able to obtain fixes at the target, 422 miles from the master station.

RESULTSNight Photographic Evidence

12. Photographs taken with bombing (see accompanying diagram):
- | | | | |
|--|----|-------------------------------|-----|
| Plotted by ground detail... | 59 | Within 5 miles. | 32. |
| | | Between 5 & 5 miles | 9. |
| | | Outside 5 miles | 18. |
| | | | 59. |
| Unplotted photographs (with bombing) :- | | | |
| that show ground detail (all of open country.) | | | 58. |
| with no ground detail but with fire-tracks that might be plotted | | | 64. |

No fire plot is available for this raid, but even so it is evident that the attack was not so concentrated as the last operation against Bremen 9 days earlier. The photographs show that there were local concentrations of attack in the centre of the city, and in Suderverst near the Focke Wulf works. 15% of the plotted photographs (nearly all taken by aircraft in the first wave of attack) lie in open country between Delmenhorst aerodrome, and the Honstedt decoy, approximately 12½ miles from the centre of Bremen. The decoy was photographed at 0124 when it was not, however, in action. Of the photographs (with bombing) that have registered fire-tracks alone, the positions of possibly one third (21) might be fixed if a fire-plot were undertaken. In considering their effect on the existing distribution, they should be allotted between the concentration on

Bremen, and the cluster to the south-west, in the proportion of the plotted photographs. This suggests some such figure as 20 or 25% for the proportion of the aircraft reporting attack which did in fact bomb within 3 miles of the centre of the city.

The photographs taken in the first wave of the attack recorded incendiaries alight mainly in Sudervorst east of the Pecke Wulf factory, and in the old town. Only 11 aircraft of the second wave of attack obtained photographs with ground detail within the 3 mile circle, round the aiming-point. The earliest photographs from this phase of the operation show new sticks of incendiaries alight, but their position is uncertain as ground detail is lacking. The photographs do not suggest that well established fires remained from the first period of the attack.

One of the earlier photographs from the second phase (at 2.40) shows sticks of incendiaries burning in Sudervorst - including one across the aerodrome. Ten minutes later, fires and smoke from bomb bursts were photographed in the north of the old city, and in Ostertornvorst, and subsequently fires in east and south Bremen were recorded by other aircraft. Only two aircraft from the second phase of the attack have been plotted in the cluster 12 1/2 miles south-west of Bremen.

Day Reconnaissance.

13. The pilot of a Mosquito which passed close to Bremen on a day operation the following day reported large fires in the city which were visible for 50 miles at daylight. Subsequent photographic reconnaissance has covered only part of the city and some suburban districts. At the Pecke Wulf works at Heuenlund 18 of a group of single storey sheds, situated near the dispersal standings, and probably used for storage have been destroyed. The main part of the works however, does not appear to have received any fresh damage. The buildings of three other factories in Heuenlund, including a woodworking factory, have been burnt out. In Hastedt two medium sized buildings, probably the Lloyd Dynamo Works, have been damaged, one being gutted and the other half-destroyed by H.E. In this neighbourhood also three small sheds at a manufactory of armoured fighting vehicles and motor transport have been destroyed. Several incidents of damage to houses are seen in these suburbs which have been covered and in Sudervorst there are several areas of devastation, including one of 35 acres.

Narrative of Attack.

14. The P.F.F. found very thick haze at zero hour and had great difficulty in finding the target; the flares which they dropped to mark it were, in general, scattered. However, some flares were correctly placed and these assisted the P.F.F. crews who were carrying 250 lb. 'marker' incendiary bombs to drop some, at least, of these bombs close to the aiming-point. The "blob" fires thus raised were reported to be useful as markers by 0125 (10 minutes after zero hour).

Several crews report that they saw one of the 4000 lb. incendiaries burning with a reddish-yellow glow within the target area at 0125, approximately. An 8,000 H.E. bomb was dropped, at about the same time, by a Lancaster, which obtained a photograph with bombing, which has been plotted within 2 miles of the aiming point.

These aircraft attacking in the first wave, which obtained photographs of the target area, report that a useful flare cluster was dropped at 0130 and at 4 minutes later, both being accurately placed. The searchlight glare was intense and several crews compared it to a "wall-of-light" effect to the West of Bremen.

15. Aircraft attacking in the second wave found the fires started by the first wave still alight; at 0230, the fires were extensive, but scattered. At 0250 a crew which obtained a photograph of the target, reported that fires were burning north-west of the aiming-point, and that there was one particularly large fire south-east of the passenger station.

There are several reports of indiscriminate bombing to the south-west of Bremen. Dolmhorst was stated to have attracted a part of the attack and it is suggested that the Hastedt decoy situated about 13 miles south-west of Bremen, have been in action. Thick haze and smoke made pin-pointing very difficult and there was also more cloud during this stage than was encountered by the first wave. In spite of the difficulties of observation, the last crews to attack reported very large fires in the built-up area of Bremen, all of them being in colour.

/Timing of Attack

Timing of Attack.

16. (P.F.F.) One short string of flares was released 10 minutes before zero hour, 9 strings (including 1 short string) were dropped in the allotted period, and 7 strings (1 short) were late (4 between 0 and 5 minutes late, and 3 between 10 and 15 minutes); 4 salvos of 250 lb. incendiary bombs were dropped in the planned interval and 3 salvos were late (1 by 1 minute, 1 by 5 minutes, 3 between 10 and 15 minutes and 1 by 21 minutes).
- 1st Wave. (5 Group (except Handsons).
 (No. of aircraft bombing early) = 1 (by 1 min.) load: 1 x 8000 lb. bomb
 (No. bombing in allotted period) = 76
 (No. bombing late) = 13 (0-10 minutes)
 (No. of aircraft bombing early) = 21 (4 between 30 and 10 mins.)
 (17 " 10 and 0 ")
- 2nd Wave. (No. of aircraft bombing in allotted period) = 215.
 (No. of aircraft bombing late) = 2 (0-5 mins.)

N.B. In the above analysis of timing the separation is into the two major attacks only; the separate sections of each attack have not been distinguished.

Alternative Targets attacked.

17. 10 aircraft claim to have attacked the following targets in lieu of the primary:- Syle (1 aircraft), Texel aerodrome (1), Boonvliet aerodrome (1), Lingen (1), Oldenburg (2), a flak ship off the Frisian Islands (1), flak or searchlight positions in north-east Holland (2) and in the north German coastal area (1). The reasons for failing to attack the primary were technical defects in seven instances and lateness of take-off or late on E.T.A. in the remaining three.

Casualties.

18. The numbers of aircraft missing, damaged and intercepted in each wave were as follows:-

	Sorties	Missing	Destroyed		Intercepted	
			Flak	Fighters	Attacked	Not Attacked
1st Wave:	129	4 (3.1%)	11 (8.5%)	-	-	5 (3.9%)
2nd Wave:	317	16 (5.0%)	33 (12.0%)	8 (2.5%)	19 (3.9%)	33 (10.4%)
Total:	446	20 (4.5%)	49 (11.0%)	8 (1.8%)	19 (4.2%)	38 (8.5%)

The proportion of missing aircraft of the second wave is more than 50% greater than that of the first. The ratio of flak damage between waves two and one is also nearly 3:2. Moreover, only 4% of the first wave reported interceptions, none of which developed into attacks, whereas for more than 10% of wave two were intercepted and 4% attacked by fighters. When considering the higher casualty rate in the second wave it must be borne in mind that that section consisted of those types which usually show higher loss and damage percentages; however, the above figures suggest that the plan to confuse ground defences and fighter control by splitting this attack into two sections, separated by a one hour's interval, was unsuccessful.

Our own observations indicate that 2 aircraft of the first wave and 4 of the second were shot down by flak over Bremen, and that one aircraft of wave two was destroyed in the target area by a fighter. There is one report of a collision over the target. Outside the target area, 15 aircraft were shot down by fighters, 3 in the Swolle-Bergen area and 1 near Sneek. Our losses may be allocated therefore as 6 to flak, 5 to fighters and 9 to unknown causes of which 2 may have been due to collision.

19. Very intense light flak and moderately intense heavy flak (the latter being either of the predicted type or with the co-ordination of searchlight cones) were

reported to have been one entered over the target. Night photographic evidence confirms the strength of the opposition and indicates that both the flak and searchlight defences of Bremen were more intense in this attack than on the last raid on the city. Thus, on this occasion, more than four-fifths of the photographs, which have been plotted within 5 miles of the target, show heavy flak of a measured intensity of 14 single-gun discharges per aircraft compared with a proportion of just over one-half, and an intensity of 9, for the raid on September 4/5th. Both figures give necessarily only minimum values. The proportion of photographs showing light flak on this and the previous attack are three-fifths and one-half respectively, and it is noteworthy that the comparative intensity expressed by these percentages is unusually high compared with that for other targets, including such heavily defended centres as Essen and Dusseldorf. Searchlight activity appears to have been greater outside the target than over Bremen itself, being recorded by three-fifths of the photographs plotted within 5 miles but by more than four-fifths of those outside this radius. There is evidence of appreciably more searchlight activity than on the previous attack on Bremen.

Summary

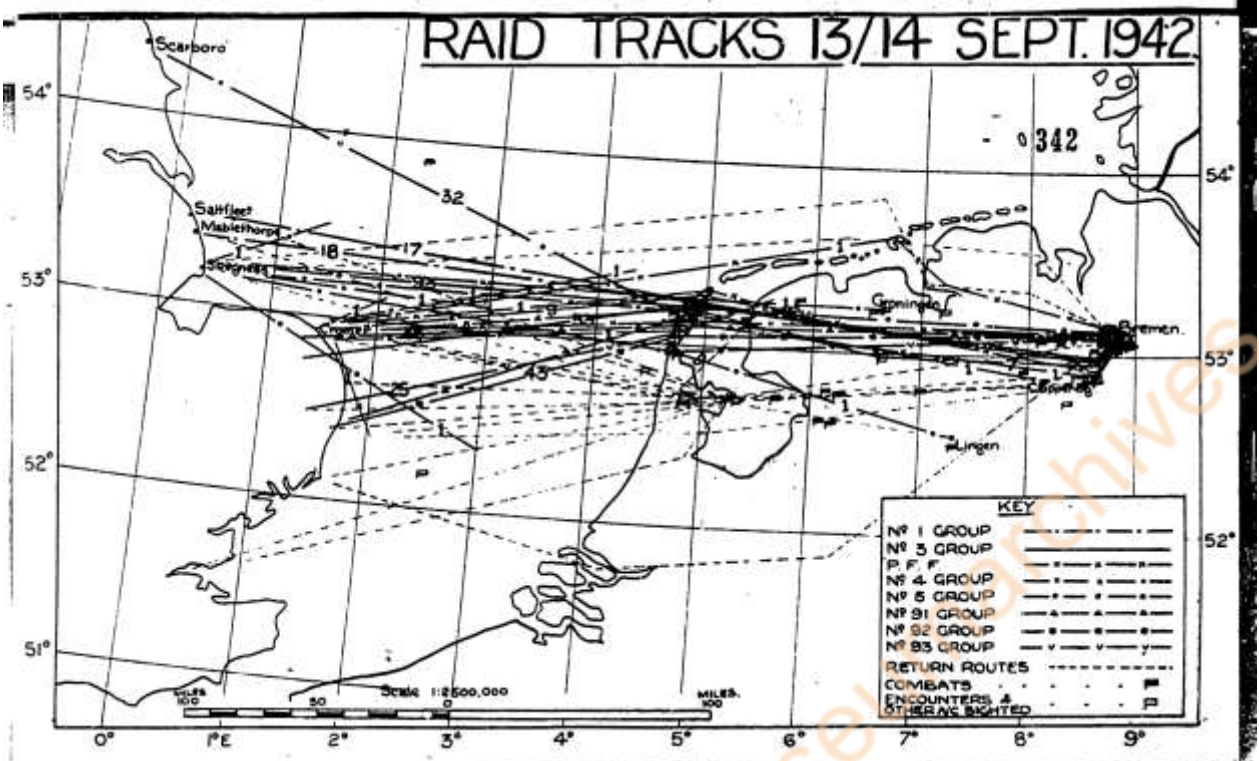
20. The daylight photographic evidence though incomplete, shows that this attack on Bremen was probably less successful than the last raid on this target, possibly because of poorer visibility, due to absence of moon and thicker haze. Nevertheless, much useful industrial damage was done particularly in the Hastedt and Neuenland districts. In spite of most intense flak and searchlight opposition, losses were not appreciably above average for this target, though there is no evidence that they were reduced by the subdivision of the attack into two sections.

BO/S. 26342/CRS.
15th November, 1942.

Target	Group	Type	No. of Sorties	Aircraft reporting attack on Primary.	Aircraft reporting attack on alternative Territory	Objective		Result not known	Disposition			Interception		
						Over Enemy Territory	Not over Enemy Territory		Missing	Damaged by flak	Damaged by enemy aircraft	Not asked	Attacked	
BREMEN	P.F.P.	Stirling	8	7*		1			14					
		Halifax	5	5*					1a				3	
		Well. Ill.	12	6*	1	2	1		1a					
	1	Well. Ill.	5*	5										1+3
		Well. Ill.	16	10	1		2		2					2 Well
		Well. Ill.	20*	23	1	2	1		3a	1a	1a	1	3 type	1
	3	Halifax	7	5					1a	1a	1a	1	1	unknown
		Well. Ill.	22	25					1a					7
	4	Stirling	43	33	1		1	7	1	1E, 1/2a	1E	1E, 1/2E	1	4
		Halifax	35	29			2	5	1	1AC, 5a	1a	1E	2	
	5	Well. Ill.	7	7						1E				
		Langley	29	30	1			5	2	1E, 1/2a				2
	91	Harmond	7*	5			1	1						
		Whitley	10*	9					1	1a			1	2
	92	Well. Ill.	46*	29	1	2	2	7	6	7a	10, 1/2	1a	2a	2
Well. Ill.		11	11	2	1	1				1a			1	
93	Well. Ill.	12	12					1	2a	1a	1E		1	
	Well. Ill.	30*	25	2		1	5	2	3a	1a	1E	2	3	
94	Well. Ill.	22*	16			1	5		1AC, 2a		1E, 1AC		4	
	Well. Ill.	4	3				1		3a					
TOTAL		340	353	10	14	14	40	1	2a	34 41a	2E, 2E	1E, 2E	13 3E	

Total Objective = 82
* Not fitted Goc
+ of the P.F.P., 3 Stirlings, 3 Halifaxes and 1 Wellington attacked with the Main Force in the second wave.

RAID TRACKS 13/14 SEPT. 1942

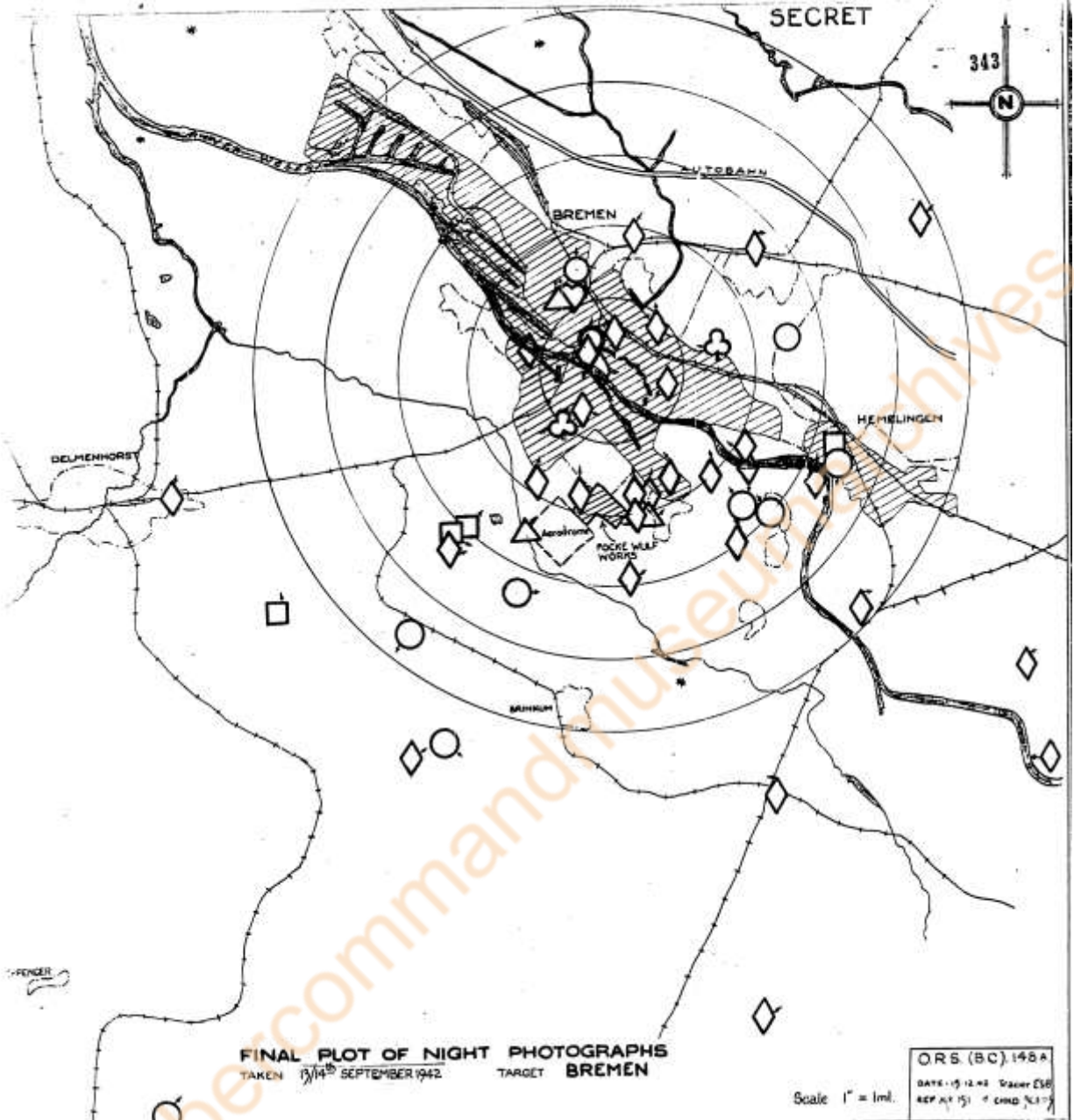


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SECRET

343

N



FINAL PLOT OF NIGHT PHOTOGRAPHS
TAKEN 13/14th SEPTEMBER 1942 TARGET BREMEN

Scale 1" = 1ml.

ORS. (BC) 148A
DATE: 15 12 42 DRAWN: ESB
REF: 151 CHNG: N.L. 9

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APPENDUM - NIGHT RAID REPORT NO. 151.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 13/14th
SEPTEMBER 1942.

BREMEN.

Daylight reconnaissances were carried out on 1st October and 23rd September, 1942. These cover the results of the night raid of 13/14th September and a few items from previous raids photographed for the first time. The prints are of poor quality, and the cause of a number of accidents cannot be elucidated.

No very large areas of devastation can be seen, but heavy damage is scattered all over the town. Industrial and residential property have been affected equally, and about 80% of the total damage appears to have resulted from fire. Industrial buildings that have been hit include the Lloyd works, the Borgward engineering works, a jute spinning and weaving mill, and a considerable number of smaller industrial buildings. In addition, many warehouses have been partially destroyed. No damage is visible in the Pooke-Wulf aircraft factory at Neunland, although eighteen huts of an encampment north of the works have been devastated by H.E. This was probably a workers' settlement. The Schauspiel Haus and the Deutsche Bank have been seriously damaged by fire, and the State Museum by blast. At least 300 houses have been destroyed.

26342/3/ORS.
January, 1943.

EVD.

www.bombercommand.com archives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 14/15TH NOVEMBER, 1942

(WILHELMSHAVEN)

Meteorological Advice Submitted to the Command

1. 0910 hours:- At midnight a feeble wave front was almost stationary, from Stadlandet, to Tynesouth, to Anglesey. Visibility troubles at bases will be local only. Clear skies are expected over the whole of north Germany, but there will be some haze. Further south there will be variable amounts of cloud at all levels with an expectation of thunderstorms this evening.

1245 hours:- There is now a more definite threat from the south due to a slow northerly drift of the thunderstorms over north France. At bases, south of a line halfway between Yarmouth and Folkestone to Ross, there is now a threat of cloud below 1000 feet, certainly late in the night and perhaps even all night. North of this line, but south of a line from the Wash to Pembroke, skies may be clear, but fog may become widespread in the latter part of the night. Further north no cloud is expected but there may be some troubles.

1610 hours: The onset of rain in the south has raised the dew-point of the air there, and for this reason all bases south of a line from the Wash to Bristol are expected to be unfit owing to low stratus or fog soon after midnight. Stations in 1, 4 and 5 Groups are expected to remain fit until between 0200 and 0300 hours, and will probably offer suitable diversions for 3 Group's aircraft. 6/10ths medium cloud has now been reported in the Heligoland Bight, contrary to expectations. This cannot be ignored, as similar amounts at heights of about 10,000 feet must be forecast for the Hamburg and Wilhelmshaven areas, with rather more at Bremen.

1830 hours: Stations in 1, 4 and 5 Groups will be safe diversions for 3 Group's aircraft. There is an even chance that 3 Group's stations will also be fit.

Executive Orders

2. Deteriorating weather conditions at bases, especially in the south, made an early return necessary, thus enforcing a short range. Wilhelmshaven was chosen as a suitable target, where favourable weather might be expected.

Sorties

3. (a) Number of Sorties despatched	= 202
(b) Number reporting attack on Primary	= 182 (90.1%)
(c) Number reporting attack on other targets.	= 3 (1.5%)
(d) Abortive Sorties:	
Technical defects	= 12
Inability to identify target	= 1
Bombs released prematurely	= 1
Unknown; crashed after take off	= 1
	<u>15</u>
(e) Missing	= 15 (7.4%)
	= 2 (1.0%)

Plan of attack.

4. Zero hour: 2200 hours.

Period of attack: 2200 - 2230 hours.

Pathfinder Force (19 aircraft) Zero to zero + 5 mins.

Main Force:

(a) All aircraft of 3 Group zero + 5 mins, to zero + 15 mins.

(b) All remaining aircraft (including 6 P.F.F. aircraft) zero + 10 mins to zero + 30 mins.

5. It was intended that the Pathfinder Force (19 aircraft) should operate over the target between 2200 and 2205, releasing bundles of reconnaissance flares and incendiaries. The flares were intended to provide sufficient illumination of the target area for location of the aiming-point, while the incendiaries were to be released in salvoes to produce blob fires. Aircraft of 35 Squadron, equipped with Mark XIV bomb-sights, were to concentrate on releasing their incendiaries exactly over the centre of the aiming-point, as early as possible in the attack.

- Bomb loads:- 4 Stir. 14 x 3 flares + 6 x 1000 lb. G.P.
- 5 Hal. 15 x 250 lb. incendiaries.
- 5 Lanc. 6 x 4 flares + 8 x 250 lb. incendiaries.
- 5 Well. 12 x 3 flares + 6 x 250 lb. incendiaries.

6. The first section of the Main Force consisted of all aircraft of 3 Group, attacking with maximum economical incendiary loads of 4 lb. or 30 lb. incendiaries between 2205 and 2215 hours. Aircraft in this section were warned against releasing their loads before the Pathfinders had had time to illuminate the target. The second section of the Main Force consisted of all aircraft of No's. 1, 4 and 5 Groups + 6 P.F.F. aircraft, 3 Lancasters each were to carry 1 x 8000 lb. H.C. bomb, the other Lancasters were to carry mixed loads of H. E. and incendiary bombs. Halifaxes and Wellingtons, with the exception of Wellington 423's, were to carry incendiary loads. The period of attack for this section was 2210 - 2230 hours. Aircraft of the Main Force were permitted to use reconnaissance flares, if this seemed necessary, fused to ignite at 1500' but these flares were not to be dropped by any aircraft of this force before 2205 hours. One aircraft of each of the Lancaster Squadrons as well as one from each of 103, 142, 150 and 300 Squadrons were detailed to reconnoitre the target at 2230 hours, with a view to making an interim report of the progress of the attack.

Gee Instructions

7. It was considered likely that reception by Gee sets of all three pulses would be satisfactory as far as 6° E., and navigators were to use fixes obtained west of this point to check wind velocity and assist DR. to the target. The position on ETA at the turning-point was to be checked by Gee to ensure setting the correct course for the target.

Routes:

8. The briefed route for all Groups was as follows (see also the accompanying diagram):

Base - 54° N. 06° E. - Wilhelmshaven - turn left 54° N. 07° E. - Base.

Weather Encountered.

9. Bases:- Variable amounts of cloud. A few local mists or fog patches developed by midnight, but dispersed towards dawn. Cloud, below 1,000 feet, affected areas south of a line from Felixstowe to Pembroke, and there was occasional light rain.

Route:- In the west part of the North Sea route 7/10ths to 8/10ths cloud was experienced, with base at 4,000 feet and tops from 6,000 to 9,000 feet.

In the Central North Sea area, 10/10ths cloud was encountered extending from between 3,000 and 4,000 feet upwards to 6,000 to 10,000 feet.

A second, higher layer of medium cloud in varying amount, was present between 10,000 feet and 14,000 feet.

Target:- Variable amounts of low cloud and thick haze were reported in the target area, nevertheless a number of aircraft obtained photographs of excellent quality. Wind at ground level was 0 - 5 m.p.h. from the east. There was no moon.

Navigational Aids.

10. Reports from 139 aircraft show that the average range from Davontry, at which Gee fixes could be obtained was 313 miles; some aircraft however, were able to obtain fixes at the target, 395 miles from the master station.

Weight of bombs dropped.

11. (a) H.E. bombs 159 tons including:

1 x 8000 lb.
61 x 4000 lb.
2 x 2000 lb.
4 x 1900 lb.
83 x 1000 lb.

(b) Incendiary bombs 269 tons.

Number of aircraft carrying 4 lb. incendiaries + H.E.	= 23
" " " " " 4 lb. incendiaries	= 54
" " " " " 4 lb. + 30 lb. incendiaries+H.E.	= 19
" " " " " 30 lb. incendiaries + H.E.	= 34
" " " " " 30 lb. incendiaries	= 20
" " " " " 250 lb. incendiaries	= 15

Photographic Evidence.

12. Number of photographs taken with bombing that have been plotted (see accompanying diagram):-

By ground detail	60	Within 3 miles	34
By fire tracks (no fire-plot available)	0	Between 3 and 5 miles	10
		Outside 5 miles	16
Unplotted photographs with bombing:			60
that have recorded ground detail			27
		Total ...	87
with no ground detail but with fire-tracks			
that might be plotted		approx.	20

The night photographs show that a very fair proportion of the attack fell on Wilhelmshaven. Sticks of incendiaries were burning in the dock area, in the town and suburbs to the north and west as the attack developed. Two particularly large columns of smoke came from fires in the built-up area a little north of the docks. A photograph of the Rüsterial decoy taken halfway through the operation shows that it was not then in action, nor does the Etzel decoy seem to have been in use.

13. An examination of the reports of those crews, who obtained photographs of the target area, shows that assessment of results and identification of ground detail were extremely difficult, owing to the thick haze. Several crews report having spent up to 20 or 30 minutes in searching for pinpoints. There is fairly general agreement that the P.F.P. flares, though not concentrated in space or

time, did, in fact, approximately ring the target and were useful in illuminating it, during certain periods. The general accuracy in the placing of flares is confirmed by the fact that several crews who bombed by flare-light, did in fact obtain photographs of the target. The earlier arrivals report that the first fires started were scattered and failed to get a good hold. Later reports describe at least one large, concentrated fire, from which the glow was visible at distances of from 60 to 80 miles. Several crews report having observed 4000 lb. bomb-bursts in the town and near the docks. There are several references to a particularly large explosion in the dock area near the end of the period of attack. Only two of those crews, who had been detailed to make a special reconnaissance of the target, succeeded in photographing Wilhelmshaven and their reports confirm that, although there was considerable scattered bombing with only a few fires early in the attack, a large number of incendiaries fell in the town at about 2220, starting fires, which were burning well at the end of the raid.

Timing of Attack.

14. Owing probably to the haze, and consequent difficulty of target location only 4 of the 19 Pathfinders detailed to mark the target did so in the allotted period. However, two-thirds of the flares had been dropped by 10 minutes after zero hour and the flare illumination appears to have been practically continuous from zero hour to zero + 15. The 250 lb. incendiaries were fairly evenly distributed in time throughout the whole of the planned period of attack (with the exception of the first five minutes, during which none were released).

Main Force (Both sections)

Number of aircraft bombing early (6 - 0 minutes)	=	4
" " " " during planned interval	=	150
" " " " late: 0-10 minutes	8	
	20	1
		= 9

There were considerable intermingling of the two sections of the main force; 16 aircraft of section 1 (Incendiary wave) dropped their bombs late and 8 aircraft of section 2 bombed early.

Other Targets Attacked.

15. Three aircraft report that they bombed the following targets in lieu of the primary: Wesermünde, Emden and an aerodrome 4 miles north-east of Norden. The reasons for not attacking Wilhelmshaven were: (1) the heavy flak encountered at Wesermünde and (2) a late take-off or estimated late arrival in the other two instances.

Casualties.

16. The numbers of aircraft missing and damaged, and of reported interceptions are as follows:-

<u>Sorties.</u>	<u>Missing</u>	<u>Flak</u>	<u>Damaged</u>	<u>Not Enemy Action.</u>	<u>Interceptions</u>
			<u>Fighter</u>		<u>Attacks.</u>
202	2 (1.0%)	12 (5.9%)	1 (0.5%)	1 (0.5%)	6 (3.0%)
					9 (4.5%)

The proportion of aircraft missing is unusually low, and the proportions of damaged aircraft and interceptions are also low. No interceptions or claims of controlled night fighters were heard. Our own observations indicate that one loss was probably due to flak over the target and that the other was probably not caused by enemy action. The low casualties are no doubt partly due to the extremely short time during which our aircraft were over enemy territory. The thick haze at the target may have prevented the use of searchlights, and, since there was no moon, night fighters were less able to make interruptions.

17. Photographic evidence confirms the comparative inactivity of searchlight and also of flak defences at Wilhelmshaven on this occasion. Less than one-half of the 47 photographs, plotted within 5 miles of the aiming-point, show heavy flak. The measured intensity (and this is necessarily only a minimum

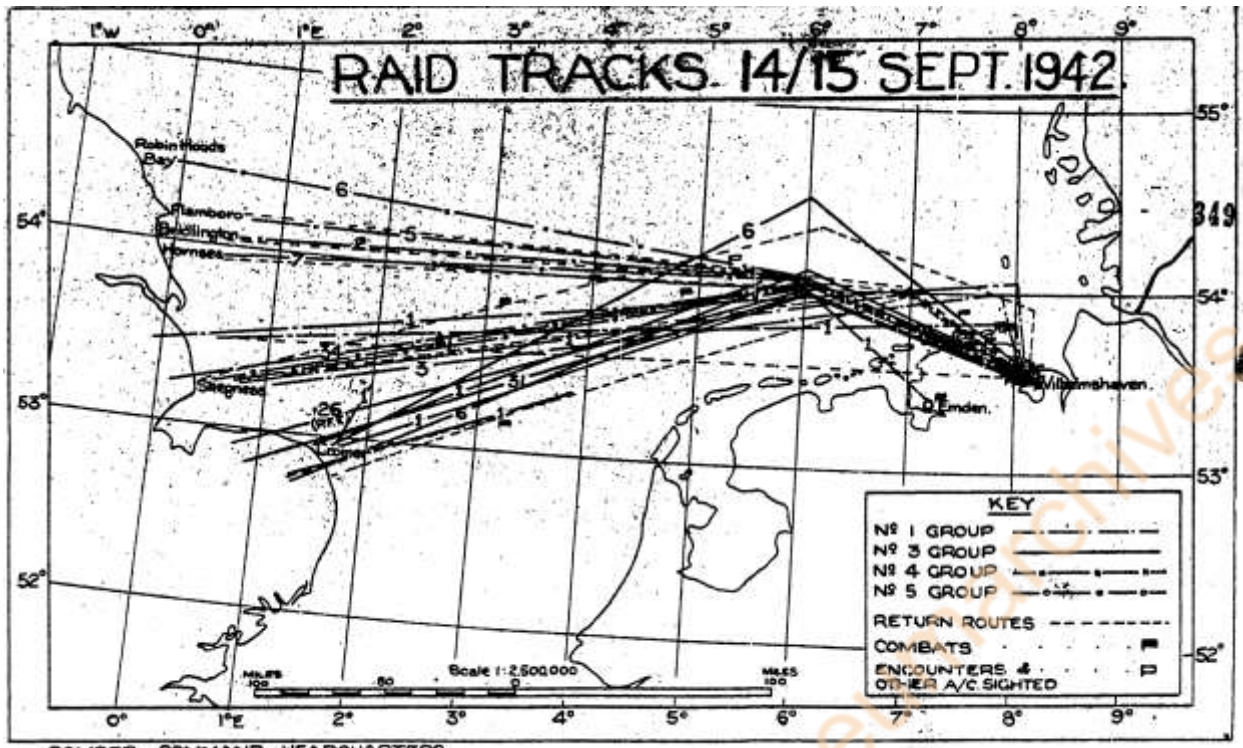
figure) is 2.4 single-gun discharges per aircraft from batteries of 4 guns or less. Light flak is recorded by just over one-third of the photographs and searchlights by less than one-third. Of the sixteen photographs plotted outside the 5-mile radius the proportions showing heavy flak and searchlights do not appreciably differ from those quoted above, but there is no evidence of light flak.

SUMMARY

18. Though the weather was indifferent this raid undoubtedly achieved considerable success at a very low cost. The part played by the P.F.F. in marking the target, in spite of the thick haze, is noteworthy and may have contributed largely to the useful results obtained. 90% of the sorties report having attacked Wilhelmshaven - an unusually high proportion.

BC/S26342/2/OPS.
4th November, 1942.

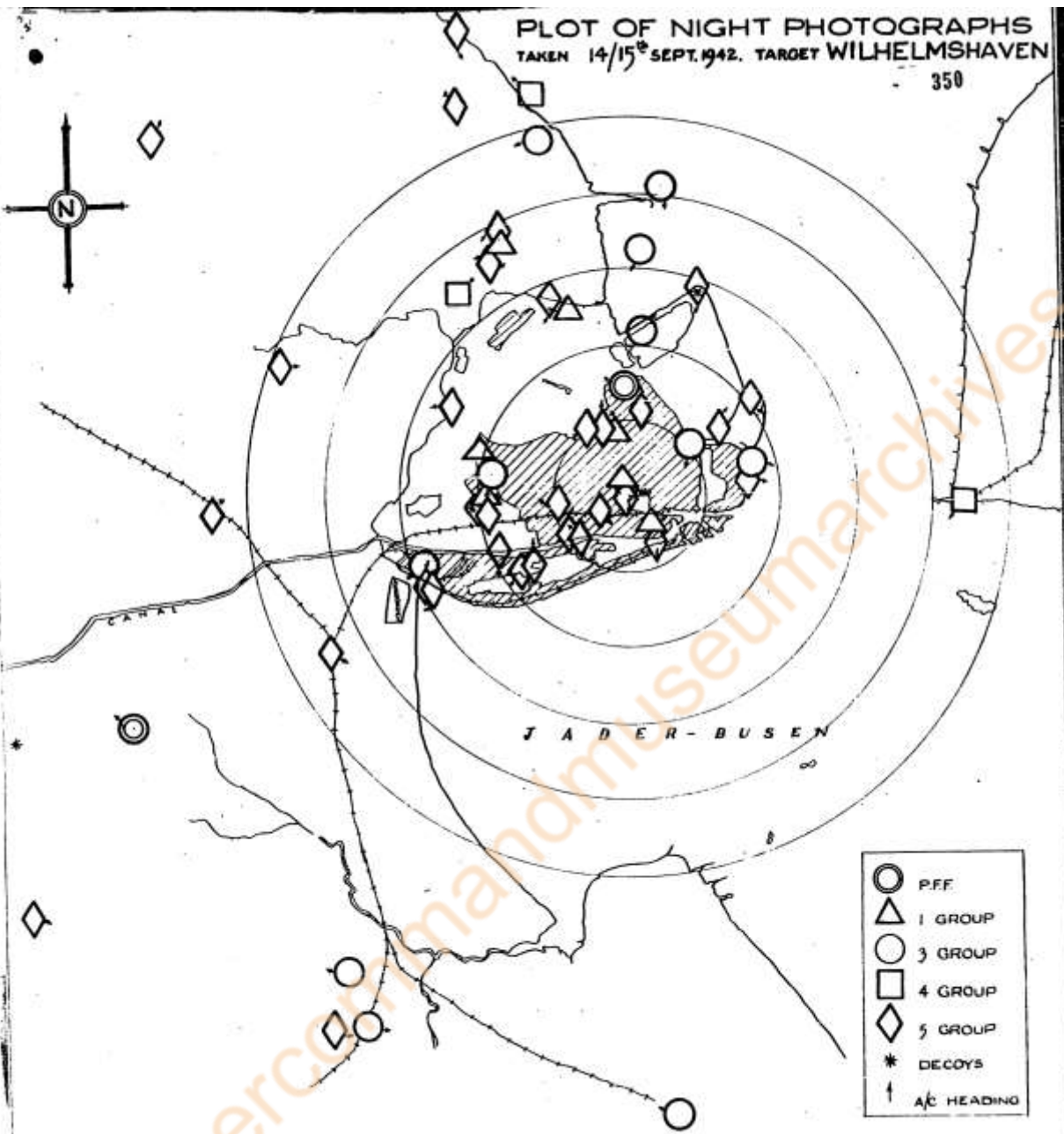
		Primary Area.	any to attack alternative targets.	over Enemy Territory	not over Enemy Territory	not known	missing	damaged by Flak	damaged by Enemy Aircraft	not due to Enemy Action	Attacked	Not Attacked
WILHELMSHAVEN	PFF	Stirling X4	4					1 n				
		Halifax eH	8						1A		1	1
		Lancaster eL	6									
		Woll.III eW	5		1	2					1	
	1	Woll. II 6 *	6		1		1					
		Woll. III 8	8					2 n				1
		Woll. IV 26 *	26					2 n				2
		Halifax 3	2		1							1
	3	Woll. III 24	23				1	1 AC				
		Stirling 23	17	1		5		1 AC			1	1
								1 n				
	4	Halifax 10	19								2	
		Woll. III 1	1									
	5	Lancaster 68	56	1		5		3 n				
		Halifax 3	3	1				1 AC				1
										11		
	Total	202	162	3	1	14	2	3 AC 2 n	1 A	12	6	9
	* Not fitted Cap Total abortive = 15 including 3 Halifax, detailed to attack with the second section of the Main Force. 1 Lancaster, " " " " " " " " " " " " 2 Woll. III, " " " " " " " " " " " " 1 Stirling, " " " " " " " " " " " "											



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PLOT OF NIGHT PHOTOGRAPHS
TAKEN 14/15th SEPT. 1942. TARGET WILHELMSHAVEN

350



- P.F.F.
- △ 1 GROUP
- 3 GROUP
- 4 GROUP
- ◇ 5 GROUP
- * DECOYS
- ↑ A/C HEADING

Scale 1" = 1 mile

Three photographs have been plotted outside the area shown on this map

www.bombercommandmuseumarchives.ca

AT NO. 1305
 COPY TO: [initials] WIP ROOM
 8 NOV 1942
 18 [initials]
 TIME: [initials]

BOEMER COMMAND REPORT ON NIGHT OPERATIONS 15/16TH SEPTEMBER 1942

(MINELAYING)

Metecorological Advice Submitted to the Command.

351

1. 0930 hours. The estimated positions, at midnight, of the four fronts now in existence are: (1) a warm front, from 59°N. 17°E. to 54°N. 24°E; (2) a cold front, from 59°N. 17°E. to 49½°N. 11°E; (3) an occluded front, from 58°N. 14°E. (South Sweden) to Lannheim to La Pallice; (4) a second occluded front from 60°N. 12°E. (East of Oslo), to east of Hamburg, to east of Cologne, to Nantes.

At the bases, there will be little cloud and moderate to good visibility. Over Germany, east of the second occluded front, there will be much low cloud with occasional rain; over the North Sea coastal strip of Germany, there will be convection cloud with breaks. Inland over Germany, some 40 to 50 miles behind the second occluded front, the amount of cloud is expected to lessen and visibility should be good.

1235 hours. There is no change from the advice given at 0930 hours.

1600 hours. Bases: All bases are expected to be fit all night.

Targets: 6/10ths. to 9/10ths. convection cloud will probably be found in the Frisian Islands region with bases at 2,000 to 3,000 ft (down to 1,000 to 1,500 feet in occasional, thundery showers) and tops up to 15,000 feet. Freezing level is expected to be 5,000 feet. The wind velocity is likely to be 30 m.p.h. at the surface, and 40-45 m.p.h. at 2,000 feet. The position of the La Pallice target area in relation to the frontal systems is uncertain. It is possible that this area will be well behind the second occluded front soon after midnight; in this event the cloud should then be dispersing; but even if it be found necessary to cross this front in the La Pallice region, the cloud base is unlikely to be below 1,000 feet.

Sorties: (for details see attached table)

2. Number of Sorties despatched	=	40
Number claiming to have mined the primary areas	=	35 (87.5%)
Abortive Sorties: (Engine trouble.....2) (Unable to pinpoint....3)	=	5 (12.5%)

Number of Mines Laid

3. The number of mines laid by aircraft claiming to mine the primary areas—98

Weather encountered

4. At bases; fine, little cloud, good visibility.
 Frisian Islands. Much heavy convection cloud, becoming 10/10ths at 1,000 feet, locally. Some thunderstorms and hail.
 Route to Frisian Islands: - Fine in the west, becoming cloudy eastwards.
 Wind at 2,000 to 5,000 feet; 40 to 50 m.p.h. from W.N.W.
 Gironde: - No cloud, slight haze.
 Route to Gironde: - Locally, over France, 6/10ths to 8/10ths cloud, tops 4,000 feet; elsewhere, little cloud.
 In the Frisian Islands area, the moon, which was 31% of full, set after 7 aircraft (out of 26) had laid their mines. In the Gironde estuary, the moon set before minelaying began.

Results

5. Frisian Islands Area 26 aircraft report laying 63 mines successfully in their allotted positions. About half these aircraft were able to obtain visual fixes on the various east Frisian Islands, including Langeoog, Baltrum, Juist and Schiermonnikoog. 11 aircraft, however, relied entirely on Gee fixes, and 1 dropped mines on E.T.A., being unable to obtain a Gee fix or a visual pin-point. The aircraft which were unable to pin-point were, almost without exception, the earlier arrivals. This indicates that weather conditions were improving in this area during the minelaying period, which extended from 2052 hours to 2230 hours. Three aircraft abandoned their task, two in the Cuxhaven area and one in the Sylt Island region, because they were unable to obtain any pin-point.

/6. Gironde estuary.

6. Gironde estuary. 9 aircraft report laying 36 mines in the allotted positions. One mine was seen to explode on hitting the sea.

All these aircraft were able to fix their positions visually by pin-points on L'Île de Re, Île d'Oléron and Pointe de la Coubre. The period of minelaying in this area was from 2222 hours to 2345 hours.

Casualties.

7. No aircraft is missing from these operations, but one Wellington crashed on landing, owing to collapse of the undercarriage, sustaining damage of Category B.

There were no reports of attacks or interceptions by enemy aircraft.

Target	Group	Type	No. of Sorties	Aircraft claiming to mine primary area.	No. of mines laid	Abortive		Losses
						Over Enemy Territory.	Not over enemy territory.	
Breisian Islands	1	Well IV	+15	12	24	3	-	1, Cat. B.
		Well IV	3	3	6			
	3	Well III	9	8	16		1	
		Stirling	4	3	17		1	
Gironde Estuary	3	Stirling	9	9	30			
TOTAL			40	35	98	3	2	1, Cat. B.

+ Not fitted Geo.

Total Abortive = 5

29th October, 1942.

BC/S. 26342/3/ORS.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 16/17TH SEPTEMBER 1942.

(ESSEN)

Meteorological Advice Submitted to the Command.

1. 0915 hours: The estimated midnight positions of the two existing fronts are: warm front, from $57\frac{1}{2}^{\circ}\text{N}$. 10°W . to south-east Ireland to 47°N . 05°W ; cold front, from 50°N . 20°E . to Vienna to north Italy. Over north-west Germany, fine weather is expected inland with good visibility, which should extend to the coast, where there may, however, be broken convection cloud. Moderate visibility and some medium cloud are to be expected at home bases. Winds over the North Sea (at 15,000 feet) are expected to vary from about 50 miles per hour south of 53°N . to 60 miles per hour between 53°N . and 55°N . from a direction of about 300° .

1235 hours: A minor warm front, ahead of the main warm front, will probably have reached central England by midnight, by which time medium cloud from it is likely to have spread some considerable distance eastwards, probably as far as the Ruhr; however, it is not yet possible to say how much cloud will be found in that area by midnight. Visibility should be good. The existence of this front is not expected to affect home bases seriously, though visibility may be poor locally.

1600 hours: In the Ruhr, small amounts of medium cloud are likely to be encountered up to midnight, after which the amount of cloud is expected to increase. Conditions at bases are uncertain late in the night. Both these factors favour as early an operation as possible. The wind velocity and direction at 15,000 feet is expected to be 55 miles per hour from 305° , but the velocity will probably be less by the time of return. The route recommended is a southerly outward route and a northerly return.

Executive Orders

2. The very high wind forecast for this night necessitated the choice of a short range target. This condition, and the small amount of cloud expected, were likely to ensure better visibility than usual in the Ruhr, so that Essen was chosen as a specially suitable target in the circumstances. The full strength of the operational Groups, supported by contingents of the O.T.U.'s was employed.

Sorties (See table for details)

3. Number of sorties despatched	= 368
Number reporting attack on primary	= 244 (66.3%)
Number reporting attack on other targets	= 12 (3.3%)
Abortive Sorties:	
Technical defects	= 53
Attacked by fighter	= 6
Sickness of crew	= 4
Unable to identify	= 2
Faulty navigation	= 1
Reason not stated	= 6
Result not known (aircraft crashed on return)	= 72 (19.6%)
Missing	= 1
	= 39 (10.6%)

Plan of Attack

4. Zero hour 2200 hours.

Period of Attack

Pathfinder Force (planned to consist of 19 aircraft)	zero hour to zero + 5 mins.
Main Force { (a) aircraft carrying mixed H.E. and incendiaries.	zero + 3 to zero + 20 mins.
{ (b) aircraft mostly carrying incendiaries and a few aircraft carrying H.E.	zero +15 to zero + 40 mins.
{ (c) aircraft carrying incendiaries only.	zero +35 to zero + 45 mins.

5. In this operation, aircraft of the Pathfinder Force were allotted the task of marking the target between 2200 and 2205 hours for the Main Force. The technique to be adopted consisted in the release by 3 Stirlings of bundles of reconnaissance flares, at 6 second intervals to form long strings across the target area between the positions 51°27'N. 06°57'E. and 51°26'N. 07°06'E. at zero hour. Other aircraft of this force were to endeavour to drop short sticks of reconnaissance flares across the actual aiming-points at 3 or 4 second-intervals. The 4 best crews of Lancasters were then to drop salvos of 250 lb. incendiaries on the aiming-point when it was illuminated.

Bomb loads : - 7 Stirlings - 24 x 3 flares
 4 Lancasters 14 x 250 lb. incendiaries
 2 Lancasters 14 x 4 flares
 6 Wellingtons 18 x 3 flares

5. The first wave of the Main Force consisted of the Lancasters of 5 Group, which were to concentrate their attack on the mark provided by the pathfinders' salvos of 250 lb. incendiaries if they were satisfied that this was the correct aiming-point. These aircraft were to be over the target between 2203 and 2220 hours; the majority were to carry loads of 4000 lb. H.C. bombs made up with 30 lb. incendiaries and these aircraft were to lead this phase. 4 Lancasters (3 of 97 S. and 1 of 106 Sq.) were each to carry 1 x 3000 lb. H.C. bomb and the remainder were to carry loads of 4000 lb. H.C. bombs made up with 4 lb. incendiaries. One crew from each squadron was to be detailed to reconnoitre the target at 2220 hours and report on the progress of the raid.

7. The second wave consisted of all aircraft of 1, 91, 92 and 93 Groups and all Wellingtons of 3 and 4 Groups. The Wellington 423's and O.T.U. aircraft with pupil crews were to carry H.E. but all other aircraft were to carry incendiaries. This phase of the attack was to last from 2215 to 2240 hours and the best crews with incendiary loads were to lead. Special reconnaissance reports on the success or otherwise of the raid were required from one crew of 12, 142, 150 and 301 squadrons.

8. The third section of the Main Force consisted of the Stirlings of 3 Group and the Halifaxes of 4 Group carrying maximum economical incendiary loads. The time over the target for these crews was from 2235 to 2245 hours. No aircraft of the Main Force was to drop flares within 50 miles of the target. Every effort was to be made to adhere strictly to the allotted times over the target. In view of the heavy defences of the target, air bombers were to be cautioned against the danger of undershooting the target and to beware of decoys. Gee fixes obtained on the outward journey were to be used to check wind velocity and target ETA, which were considered to be of the utmost importance in view of the high wind forecast.

Routes

9. The briefed route was as follows : see also the accompanying diagram.
 All Groups : Base - Kampen - Essen - Altenkirchen - Malmédy - Furnes - Base.

Weather Encountered

10. Base: Fair, with well broken cloud and good visibility.

Route: Broken layer cloud, with good visibility. The wind at 15,000 feet was 45-60 m.p.h. from 300°

Target: Variable amounts of layer cloud, usually less than 5/10ths, was reported at 4,000-6,000 feet and at 8,000 - 9,000 feet. The amount of cloud decreased during the operation. Apart from some haze visibility was reported to have been good.

Some 15 of the night photographs show thick strato-cumulus cloud, while in other the vague outline of ground detail suggests that haze was present, at least in patches.

The moon, which was 42% of full, set at 2205 hours, i.e. 5 minutes after zero hour.

Weight of bombs dropped by aircraft reporting attack on primary.

11. H.E. bombs 202 tons, including 1 x 8000 lb.
 71 x 4000 lb.
 45 x 1000 lb.

Incendiaries 299 tons

{	No. of aircraft dropping 4 lb incendiaries + H.E.	+ H.E. only.	
	" " " " 4 lb " "		
	" " " " 30 lb. " "		+ H.E. only.
	" " " " 30 lb. " "		+ H.E. only.
	" " " " 4 lb + 30 lb. " "		+ H.E. only.
" " " " 250 lb " "	+ H.E. only.		

Navigation Aids

12. Reports from 99 aircraft on the performance of Gee show that 6 aircraft succeeded in obtaining fixes at the target (355 miles from Daventry). 1 aircraft bombed blind on Gee, while the other 5 were able to check their fixes by visual identification. The maximum range at which a Gee fix was obtained was 420 miles, which is somewhat greater than the distance of the furthest turning point (Altonkirchen). The average range at which fixes could be obtained was, however, considerably less, namely 307 miles.

ResultsPhotographic Evidence

13. Number of photographs taken with bombing that have been plotted (see accompanying diagram):

By ground detail..... 40	within 3 miles..... 13
By fire-tracks (no fireplot available)..... 0	between 3 & 5 miles..... 8
	outside 5 miles..... 19
	<u>40</u>

Unplotted photographs (with bombing):

that have recorded ground detail (partly built-up areas)..... 6
" " " " " (open country)..... 16
<u>62</u>

with no ground detail but with fire-tracks that might be plotted	(approx)..... 40
--	------------------

14. The plot of photographs represents the best concentration ever achieved against Essen. The 21 photographs within 5 miles is one-third of the total number of photographs with ground detail, while as the diagram shows, some of the aircraft bombing outside 5 miles from the centre of Essen have obtained photographs of industrial or built-up areas in the Ruhr where useful damage may have been done. Some of the 6 unplotted photographs showing built-up areas largely obscured by cloud may well fall within 5 miles, and there is no doubt that but for the cloud and haze the number of photographs with ground detail would have been larger. Many negative frames exposed with bombing have recorded fire-tracks alone, and in some 40 of these the tracks are sufficiently characteristic to give a likelihood of their positions being identified if a fire-plot were undertaken. The evidence is hardly sufficient to permit an estimate as yet of how the existing distribution of photographs would be modified but it is unlikely that there would be any considerable changes.

15. Only six flare-carrying P.F.P. aircraft claim to have reached Essen. Of these six, four, which were unable to obtain visual pin-points (owing to cloud and darkness) released their flares on Gee or E.T.A. and some undoubtedly fell outside the target area, being reported by crews whose photographs have been plotted at distances of up to 15 miles north, west and south-west of Essen. The two remaining P.F.P. flare-carrying aircraft report that they succeeded in pinpointing their positions from the Dortmund - Ems canal, 3 to 4 miles North of Essen, and their reports are substantiated by half a dozen crews who were able to bomb the target by the illumination of the flares dropped, obtaining confirmatory photographic evidence of the position. However, as both these aircraft released their flares at approximately the same moment, illumination of the target area can only have extended over a short interval, and aircraft which bombed after 2220 were forced to rely on fires for illumination. Pin-pointing was made difficult by darkness and by the haze, which occurred at ground level in spite of the strong wind at operational heights. Although the half-moon set at the beginning of the operation, cloud amount was then large, and there is general agreement that it was very dark throughout the period of attack. Examination of the reports of all those crews who obtained photographs of the target area shows that only a few small scattered fires were burning in Essen before 2215 (15 minutes after zero hour) but that these increased in number and size during the next 10 minutes, later arrivals reporting several large fires and many smaller ones in the town. There are also several references to a large explosion which occurred near the end of the attack. The available evidence indicates that this raid was much more successful in its later stages than during the first half; this was probably due, in part, to the decreasing amount of cloud and better visibility encountered by the later arrivals and to the lack of illumination of the target during the early stages of the raid. None of the crews detailed to make a special reconnaissance of the target obtained photographs of the target area. Most of them mentioned the difficulty of assessing results owing to haze and darkness.

...../Timing of the attack

Timing of the attack
Pathfinders

16. 6 P.F.F. aircraft, carrying flares, report having illuminated the primary. Of these, one released flares 10 minutes before zero hour, two in the allotted interval while the remaining three were late - one by 1 minute and two by 3 minutes. The three Pathfinders carrying 250 lb incendiaries, who report having attacked Essen, were 3, 5, and 6 minutes late respectively, in releasing their bombs.

17. Main Force Number of aircraft bombing early:
 " " " " (by 7 minutes)..... =
 " " " " in planned interval..... = 2
 " " " " late (0 to 5 minutes)..... =

With the exception of the last section, of which about half bombed before their allotted times, timing by the three sections of the main force (all aircraft other than the P.F.F.) was accurate, and there was little overlapping in excess of the planned amount.

Other targets attacked

18. 12 aircraft report that they attacked the following targets in lieu of the primary: Duisburg (2 aircraft) Hammorn (1) Oberhausen (1) searchlight and flak concentration in the eastern Ruhr (1) and 7 aerodromes in Holland (4 in the Alkmaar district, 2 south of Rotterdam and 1 on the east side of the Zuider Zee). Reasons for not attacking Essen were technical defects in 7 instances, violent flak or searchlight opposition in 3 more and failure to find the target in the other two instances. About half the aircraft, which attacked these other targets, saw their bombs burst, but further results were not observed.

Casualties

19. The number of aircraft missing, damaged and reporting interceptions are given below:

<u>Sorties</u>	<u>Missing</u>	<u>Flak</u>	<u>Damage</u>	<u>Not Enemy</u>	<u>Interceptions</u>	
					<u>Fighter</u>	<u>Action</u>
368	39(10.6%)	48(13.0%)	5(1.4%)	4(1.1%)	17(4.6%)	36(9.8%)

The percentage of aircraft missing and damaged by flak is high. The percentage attacks is average, but less than a third of those caused damage. This suggests that a greater proportion than usual of the losses was due to flak.

20. Wireless intelligence indicates that 44 sorties were made by controlled night fighters, and 9 claims to have destroyed our aircraft were heard but only one corresponds with a report of an aircraft seen shot down.

21. Our own observations indicate that at least 6 aircraft were shot down by flak over Essen. 7 aircraft were reported to have been seen destroyed by flak at other places in the Ruhr, and 3 in the Zuider Zee area. 2 more aircraft were reported to have been shot down by light flak at Ostend and Liege, and two were probably destroyed by fighters (including 1 controlled fighter) near Antwerp. Losses can, therefore, be assessed as 18 to flak, 2 to fighters and 19 to unknown causes, of which the most probable is flak. These losses were probably due to concentrated flak and searchlight defenses of the Ruhr operating under favourable conditions - intense darkness and comparatively little haze.

22. The heavy flak opposition was intense and accurate, though probably not more formidable than usual at this target. The methods of fire control reported to have been used included predictor-control, "deterrent" (at searchlight interceptions) and barrage. More light flak was reported than in recent raids on the Ruhr, most of it was probably of 3.7cm. calibre, but the presence of 6 cm. guns is indicated by observations of destruction of aircraft by tracer shells at 18,000 feet. Searchlights were reported to have been operating in particularly large cones, co-operation with heavy guns. A number of balloons were observed over Essen at heights of from 10,000 feet to 12,000 feet.

23. Photographic evidence confirms the intensity of heavy flak and searchlight opposition, but gives very little record of light flak. Nearly all the 39 photographs plotted (21 within 5 miles of the target and 18 outside) show heavy flak and searchlights. The measured intensity of the flak was 12.2 single gun discharges per aircraft in the case of those within the 5 miles' radius and 10.4 for those plotted outside. These are necessarily minimum figures and probably fall
/far shot

far short of actuality because of the incompleteness of the photographic evidence.

Summary

24. Complete results of this attack on Essen cannot be estimated until daylight photographic cover has been obtained, but the night photographic evidence makes it reasonable to expect that considerable damage was done. The relatively large amount of scattered bombing was probably due to (a) the lack of illumination and incorrect placing of flares by some of the P.F.F. and (b) the intense flak and searchlight opposition.

25. The casualties were probably due mainly to flak.

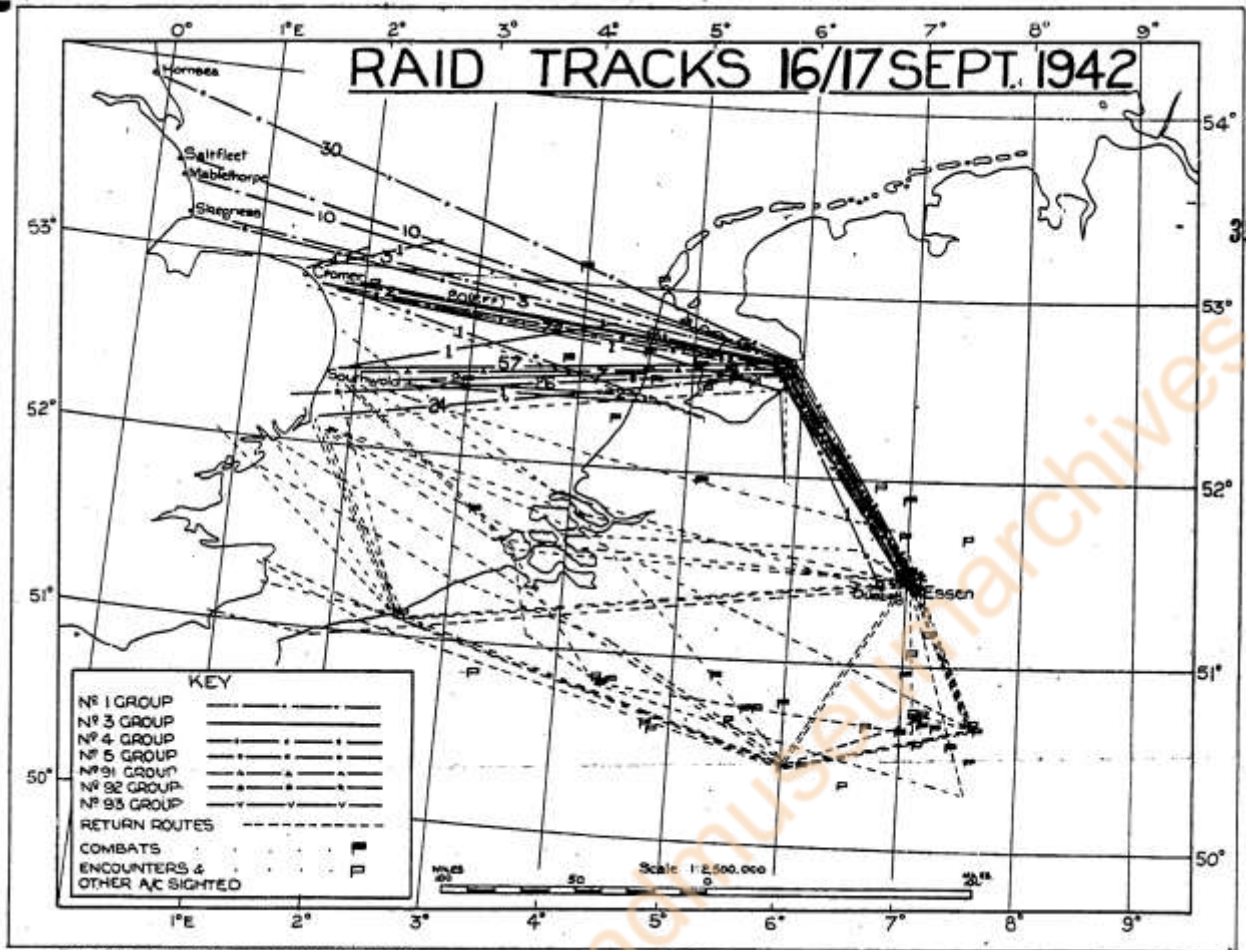
BC/S.26342/4/ORS.
9th November, 1942.

Target	Group	Type	No. of Sorties	Aircraft reporting attack on primary target.	Aircraft reporting attack on alternative targets.	Over Enemy Territory	Not over Enemy Territory	Results not known.	Flares	Destroyed by Flak	Destroyed by Enemy Aircraft	Not due to Enemy Action.	Attacked	Not Attacked.	
ESSEN	P.F.F.	Well.III	7	4*		2	1			1 AC	1 E	1m+	3	1	
		Stirling	6	2		1	2		1					2	
		Langston	6	4		1	1								
	1.	Well.II	39	7											
		Well.III	11	7	1		1			2					
		Well.IV	18*	14			2			2				1	3
	3.	Well.III	32	21			3	7		1	3 m	1 E	2 AC	3	9
		Stirling	36	22	1		1	8		4	1 AC	1 m		2	2
	4.	Well.III	2	2											
		Well.IV	24	19			1	5		3	2 m		1 AC		1
	5.	Langston	23	25	2		2	5		9	2 m			3	5
	91.	Whitlow	7*	5			1			1					2
		Well.Ic	25*	29	2		3	5		7	1 AC	1 AC		2	5
		Well.III	22*	12			3	3		5	1 AC	1 E		2	
	92.	Harperden	12*	7	1		2	2			1 AC				1
		Well.Xc	14*	7	2		1	3		2	3 m				
	93.	Well.Ic	18*	7	3		1	5	1	1	1 E				3
		Well.III	6*	4			1			1		1 AC		1	2
			TOTAL	368	244	12	22	50	1	39	1 E 6 AC 2 A 39 m	2 E 1 B 1 AC 1 m	3 AC 1 m	17	36

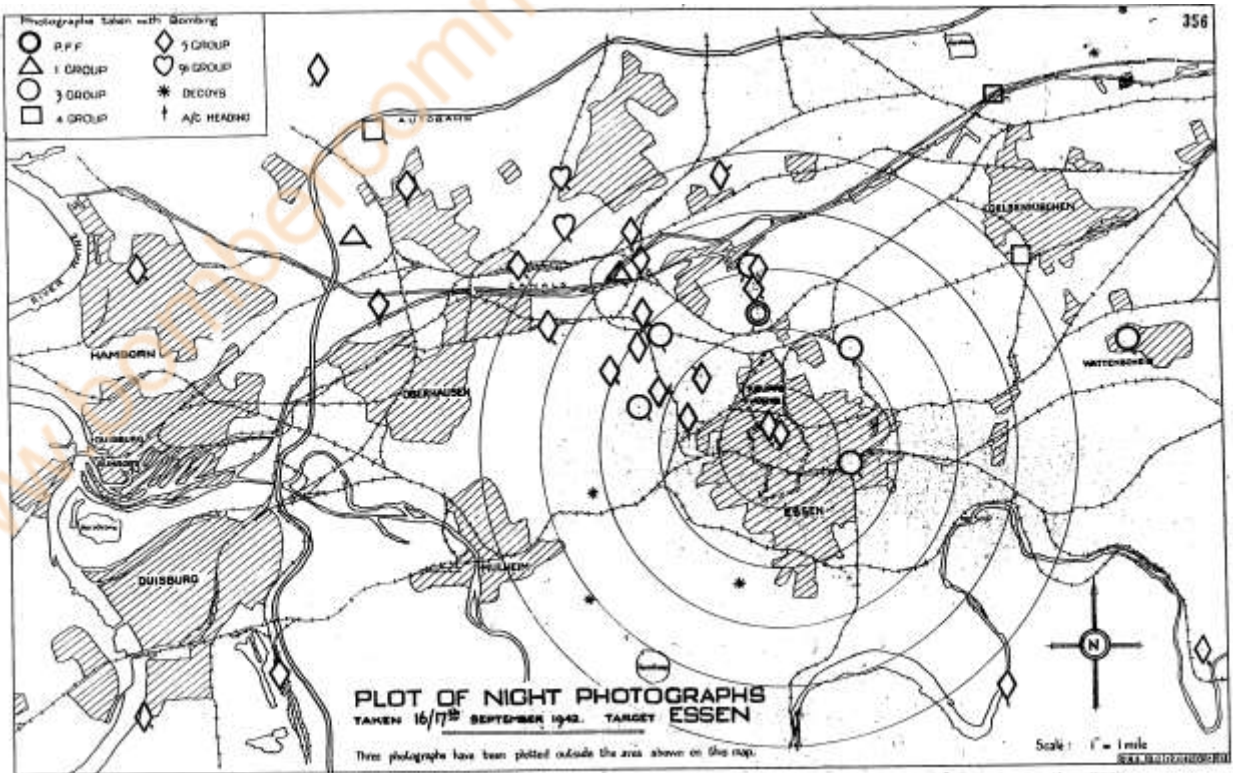
* Not fitted Gw.
* Includes 1 Wellington which attacked with the Main Force.

* Both flak and fighter damage.
* Caused by collision with another British Aircraft.

Total Abortive 72



BOMBER COMMAND HEADQUARTERS.



MOST SECRET.NIGHT RAID REPORT NO. 155

16

Bomber Command Report On Night Operations 17/18th, September, 1942.LEAFLETS.

3 Halifaxes of 4 Group were despatched to release leaflets in the Lyons St. Etienne, Lille and Paris areas. All claim to have accomplished their successfully without incident.

26342/4/ORS.
November 1942.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 18/19th SEPTEMBER, 1942.

(MISLAYING MINELAYING)

With an appendix giving losses of enemy aircraft and bombs and bombs in the last few nights.

Metorological Advice Submitted to the General

1. 0920 hours. A depression, with centre at 57°N, 2½°E. is over the North sea. The estimated positions, at midnight, of the frontal systems are:- (1) a cold front from 57°N, 2½°E. to the Wash, to 51°N, 10°W; (2) a warm front from 57°N, 2½°E. to Antwerp, to Munich; (3) a warm front from Munich to 47°N, 5°E. and (4) an occluded front, from Munich, to Berlin, to 57°N, 7°E.

At the bases behind the cold front, the cloud is expected to lift and break, but there will be a belt of rain and low cloud along the front. Near the centre of the North Sea depression and on the fronts, rain and cloud, with low bases but with tops extending to great heights; and a freezing level at 8000 feet are to be expected. In the Helligoland Bight there will probably be much cloud; early in the night, the cloud base will be above 1,000 feet; but will later become lower with the onset of rain. Broken layer-cloud is to be expected along the Baltic coast, and inland for Germany. Over north-east France, variable amounts of cloud are possible. Over north-west France, there will be much low cloud, with base above 1,000 feet. South of Nantes, only small amounts of cloud are likely. Visibility will become good behind the cold front over this country; elsewhere it will be moderate.

1235 hours. The centre of the North Sea depression is now expected to be 2° further north than the position estimated at 0920 hours. The cold front (1) and the warm front (2) will probably be about 50 miles further east, with a corresponding move in the frontal belts of low cloud and rain.

1615 hours. West of 10°E. 8/10ths to 10/10ths cloud at 1,000 to 2,000 ft. is to be expected with a progressive increase in amount and lowering of base, with rain. These factors would favour an early start for minelaying in this region.

East of 10°E. well broken cloud, with base at 2,000 to 3,000 feet will probably be found and areas will be fit for minelaying all night. The cold front will have to be crossed en route to these areas, but no serious difficulties are expected below freezing level. West of 5°E. the wind, at 10,000 feet, will be from the west at 35 to 40 m.p.h. Further east it will veer to the north-west.

In the Bay of Biscay area no weather was anticipated. Bases:- Stations 1, 4 and 6 Groups are expected to be fit, most of the night, but some of 3 Group's stations will probably not be serviceable.

Executive Orders.

3. The weather conditions were not expected to be very favourable for bombing but quite good for minelaying, and it was considered that it would be possible to lay mines in all the important areas. It was therefore decided that this was a suitable occasion for a large minelaying operation, which had been planned to introduce a new type of mine, simultaneously, in all the main minefields.

Sorties.

3. (for details see attached table)

Sorties Continued.

3. (a)	Number of sorties dispatched	=	115
(b)	Number claiming to mine primary areas	=	98 (85.2%)
(c)	Number claiming to mine alternative areas	=	1 (0.9%)
(d)	Abortive Sorties:- (Technical defects...4) (Inability to pinpoint...3) (Cause not stated...1)	=	10 (8.7%)
(e)	Result not known (aircraft crashed on return)	=	1 (0.9%)
(f)	Missing	=	5 (4.3%)
	Number of mines laid by aircraft claiming to mine primary areas	=	340
	(for details of numbers laid in each area, see attached table)		

Weather encountered.

4. Bases:

Cold front almost stationary from Lincolnshire to N. Wales. Belt of rain, 50 to 100 miles wide, associated with the front. Cloud base generally above 1,000 ft, but lower patches near the front itself; visibility moderate, but locally poor, in rain. Outside rain belt, much cloud, with base 2,000 to 3,000 feet; moderate to good visibility.

Routes:-

- 5. (a) to Western France: Variable amounts of layer-cloud over the Channel, with base at 2,000 to 3,000 feet; cloud dispersing; visibility good.
- (b) to Frisian Islands and Helligoland Light: Warm front at 4° to 5° E. on outward journey, and at 5° to 7° E. on return; 10/10ths cloud along front; belt, with base 2,000 to 3,000 feet, and tops above 10,000 feet; occasional low cloud patches at 1,500 feet, with intermittent rain; local areas of sea fog. Before 2100 hours, cloud broke towards Danish coast to 6/10ths to 7/10ths. After 2100 hours, no breaks encountered until inland over Denmark.

Over Baltic, variable amounts of cloud; local showers over Denmark, with one report of an electric storm. Winds, between 2,000 to 6,000 feet, 25 to 30 m.p.h. from the west.

Target areas:

- 6. (a) Western France: No cloud; good visibility.
- (b) Frisian Islands and Helligoland Light: 7/10ths to 10/10ths layer-cloud, with base at 1,500 feet, and patches at 600 to 1,000 feet; local areas of sea fog.
- (c) Western Baltic: Small amounts of high and medium cloud, with very variable, local amounts of low cloud (0/10ths to 10/10ths) with base varying from 3,000 to 6,000 feet; good visibility.
- (d) Eastern Baltic: Small amounts of layer-cloud, with base at 3,000 feet and tops at 4,000 feet, good visibility.

The moon was 53% of full and above the horizon in all areas except Danzig, Gdynia and Pillau, where it had set before mine-laying began, and Copenhagen and Swinaumunde, where it set during the operation.

Results.

- 7. The attached table shows the distribution of effort, which closely corresponded with that intended, 340 mines being claimed as successfully laid out of a total of 400 mines carried. One mine was seen to explode on striking the sea and one failed to leave the aircraft.

All aircraft, which were operating in the five areas off the west Coast of France found excellent visibility, and all were able to obtain visual pin-points. In the Frisia, Heligoland Bight, and the Baltic areas, half the aircraft which reached their allotted areas were able to obtain visual fixes, but the remainder relied on Gee fixes, with or without time-line therefrom. 4 non-Gee aircraft operating in this zone were unable to obtain any visual pin-points and were, therefore, unable to fulfil their missions.

All aircraft engaged in minelaying in Danish waters and further east, except two, were able to obtain visual fixes. One of the two, which failed to find any pin-point was operating in the Great Belt, and the other in the Little Belt, but the latter was able to mine an alternative area near the primary. One aircraft, minelaying off Swinemunde reported having dropped a 500 lb. bomb on Bad Berg aerodrome and another on the town of Binz. A second aircraft, detailed for the same area, dropped two 500 lb. bombs on the town of Wittow.

Casualties.

- 8. The five aircraft which are missing, were detailed for the following areas:- Great Belt (2), Looe Bend, The Sound and Danzig. Our own observations indicate that one aircraft was shot down by flak and that the loss of a second was probably due to engine-failure rather than enemy action; there is no evidence of cause of loss in the other three instances. Percentage losses were rather high, but a large proportion of aircraft were operating at somewhat extreme ranges. Two aircraft received damage of category AC from flak; one was hit by fire from a flak-ship in the Swinemunde area. The other was minelaying off Copenhagen. Four other aircraft received minor flak damage, 1 off Lorient, 1 in the Heligoland Bight region, and 2 in the Baltic area. One aircraft crashed on landing and was completely destroyed. A single interception by an enemy aircraft over the Norfolk coast was reported, but no attack resulted.

Summary.

- 9. 340 mines were laid in the main minefields along the enemy or enemy occupied coasts from Pillau, in the East, to Bayonne, in the West. 90% of the aircraft, which claim to have mined their primary areas, were able to obtain visual fixes. Weather conditions were excellent along the west French Coast and fair to moderate in the other areas.

LEAFLETS

1 Halifax of 4 Group successfully dropped leaflets in the Vichy and Clermont-Ferrand areas.

APPENDIX.

The operation covered by this report represents the largest minelaying effort ever undertaken by the Command in a single night.

In general, it is not possible to ascribe losses of enemy ships to the minelaying effort on a particular night; but the present occasion may be taken to review summarily what results are known to have been achieved in the past few months. Thus, the following figures, taken from the Air Ministry Weekly Intelligence Summaries give some indication of results in the last three months.

Date	District	Vessel Sunk	Tonnage
July 4th.	Great Belt.	Danish Schooner <u>Minne</u>	unknown./1500.

July 15th.	S. of Baginsoy	Danish Fishing Vessel <u>R.U.529</u>	unkn
22nd.	Ojsoer	" <u>S/V Ruth</u>	331
unknown	W. Denmark	" Cutter <u>Rita</u>	534
Aug. 12th.	Little Belt	Danish Fishing vessel <u>Gudrun</u>	unkn
14th.	Drogden Channel	German Minesweeper	unkn
17th.	Kattegat	" transport <u>Muri</u>	beli 7,0
21st.	Little Belt	" <u>Heinrich</u>	523
24th.	Kattegat	" <u>Foxar Von Danzig</u>	869
26th.	Oresund	" <u>Helter</u>	unkn
unknown	S. of Copenhagen	(" trawler (Danish trawler	unkn unkn
	Bryonne	2 or 3 ll vessels carrying ore	unkn
	S. of Heligoland	Danish <u>Lise</u>	1,24
Sept. 17th.	Kattegat	German <u>Anni</u>	172
19th.	(La lborg Bay (North Sound	(?Danish) <u>Koldirghaus</u> Danish patrol vessel <u>K.I.</u>	7674 unkn
20th.	Great Belt	Danish <u>Prile</u>	unkn
21st.	Sund	Danish fishing vessel <u>Fool</u>	unkn
22nd.	(North Sound ((Copenhagen	(Danish <u>Falken</u> (Danish Schooner <u>Sara</u> German <u>Heimat</u>	369 unkn 231
		<u>VESSELS DAMAGED</u>	
July 1st.	(?near Rotterdam (Great Belt (N.W. Denmark	Norwegian <u>Troms</u> Danish <u>Folly</u> Danish <u>Ulla</u>	502 80 157
Aug. 24th.	Great Belt	Finish <u>Else</u>	138
26th.	St. Nazaire.	French motor-fishing vessel <u>Perseverance</u>	unkn
date unknown	Sassnitz	Swedish tanker <u>Fallux</u>	847
Sept. 6th.	Kattegat	Finnish <u>Britannic</u>	224
16th.	Kattegat	German Scharnhorn (formerly <u>Colon</u>)	299
18th.	Trolltoern	Finnish <u>Navigator</u>	565
22nd.	E. of Great Belt.	German <u>Hilde</u>	4
23rd.	Little Belt	German <u>Hast</u>	unkn
25th.	S. Denmark	Dutch <u>Volkeren</u> (abandoned)	1
date unknown	?Copenhagen	German cargo-ship <u>Hamburg</u>	5-

...../H.B.

-5-

- On Sept. 20th, 16 German vessels South bound were detained at Marstrand II. of Gothenburg, because of mines in the Sound.
- i) From about Sept. 6th, the sea-trade between Bilbao and Bayonne was stopped because of mines.

19/3/CRS.

A, 1942.

				Alter- native arm.	of Miss Load.	Over Enemy Coasts.	Over Enemy Coasts.	and Losses	Harbour	Damaged by Flak	Inter- cepted by Enemy Aircraft	Use made to Enemy Action	Notes	Not At- tached.		
Lo Pulisco	1	Woll. III	3*			1										
		Woll. III	3		4		1			In						
Lorient	1	Woll. III	3		3											
Little Belt	1	Woll. III	3	1	6											
Prisien	1	Woll. III	2		4											
Iulanda		Woll. IV	17*		32											
Bellesmead	1	Woll. IV	11*		7					In						
Shalzeire	3	Woll. III	5		6											
Grut Bolt	3	Woll. III	2		1				1							
		Shirling	3		4	1			1							
Laso Ronde	3	Shirling	3		3											
Prisien	3	Shirling	11	11	64									1		
Iulanda																
Copenhagen	3	Shirling	3		3											
Langeland																
Belt	5	Lans.	2		2											
De Sound	5	Lans.	7		5			1	1	In			12			
Kattegat	5	Lans.	4		4											
Cadet Channel	5	Lans.	3		3											
Pottern																
Channel	5	Lans.	3		2		1			In						
Scamitz	5	Lans.	2		2											
Bornholm	5	Lans.	2		2											
Skinesunde	5	Lans.	5		5					1 AC.						
Fillau	5	Lans.	1		1											
Cornia	5	Lans.	7		7											
Donia	5	Lans.	7		6					1 AC.						
Caronie	5	Lans.	3		3											
Bayonne	5	Lans.	2		2		1									
LEAPISTS	4	Halifax	1		1											
Vichy & Clement.			110		80		1	340	8	2	1	5	8 AC. 4 H.	15	1	1
		* Not fitted		Total Abandonment = 10.												

COPTIME

Bomber Command Report on Night Operations 19/20th. September, 1944

MUNICH SAARBRUCKEN

16 JAN 1943

Meteorological Advice Submitted to the Command.

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1. 0915 hours. The estimated positions, at midnight, of the existing three fronts are: (1) a front with a tendency for depressions to develop on it, from south-west England, to the Wash, to the Frisian Islands, to south-east Sweden; (2) a warm front from south-east Sweden, to Danzig, to 52°N. 19°E. (3) an occluded front from south-east Sweden, to 61°N. 10°E., to 57½°N. 5°E., to Spurn Head, to north-Salos.

At home bases, a narrow belt of rain is to be expected on the north side of front (1) and a zone of variable cloud and local showers behind fronts 1 and 3 with cloud lifting and backing to the north of front (3).

Over Germany, much medium and low cloud are probable, and local slight rain along the north coast, including the Baltic coast. The amount of cloud will probably decrease inland, becoming small south of 50°N. Industrial haze is likely to occur over central and south Germany.

1250 hours. Conditions are expected to be much the same as those forecast at 0915.

1615 hours. All stations should be fit for the take-off, and there is unlikely to be any trouble at bases during the first part of the night; after 0200 hours there may be low cloud and difficulties, but these are not expected to be widespread and there is a chance of skies clearing. In the target areas (Munich and Saarbrucken) small amounts of medium cloud are likely to be found. Visibility should be good at Munich, but haze is to be expected at Saarbrucken. The route to both targets should be free from difficulties.

Executive Orders.

Weather conditions were expected to be unfavourable in north Germany, but there were good prospects in the south. Long-range aircraft were sent to Munich, and Saarbrucken was chosen as the target for the shorter range aircraft, since it was on the route to Munich and aircraft of both forces would therefore pass through the known, defended areas in sufficient concentration.

Sorties.

	Munich	Saarbrucken	Total
No. of sorties despatched.....	89	118	207
No. reporting attack on primary targets	79	91	170
No. reporting attack on other targets	0	2	2
Abortive Sorties:			
Technical defects.....	5	12	17
Inability to identify target ..	0	4	4
Attacked by fighter.....	0	1	1
Damaged by Flak	0	1	1
Late en route.....	0	2	2
	<u>5</u>	<u>20</u>	<u>25</u>
Missing.....	5	5	10

All the aircraft detailed for these two targets were to set out along the route. Aircraft of the Pathfinder Force were to illuminate each target with co.naissance flares and 'babe' fires during the first five minutes of each attack or identification by the main forces. No coloured flares were to be used by the Pathfinders over Saarbrucken but each of the Pathfinder aircraft detailed for Munich/was to drop

was to drop one bundle, consisting of 2 reconnaissance flares and one green flare over the lake to the S.E. of the city. Aircraft of the Main Forces were not to attack before the Pathfinders had illuminated the targets. After zero + 10 mins individual aircraft could release single reconnaissance flares but these were to be released at 3000 feet, lower than the designed height of the fuse to make sure that they did not ignite too high. Emphasis was laid on the importance of using Gee fixes, obtained within the coverage, to check wind velocity and assist accurate D.R. beyond the range of Gee. Navigators detailed for Munich were to make use of every navigational aid at their disposal: in particular an astro-fix was to be taken as soon as possible after leaving Gee range.

Weather Encountered.

5. Basos: Variable amount of cloud, base generally 1,500 to 2,500 feet; occasional rain after midnight at basos in 4 and 5 Groups, becoming fairly general towards dawn in all areas, with cloud patches below 1,000 feet.

Routes: Small amounts of layer cloud over the North Sea; no low cloud over the Continent, but small amounts of high and medium cloud, and ground haze.

Targets: (a) Munich: No cloud, and very good visibility.

(b) Saarbrucken. Small amounts of cirrus cloud; no low cloud, ground haze.

The moon was above the horizon at each target and 75% of full.

Navigational Aids.

6. Reports on the performance of Gee by 62 aircraft detailed for Munich (620 miles from Daventry) and by 46 for Saarbrucken (418 miles) show that the maximum ranges at which Gee fixes were obtained were 396 miles in the first instance and 430 in the second, the average ranges being 347 and 330 miles, respectively.

MUNICH

Plan of Attack.

7. Zero hour.....2330 hours.

Period of Attack.

Pathfinder Force.....zero to zero + 5 mins.
(Mixed H.E. and incendiary wave - zero to zero + 10 mins.
Main Force (H.E. wave.....zero + 5 to zero + 15 mins.

The Pathfinder Force was planned to consist of Lancasters and Stirlings carrying bomb loads as under:-

- 2 Stirlings 18 x 3 flares + 6 x 250 lb. incendiaries.
- 5 Lancasters 8 x 4 flares + 6 x 250 lb. incendiaries.
- 2 Lancasters 9 SBC x 4 flares + 2 x 2000 lb. H.C.

The first section of the Main Force was to consist of Lancasters carrying mixed H.E. and incendiary loads and Stirlings carrying maximum incendiary loads. These aircraft were to be manned by the best crews available. They were to be over the target between 2330 and 2340 hours, but were not to attack before the Pathfinders had released their flares. The second section of the Main Force was to consist of the remaining Lancasters and Stirlings of No's. 5 and 3 Groups, carrying loads of heavy H.E. and G.P. bombs. One crew of each Lancaster Squadron was to be detailed to make reconnaissance of the target at 2345 hours.

Routes.

8. The briefed routes was as follows (see also diagram attached):

All Groups: Base - Beachy Head - Le Troport - Epornay - Lake Constance - Munich - Epornay - Berck - Beachy Head - Base.

Bombs dropped by aircraft reporting attack on primary target.

H.E. bombs.....	117 tons, including:
	33 x 4000 lb. H.C.
	59 x 2,000 lb. H.C.
Incendiaries.....	49 tons.

No. of aircraft releasing 4 lb. incendiaries and H.E.	= 13
" " " 4 lb. " alone	= 4
" " " 30 lb. " and H.E.	= 21
" " " 30 lb. " alone	= 9
" " " 250 lb. " "	= 7

RESULTS

Photographic Evidence

Number of photographs taken with bombing which have been plotted (see accompanying diagram):

By ground detail	48	within 3 miles.....	28
By fire-tracks	8	between 3 and 5 miles....	16
		outside 5 miles.....	12
			56

Unplotted photographs (with bombing):
 which have recorded ground detail (open country)..... 2
 with no ground detail, but with fire-tracks which might be plotted

The pattern of night photographs suggests that about two-fifths of the aircraft in the attack bombed within 3 miles of the centre of Munich. The weight of the attack was however on the outskirts of Munich and swung from west of the city south and east of it, with, at the same time, a tendency to move inwards towards the main target. At intervals a small number of aircraft attacked near the centre of the city. The sticks of incendiaries 38 of which have been plotted, cover a very wide area, the whole effect being that of a scattered raid, and the pattern of incendiary attack seems largely to have been dissipated. Pathfinder reports that sticks of flares were correctly placed across the centre of the city. While from the photographs the positions of several small groups of flares have been identified, the areas in which they have been plotted revolve around the main target. One early bunch of flares burning near Grafelfing 7 miles west of Munich may have helped to send some of the earlier aircraft astray and later aircraft continued to drop incendiaries where others were already

Reconnaissance.

Night reconnaissance which covered successfully the whole of the town and its districts has revealed some 33 incidents scattered throughout the central urban district, of which the majority were due to H.E., practically all within the 3 mile zone. The main items of industrial damage were the total destruction by a 4000 lb. bomb of a small engineering works extending over some 10 acres in the centre of the town, the explosion of two gas-holders, and the destruction of a very large shed, probably a tram-depot. In addition a number of varying sizes have been destroyed and two more severely damaged. In the Haidhausen district an area of about 5 1/2 acres has been devastated, involving 100 flats half gutted, five other buildings destroyed and several damaged. There are many scattered incidents in commercial and residential districts, where 12 houses and 25 other buildings have been destroyed and a further 10 houses and other buildings damaged.

The total amount of damage inflicted appears to be somewhat lower than what would have been expected considering the weight of bombs which reached the target. It is evident from the preponderance of H.E. incidents that the incendiaries were very successful in starting fires. This is largely attributable to the fact that most of the attack fell on the open suburbs of the city but it is also clear that the central area of Munich is not so vulnerable to fire attack as are other German targets.

Narrative of attack.

13. The attack on Munich was 10 minutes late in starting, probably owing to the difference between the winds forecast and those actually encountered. There is no doubt that both the Amor See and the target itself were correctly marked by the P.F.F. Almost all crews were able to identify the lake, and Lake Constance also proved to be a useful turning-point. Apart from a single reference to a string of flares alleged to have been dropped 6 miles West of Munich (probably the bunch dropped at Grafolding, see paragraph 10), there is no evidence of a scatter of P.F.F. flares and it is probable that they were all released fairly close to the target. Bright moonlight and absence of thick haze made visibility excellent, conditions which made it easy to observe results. The general opinion was of a successful attack; but fairly numerous reports of concentrated fires, which had obtained a good hold 10 minutes after the beginning of the raid, are not supported by the daylight photographic cover (see paragraphs 11 and 12). A very large explosion followed by a column of black smoke was reported by 18 of those crews who obtained photographs of the target area. The time of this occurrence was approximately 2351 hours, and its cause was probably a direct hit on one of the two gas-holders, whose destruction is confirmed by the daylight photographs (see paragraph 11). There are practically no references to bombs seen to have fallen outside Munich; and the amount of wasted effort seems to have been small. The last arrivals reported 20 to 25 fires and much smoke; but the evidence provided by the daylight photographs indicated that these fires did not properly take hold.

Timing of attack.

14. Of the 9 flare-carrying P.F.F. aircraft which claim to have illuminated the target, all released their flares after the planned interval. 5 were between 5 and 10 minutes late, 3 were 15 to 20 minutes late and the remaining aircraft released its flare-load 26 minutes after the end of the allotted period. 250 lb. incendiaries were dropped by 7 of the 9 P.F.F. "marker" aircraft. 3 of these 7 were 10 to 15 minutes behind schedule, a further 3 were 15 to 20 minutes late, while the seventh aircraft attacked 26 minutes after the end of the planned interval.

The timing of attack by the Main Force (including 2 P.F.F. aircraft which carried a part-load of H.E.) was as follows:-

No. of aircraft bombing	early: by 7 minutes	= 1
"	during planned interval	= 23
"	late: 0-5 mins.....	21
	5-10 mins.....	12
	10-15 mins.....	7
	15-20 mins.....	6
	over 20 mins.....	2
		= 48

The lateness of attack by the Pathfinders and the Main Force was due to a difference between the winds met and those which had been forecast.

SILBRÜCKEN

Plan of Attack.

15. Zero hour 2245 hours.

Period of Attack

Pathfinder Force....(planned to consist of 9 aircraft)..zero to zero+5 =
Main Force (Mixed H.E. and incendiary wave, zero to zero + 10 minutes.
(Incendiary wave zero + 5 to zero + 15 minutes)

Two Wellingtons and seven Halifaxes of the Pathfinder Force were to be detailed to illuminate this target between 2245 and 2250 hours.

Their bomb loads were to be as follows:-

- (5 Halifaxes : 9 x 3 flares + 6 x 250 lb. incendiaries.
- (2 Halifaxes : 9 x 3 flares + 6 x 500 lb. G.P. bombs.
- (2 Wellingtons : 12 x 3 flares + 6 x 250 lb. incendiaries.

In addition to the above 4 more Pathfinder aircraft (Wellingtons) were despatched of which two attacked other targets while two were abortive. The first section of the Main Force was to consist of all Halifaxes of 4 Group which were to be over the target from 2245 to 2255 hours and were to attack, with loads of 41b. and 30 lb. incendiaries and 2 x 1000 lb. G.I. bombs, after the Pathfinders had illuminated the target.

The second section of the Main Force was to consist of Wellingtons of 1, 3 and 4 Groups, and Stirlings of 3 Group. Wellington 423's were each to carry their normal load of 1 x 4000 lb. H.C. and the remainder were to carry maximum occasional incendiary loads. These aircraft were to attack between 2250 and 2300 hours. Crews of No. 1 Group were to endeavour to bomb from heights between 5000 ft. and 7000 ft.

Routes.

16. The briefed route was as follows (see also Diagram attached):
All Groups: Base - Le Troport - Epernay - Saarbrücken - Bock - Base.

Weight of bombs dropped by aircraft reporting attack on primary target.

17. H.E. Bombs	51 tons, including			
		12 x 4,000 lb. H.C.		
		4 x 1,900 lb. G.P.		
		46 x 1,000 lb. G.P.		
Incendiaries	103 tons			
No. of aircraft releasing 4 lb. incendiaries and H.E.				- 3
" " " 4 lb. " alone				= 37
" " " 30 lb. " alone				= 6
" " " 4 lb. + 30 lb. " + H.E.				= 26
" " " 250 lb. " "				+ 4

RESULTS

Night Photographic Evidence

18. Number of photographs taken with bombing which have been plotted (see accompanying Diagram):
- | | | | |
|------------------------|----|---------------------------|----|
| By ground detail | 27 | within 3 miles | 12 |
| | | between 3 and 5 miles ... | 7 |
| | | outside 5 miles | 6 |
| | | | 27 |
- Unplotted photographs (with bombing):
that have recorded ground detail (all of open country) ... 12
with no ground detail but with fire-tracks that might be plotted.. 9

As the plot of night photographs shows, the operation developed into a rather scattered attack on the western outskirts of Saarbrücken; the 12 photographs within 3 miles represent about 30% of all the photographs with ground detail, but this index is not a very good guide to the success of the attack owing to the elongated shape of the built-up area of the target. Incendiaries were recorded burning in the west suburb of the town, and in the triangle of country between Völklingen, Saarbrücken and Forbach.

Narrative of Attack.

19. Visibility at Saarbrücken was much restricted by local mist in the Saar valley. A fair proportion of crews were able to identify the river and a large percentage of those claiming to attack Saarbrücken relied on the course of the Saar for fixing their positions. This proved to be an unreliable method of pin-pointing. West of the town, the Saar's course is almost straight and completely lacks any characteristic bends; the first of these occurs about 6 miles west of Saarbrücken where there is a fairly gentle curve convex to the north, which superficially resembles the northward arc of the stream in Saarbrücken. At least 10 crews who claimed to have identified the target by the river-course mistook the former arc for the latter and took photographs which have been plotted in the vicinity of the river, 5 to 7 miles due west of the town.

The attack started punctually with illumination by the P.F.F. There was, however, a 20 minute interval in the middle of the attack when no flares or 'blob' incendiaries were released. The flares which were dropped after this interval were seen by several crews who photographed the target, and they seem to have been more accurately placed than the earlier flares, which were reported to have been scattered. The last arrivals reported 3 good fires in Saarbrücken and many small fires, scattered over a wide area. Observations were however severely restricted by the ground mist. There has been no subsequent daylight reconnaissance of the town.

Timing of attack.

20. Only 5 P.F.F. aircraft claim to have released flares over Saarbrücken, 1 during the planned interval and 4 late (by 2, 25, 30 and 31 minutes respectively. 4 of these 5 aircraft also dropped salvos of 250 lb. incendiaries, 1 on time and 3 late (by 2, 25 and 30 minutes.) The timing of attack by the Main Force (including 2 P.F.F. aircraft carrying H.E. loads) was as follows:-

No. of aircraft bombing early :	by 1 minute	= 1
" " " " " " " " " " " "	during planned interval	= 15
" " " " " " " " " " " "	late:-	
	0 - 5 mins.....	12
	5 -10 mins.....	23
	10 -15 mins.....	14
	15 -20 mins.....	10
	over 20 mins.....	11
		= 70

Other Targets attacked.

21. Two Wellington III's of the P.F.F. claim to have attacked Saar Union and Sarroguominos in lieu of Saarbrücken. Both saw their bombs burst in built-up areas; the aircraft which attacked Saar Union reported several scattered fires. In both instances the reason for not attacking Saarbrücken was failure to find the target. In one instance this was partly due to the failure of Gee.

Casualties (both targets).

22. The numbers of aircraft missing, damaged and intercepted on each target were:

	Sorties	Missing	Flick	Damage		Interceptions	
				Fighter	Not enemy action	Att acks	Others
Munich	89	5 (5.6%)	2(2.2%)	1(1.1%)	1(1.1%)	3(3.4%)	3(3.4%)
Saarbrücken	118	5 (4.2%)	4(5.4%)	-	4(3.4%)	2(1.7%)	11(9.3%)
Total	207	10 (4.8%)	6(2.9%)	1(0.5%)	5(2.4%)	5(2.4%)	14(6.8%)

The proportion of aircraft missing on the Saarbrücken attack/approximately equal to the average figure for this target in recent months. There are no figures for comparison with the Munich missing rate, but this does not seem to be high in view of the distance flown over enemy territory. Our own observations and wireless intelligence indicate that 2 aircraft were shot down at Munich, probably by flick, and that a further 2 were destroyed by the same means, 1 at Abbeville and 1 near Boulogne; 1 aircraft was shot down by a fighter to the east of St. Quentin and 1 in the St. Dizier area. 2 aircraft were seen to fall in flames, cause unknown, 1 at Rheims and the other 40 miles south of Amiens. 10 claims to have destroyed our aircraft were heard, but of these only 1 can possibly be identified with observation of an aircraft shot down. Our losses may be allocated as 4 to flick, 2 to fighter and 4 to unknown causes. The proportions of both flick and fighter damage for both targets are extremely low. The one aircraft damaged by a fighter was only a minor casualty.

Defences (both targets).

23. A moderate amount of accurately predicted heavy flak was reported to have been encountered at Munich, with many small ineffective searchlight cones. At Saarbrücken there was some less accurate heavy flak and also some light flak. En route, flak was heaviest at Abbeville.

24. Night photographic evidence of the defences at Munich show that heavy flak opposition was only moderate, that a certain amount of light flak was encountered and that searchlight activity was considerable. Over half the 48 photographs plotted within 5 miles of the aiming point show heavy flak; the measured intensity, and this is necessarily only a minimum figure, is 4.1 single gun discharges per aircraft. Four heavy flak batteries have been identified on the night photographs, two of them being shown in action. Railway guns were also photographed in action near the Ost Bahnhof, salvos of 3 guns being recorded in each of two photographs. Less than one-third of the photographs show light flak, but more than three-quarters give evidence of searchlight activity. A triple searchlight at Harlaching was photographed several times during a 15 minute period in the middle of the attack; the photographs show that the 3 beams were working independently, though on one occasion they were converging on a single point.

25. At Saarbrücken the night photographs show very little evidence of light flak or searchlights but indicate that heavy flak opposition, though relatively feeble, was the highest yet recorded for this target. The measured intensity for the 28 photographs plotted was 2.8 single gun discharges per aircraft which is twice the figure obtained for the raid on August 28/29th. Both are necessarily minimum values.

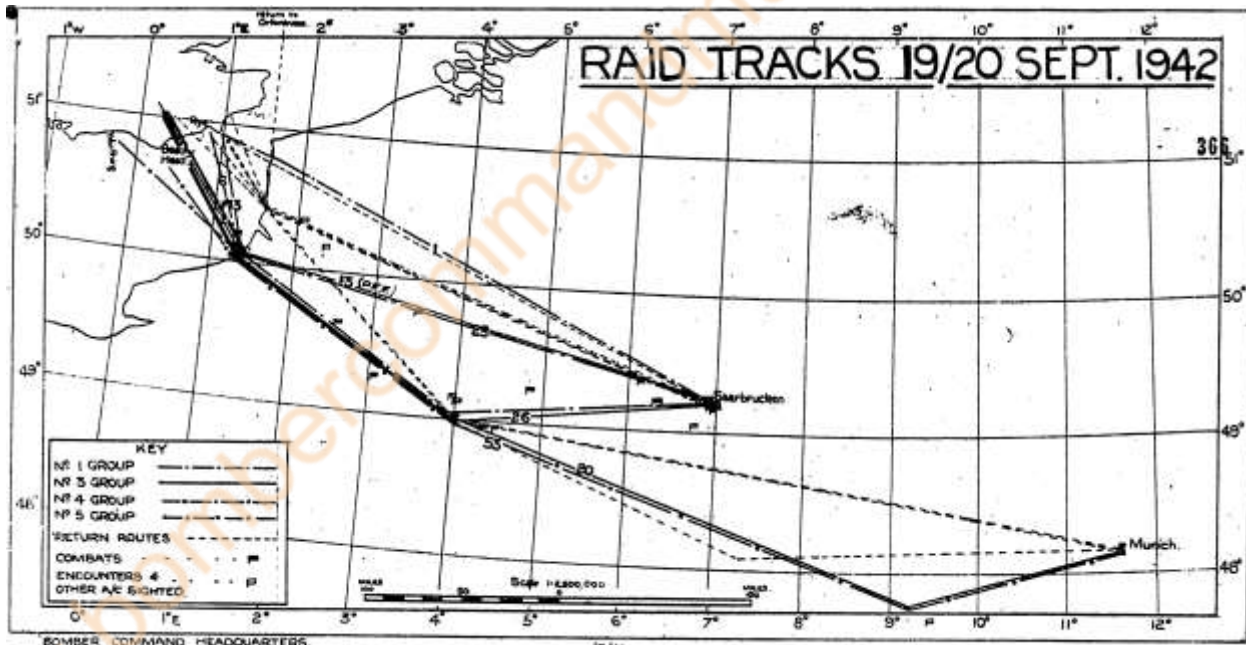
Summary.

26. In spite of accurate marking by the Pathfinders the weight of attack on Munich fell mainly on the southern part of the city where a moderate amount of damage caused was largely due to H.E. Although a considerable number of incendiaries fell on Munich, the fires which they started apparently failed to get a good hold. Visibility, which was excellent at Munich, was restricted by low-lying mist at Saarbrücken; the attack on that target was scattered, a substantial part of it falling to the west of the city close to the river Saar. Damage cannot be assessed owing to the absence of day photographic cover.

BC/S.26342/4/ORS
28th November 1942

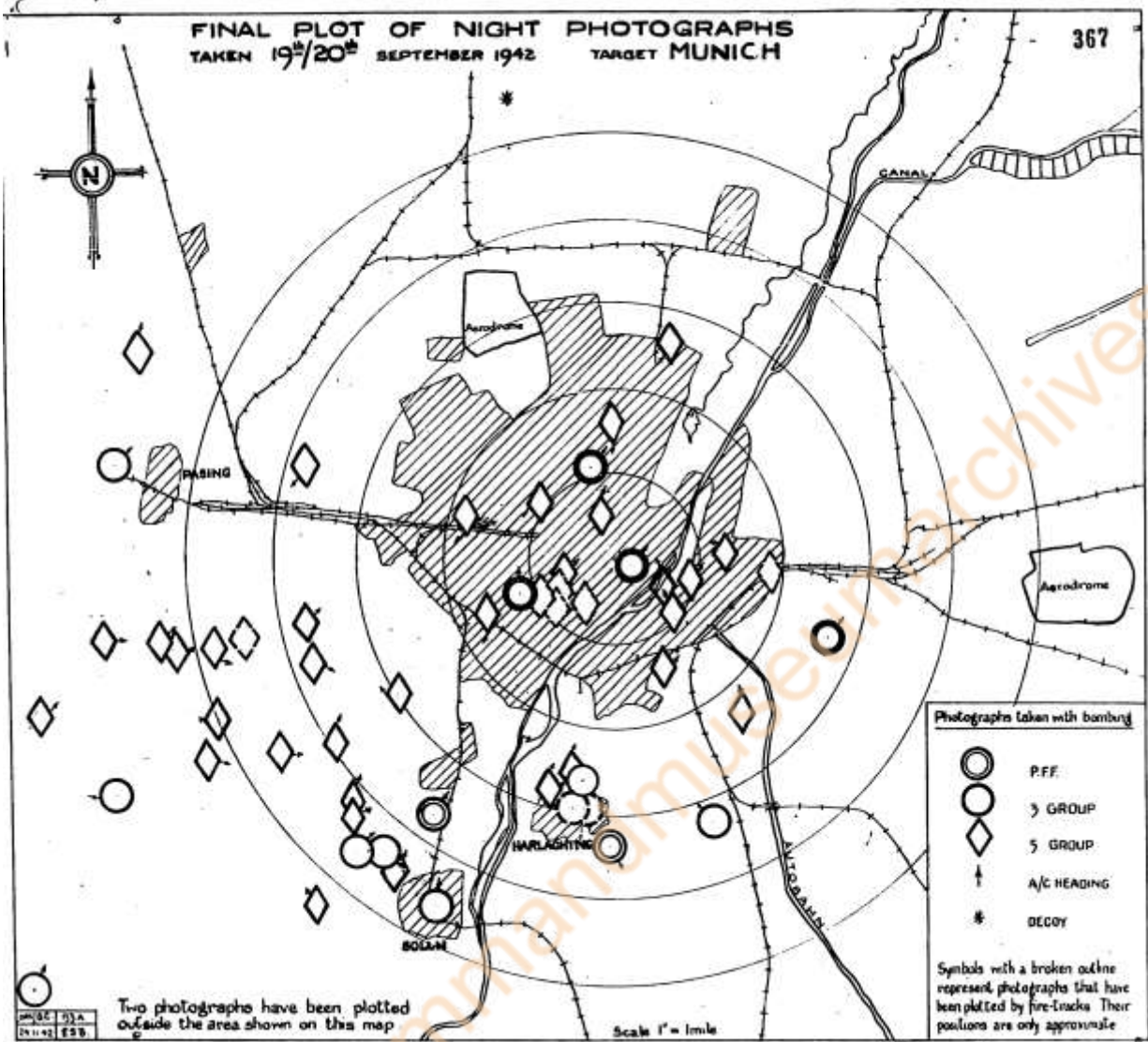
19/20th September, 1942

Target	Group	Type	No of Sorties	Aircraft reporting attack on primary target.	Aircraft reporting attack on alternative target.	Abortive		Result not known	Disposition			Att. Not Included				
						Over Enemy Territory	Not over enemy territory		Missing	Flt. Lt. Cr. ft.	Flt. Lt. Cr. ft.					
MUNICH	P.F.F.	Stirling	2	2												
		Lanc.	7	7												
	3	Stir.	19	17				2		1	Cat. E					
	6	Lanc.	61	53			1	4	3	2m	1m	3 3				
	TOTAL (MUNICH)			89	79		1	4	6	2	1	1	3 3			
SARREBRUCKEN	P.F.F.	Woll.III	6	1	2	2			1			1	Cat. E			
		Stir.	1	1												
		Lanc.	8	8			2		1							
	1	Woll.III	5	4			1					1				
		Woll.III	15	13			1		1	1m		1	Cat. AC			
		Woll.IV.4	15	13			2					1				
	3	Woll.III	26	23			2		3			1	2			
		Stir.	4	3				1					1			
	4	Woll.III	6	3			1	1				1				
		Lanc.	33	25			2	5	1	1	Cat. AC 2m	1	Cat. E 1	5		
TOTAL (SARREBRUCKEN)			116	81	2	13	7	6	4		4	2	11			
TOTAL (BOTH TARGETS)			207	170	2	14	11	10	1	1	Cat. AC 2m	1m	3	Cat. E 1	6	14



FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 19th/20th SEPTEMBER 1942 TARGET MUNICH

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 21/22nd. SEPTEMBER, 1942.Mine-layingMeteorological Advice Submitted to the Command

1. 0920 hours. The midnight position of fronts is estimated as follows: (1) cold front 60°N 16°E - Danzig - Munich - Western Alps (2) cold front Orkneys - 55°N 6°E - Brussels - Nantes with a depression in the vicinity of 55°N 6°E. At home bases there will be variable cloud, and showers or rain locally. Much medium and low cloud is expected over North Germany west of 10°E, and further east there will be medium cloud with breaks, and patches of low. Medium cloud with breaks will persist over central and south Germany, together with some residual convection cloud. Apart from some industrial haze in the south, visibility should be moderate to good over most of Germany. Over France, south of front (2), there will be some broken layer cloud inland and probably considerable quantities nearer the coast. Visibility at home bases will moderate to good.

1245 hours Complex developments now taking place, especially over France, make a detailed forecast for all areas impossible, but it may be said with some assurance that the southern North Sea will be an area of rain and low cloud, that cloud base over Denmark and the western Baltic will generally be well above 2,000 ft, and that convection cloud with scattered showers will be experienced in the Bay of Biscay. Home bases should remain fit all night, though occasional local rain is possible.

1600 hours. Thundery rain must be expected in east England, with the prospect of more continuous rain later at some bases, particularly in the north, but cloud will rarely be below 1,000 ft. 91, 92 and 93 groups should be able to provide diversion bases. The route to the continent will be rather bad, with thundery or other rain, and cloud at times from 1,000-2,000 ft. Over east Denmark and the west Baltic, cloud will not be lower than 2,000 ft, but there will be convection cloud at considerable heights in places. The Bay of Biscay should be clear of the major cold front late at night, but convection cloud not below 1,500 ft. Rain will fall on the second (less likely) cold front.

2. Executive Orders In view of the weather a small mine-laying operation was ordered.

Sorties

3. (a) Number of Sorties Despatched	17
(b) Number reporting Mines laid in primary area	11 (64.9%)
(c) Number reporting Mines laid in alternative area	1 (5.9%)
(d) Abortive sorties (Technical defects 2)	2 (11.8%)
(e) Missing	3 (17.7%)

Target	Group	Type	No. of Sorties	No. reporting Mines laid. Primary Area	No. reporting Mines laid. Alternative Area.	No. of Abortive mines laid	No. of Abortive mines Not over Enemy Coasts	Miss-Damaged by Flak.
<u>Mine-laying</u>								
Great Belt	3	Stirling	2	2	-	8	-	-
Kiel Harbour	3	Well. III	15	1	1	18	2	3
		Total	17	11	1	26	2	3

...../Weather Experienced.

Weather Experienced.

4. Visibility at bases was moderate to poor; there was local rain and much cloud. The same conditions prevailed over the North Sea, the cloud base sometimes falling to below 1,000 ft. But approaching the Danish Coast the weather improved considerably, and both target areas were clearly visible, the moon being above the horizon and 84% of full.

Results.

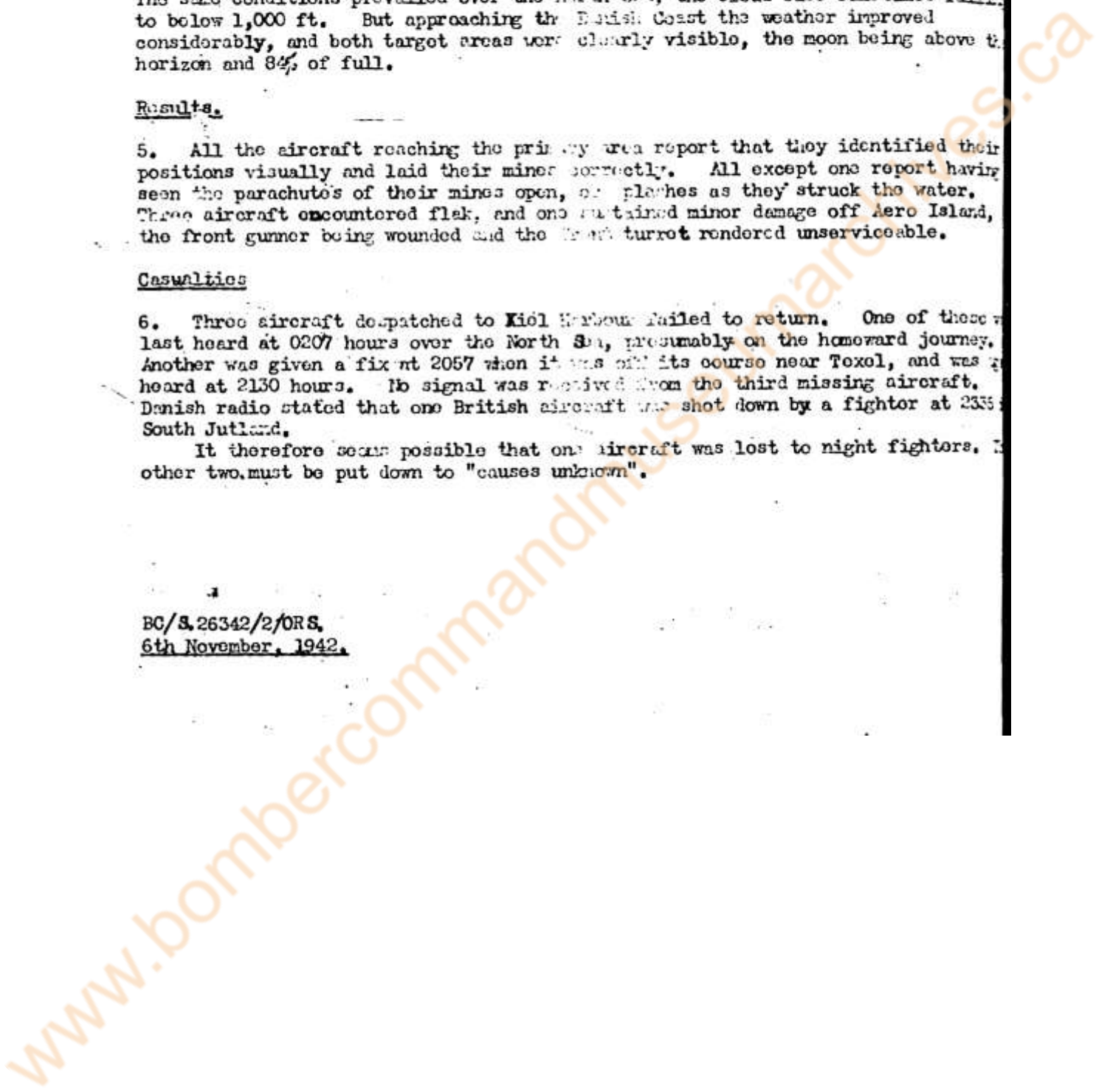
5. All the aircraft reaching the primary area report that they identified their positions visually and laid their mines correctly. All except one report having seen the parachutes of their mines open, or flashes as they struck the water. Three aircraft encountered flak, and one sustained minor damage off Aero Island, the front gunner being wounded and the turret rendered unserviceable.

Casualties

6. Three aircraft despatched to Kiel Harbour failed to return. One of these was last heard at 0207 hours over the North Sea, presumably on the homeward journey. Another was given a fix at 2057 when it was off its course near Texel, and was last heard at 2130 hours. No signal was received from the third missing aircraft. Danish radio stated that one British aircraft was shot down by a fighter at 2335 hours off South Jutland.

It therefore seems possible that one aircraft was lost to night fighters, the other two must be put down to "causes unknown".

BC/S.26342/2/ORS.
6th November, 1942.



BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 23/24th SEPTEMBER, 1942.

(Wismar, Flensburg, Vegesack, and Minelaying)

Meteorological Advice Submitted to the Command

1. 0920 hours. A depression centred to north-west of Scotland is moving south-east. At present there is no evidence of a frontal system associated with it, but the possibility of a minor discontinuity in the polar air cannot be excluded. At home bases visibility will be good, with variable amounts of cloud, but a minor front may pass across during the night. There will be an occluded front over the Continent at midnight from 60°N 19°E to Danzig to Munich. To the north and west of this front, over Germany, there will be well broken medium cloud and patches of residual convection cloud. Near the front, there will be much medium cloud. Convection cloud will be present in considerable quantities, with showers, over north-west France, and in variable amounts over central France. Visibility will be good everywhere over France and Germany behind the front. North of 48°N there will be a westerly wind of 60-70 m.p.h. at 10-15,000 feet.

1300 hours. It must be emphasised that deep polar air is spreading across this country, the North Sea and North Germany. Convection cloud will extend to great heights over the North Sea tonight, with severe icing above 4,000 ft; it will persist with showers in the Flensburg area, but will be well broken, with scattered showers, on the Baltic coast just east of Denmark and in the Hamburg area. Some broken medium cloud is to be expected in the whole area, but visibility should everywhere be good.

1610 hours. All bases should be fit. Over the route eastwards there will be towering cumulo-nimbus cloud; the freezing level will be at 4,000 ft, and cold air may have penetrated to Denmark. There will be convection cloud above 1,500 ft. over Flensburg with a risk of showers. Rather less cloud is expected over the Baltic coast east of Denmark, (5/10-7/10 at east) and cloud base will not be lower than 2,000 feet, except for showers. The area west of Hamburg will not be more than half covered with cloud, which will be above 2,000 ft. All areas will have good visibility except in showers. Wind velocity at 10,000 ft. will be 45 m.p.h. North Denmark will be fit for minelaying with cloud above 1,000 ft. Well-broken cumulus will assist good visibility over the Bay of Biscay.

Executive Orders

2. In view of the fair weather conditions expected over North Germany, and the excellent visibility predicted, it was decided to attack the submarine building yards at Wismar, Flensburg and Vegesack with comparatively small numbers of low-flying heavy aircraft, each target being allotted to one group. In addition, a few aircraft were detailed to lay mines in areas ranging from the Little Belt to the Bay of Biscay.

Sorties.

3.		<u>WISMAR</u>	<u>FLensburg</u>	<u>VEGESACK</u>
(a)	No. of sorties despatched	63	28	24
(b)	" " " claiming attack on P.A.	50	16	5
(c)	" " " claiming attack on alternative targets ...	7	4	8
(d)	Abortive Sorties			
	(Technical defects..... 6)			3)
	(Inability to identify target 11)		3.....	7)
	(Navigational error 1)			
	(Coned in searchlights ... 1)			
	(I/C struck by lightning.. 1)			
	(Cancelled by)			

(c) Missing 4 5 1

Weight of Bombs Dropped by aircraft claimed: attack on Primary Targets

4. (a)	(<u>Wismar</u>)	H.E. 50.9 tons	Incendiary 33.7 tons.
	(<u>Dornier Factory near Wismar</u>)		
		H.E. 8 tons	Incendiary 28.3 tons
	(b) <u>Flensburg</u>	H.E. 42.9 tons	Incendiary 5.1 tons
	(c) <u>Vegesack</u>	H.E. 15 tons	Incendiary 1.3 tons

No bombs weighing over 1,000 lbs. were carried.

Plan of Attack.

5. Wismar, Flensburg, Vegesack and Minsenering

Wismar	<u>Zero hour</u>	- 0200: period of attack - 0200-0215
Flensburg		- 0200: " " " " - shortest time possible
Vegesack	<u>Zero-hour</u>	- 0200: " " " " - " " " "

The above three targets were chosen for special attacks by 3, 4 and 5 Group; in addition Wellingtons of 1 Group were to lay mines off La Pallice, St. Nazaire, Lorient, Heligoland, the Little Belt, House Roads and (in conjunction with some Stirlings of 3 Group) off the Frisian Islands.

In view of the high winds forecast and danger from enemy fighters, crews were to fly at 1000' over the sea and to clear on approaching the enemy coast reducing height again before bombing and returning home as low as possible.

Wismar.

The attack on this target, by Lancasters, was to be in two sections. Between 0200 and 0205 hours, about one quarter of the aircraft were to attack with maximum incendiary loads, and the best crews in this section, carrying 30 lb. incendiaries were given the Dornier aircraft factory as their special target. The remaining aircraft were to be over the target between 0205 and 0215 hours, the majority to attack the town with incendiaries and H.E., while the rest were to aim delayed action 1000 G.P. bombs at the Dornier factory.

The attack was to be carried out from west to east, down wind, and from below cloud level, but no from less than 1200'. In view of the low height of attack, aircraft were to carry neither cameras nor flares. Crews were warned of a dock factory sited 1/4 mile north of the Dornier factory.

Flensburg.

Experienced Halifax crews each carrying 6 x 1000 lb. G.P. + 4 lb. incendiaries were to approach Flensburg up the fjord. Attack from north to south. This attack was to be made from the lowest possible height and was to be accomplished in the shortest possible time in order to achieve the maximum concentration over the target.

Vegesack.

This target was to be attacked by Stirlings each carrying two containers of 30 lb. incendiaries and the maximum number of 1000 lb. G.P. bombs, only if the sea was clear of cloud. Crews were warned that the strong winds forecast would be likely to clear the target of cloud but obscured on arrival, and were instructed, therefore, to stand off to a distance to the north-east of the target if considerable cloud were encountered.

Briefed Routes

- 6. 3 Group Base-Cranor- 54°30'N 6°10'E - Houwerk - 53°20'N 9°0'E - Vegesack- Bad Zwischenen - 54°30'N 6°10'E - Cranor.
- 4 Group Base- Hornsea- North of Hornsea- Flensburg - Hooge - Hornsea.
- 5 Group Base- Mablethorpe- Ringstead- Sejevo- Wismar- Sejevo- Ringstead- Mablethorpe.

Weather encountered.

7. Flensburg was the only target where visibility was really good, with full moonlight and 5/10ths cloud at 2-3000 ft. At Vegesack there was 8/10ths - 9/10ths cloud down to 700 ft, below which conditions were fair, despite heavy rain. At Wismar the target was obscured by 10/10ths cloud with icing to below 1,000-ft. Bad weather with electric storms was encountered over the North Sea, especially on the return journey.

Results.

WISMAR.

8. Wismar appears to have been the scene of this night's most successful operation. 50 of the 83 sorties despatched are reported to have bombed the Primary Area. Although no photographic evidence is available, as cameras were not carried; the last crews to leave the target reported large fires in the town, and a big building in the area of the Dernier works, possibly part of the factory, was seen to be blazing fiercely. Bad weather over the North Sea caused several aircraft to abandon their task, and one was struck by lightning and barely escaped crashing into the water. Over the target there was 10/10ths cloud with icing down to 1,000 ft.; below that height visibility was adequate, but, as one pilot reported "The weather was the friend of the Hun all the time".

9. From 0200 to 0215 hours, 31 aircraft were reported having been over the target. Nearly two-thirds of the total weight of bombs dropped consisted of H.E. At 0203 hours a large fire was seen burning in the west of the town; at the same time one pilot reports that he scored a direct hit on the factory from roof-top height. Numerous sticks of bombs were dropped across a large building in this area already on fire; by 0210 hours it was burning fiercely round the chimney stacks, and soon afterwards the roof seemed to cave in, and pieces of masonry were thrown into the air. At 0220 hours a building in the town with many chimneys and sheds was well alight. Meanwhile, considerable fire was observed in the centre of the town and towards the south. The crew of the last aircraft over the target could see no evidence of bombs having fallen outside the target-area, and mentioned two medium-sized fires in the region of the port. Incendiaries were burning on the aerodrome, and a fire in the fjord 2 1/2 miles from the target at 315° presumably indicated a ship ablaze. Several flak ships did in fact address the aircraft as they left; but the town's defences, though accurate, were not heavy. One searchlight blew up on being machine-gunned. About nine balloons were sighted east of the town, flying at four thousand feet.

Timing of attack

10.	No. of aircraft reporting attacks on Primary Area	50	
"	" " " bombing early: 19-5 minutes	1	
"	" " " " " " 20-0	2	= 3
"	" " " " " " within planned period	31	(62%)
	No. of aircraft attacking late: 2-5 minutes	8	
	" " " " " " 5-10 "	2	
	" " " " " " 10-15 "	5	
	" " " " " " 15-20 "	1	= 16

FLENSBURG.

11. Only 16 of the 28 Halifaxes despatched to Flensburg reached the primary area. Ten of these attacked in the first five minutes, and four more in the next five. The crew of one of the first aircraft over the target reported that their bombs caused a big explosion, set off by "a vast red fountain 500' high and 100' across", which was observed by other aircraft. A large explosion in the shipyards was also reported. Visibility over the target, with cloud base at 1500', was excellent, and the prominent buildings which the yards are situated could be pinpointed by those aircraft able to take advantage of gaps in the cloud. Fires started in the town seemed to take hold as our aircraft left. Leaflets were dropped on the Danish coast.

-6-
VEGESACK.

12. The target at Vegesack was the Bremer-Vulcan shipyard, now engaged entirely on submarine building. Five of the 26 Stirlings despatched reached the primary Area, but found the target invisible except below the cloud, which was 9/10ths down to 700'. Only two aircraft report visual identification of the target, while a third remained in the area for 30 minutes without being able to pinpoint. The majority attacked flak concentrations on E.T.A.

Other Targets Attacked.

13. Most of the aircraft attacking other targets than the primaries were not to do so through bad weather, and were accordingly unable to report the results of their bombing with accuracy. Three of the Lancasters despatched to Wisner attacked flak concentrations in the target area on E.T.A., and four others dropped their bombs respectively on a railway bridge over the river at Silkesburg; on town of Randsburg; in the Lubock area; and on an unidentified town. Four Halifaxes bombed Kiel, Niobull, a small town nearby and Kleinwohlstop, definite damage being reported in the last case. Wangeroge, Oldenburg (which was also identified by the Ems Canal), Wilhelmsheven, Baltrum Island and a village north of Eilsfloth, were attacked by Stirlings sent to Vegesack; in addition, one extinguished the flarepath at Ardorf aerodrome, while two jettisoned their bombs in the area of Bremen.

Defences.

14. At Wisner most of the aircraft bombed below 2,500 ft. so that little opposition was encountered from the heavy guns, which were thought to number more than 6 and to be situated to the north of the town. The low-level attack and the brilliant moonlight combined to provide excellent opportunities for light flak engagement. Crews reported about 200 light guns, mainly 20 mm. At the Dornier factory, some light tracer was believed to be coming from moving lorries fitted with machine-guns. Searchlights were little in evidence; about 6 to 8 were exposed intermittently, but were negated by the low cloud and moonlight. 3 were downed after being machine-gunned from low-level. 8 to 9 balloons (described as dark coloured) were reported over the town: two were close-hauled and the remainder flying at heights between 1,000 and 3,000 ft.

At Flensburg, an attempt seems to have been made to put a "curtain" of fire up to 3,000 foot along the fjord; but although light flak was consistent its intensity was below expectations. About 12 searchlights were in operation, 5 to the north and 4 to the south west of the town. These attempted to form cones, and were fairly successful in illuminating aircraft for the benefit of the light guns. In addition, about 10 searchlights were reported along the sides of the fjord. Some fire from heavy guns was encountered; but it was all well above the aircraft.

Owing to weather conditions at Vegesack, pinpointing was extremely difficult and no fresh information was obtained as to the strength or disposition of the defences there.

Casualties.

15. The number of aircraft missing, damaged and intercepted, on each of the main targets are given below:-

	Sorties	Missing	Damage		Interceptions	
			Flak	Fighter	Attacks	Other
Wisner	83	4(4.8%)	3(3.6%)	-	-	1(1.2%)
Flensburg	28	5(17.9%)	4(14.3%)	1(3.6%)	2(7.1%)	-
Vegesack	24	1(4.2%)	1(4.2%)	-	-	2(8.3%)
Total	135	10(7.4%)	8(17.3%)	1(0.7%)	2(1.5%)	3(2.2%)

The losses on Flensburg were unusual by 1/3, considering the small number of sorties. For all targets, the proportion of flak damage is high and the proportion of interceptions low, which indicates that the majority of our losses were due to flak.

Light flak was reported from all three targets. At Flensburg it was considerable, with searchlight co-operation. Heavy flak was encountered at Vegesack.

Our own intelligence sources indicate that one aircraft was shot down, probably by light flak, at Flensburg, and another by flak at Kersor. One aircraft was shot down by fighters near Ringjobing, and it is possible that a fourth aircraft was destroyed by light flak at Cuxhaven.

The dispersal of our aircraft and the poor visibility made the identification of further losses impossible. 3 aircraft were lost to flak, 1 to fighter, and the remaining 6 to causes unknown. It is probable that flak was the chief cause of these, although the weather may have been partly responsible.

Summary

16. Although no photographic evidence is yet available, it appears from the Crews' reports that the attack on Wismar and the Dornier factory achieved considerable success. Weather conditions at Vegesack were such as to make good results unlikely but the raid on Flensburg, though of a limited nature, seems to have been accurate and damaging.

Minelaying

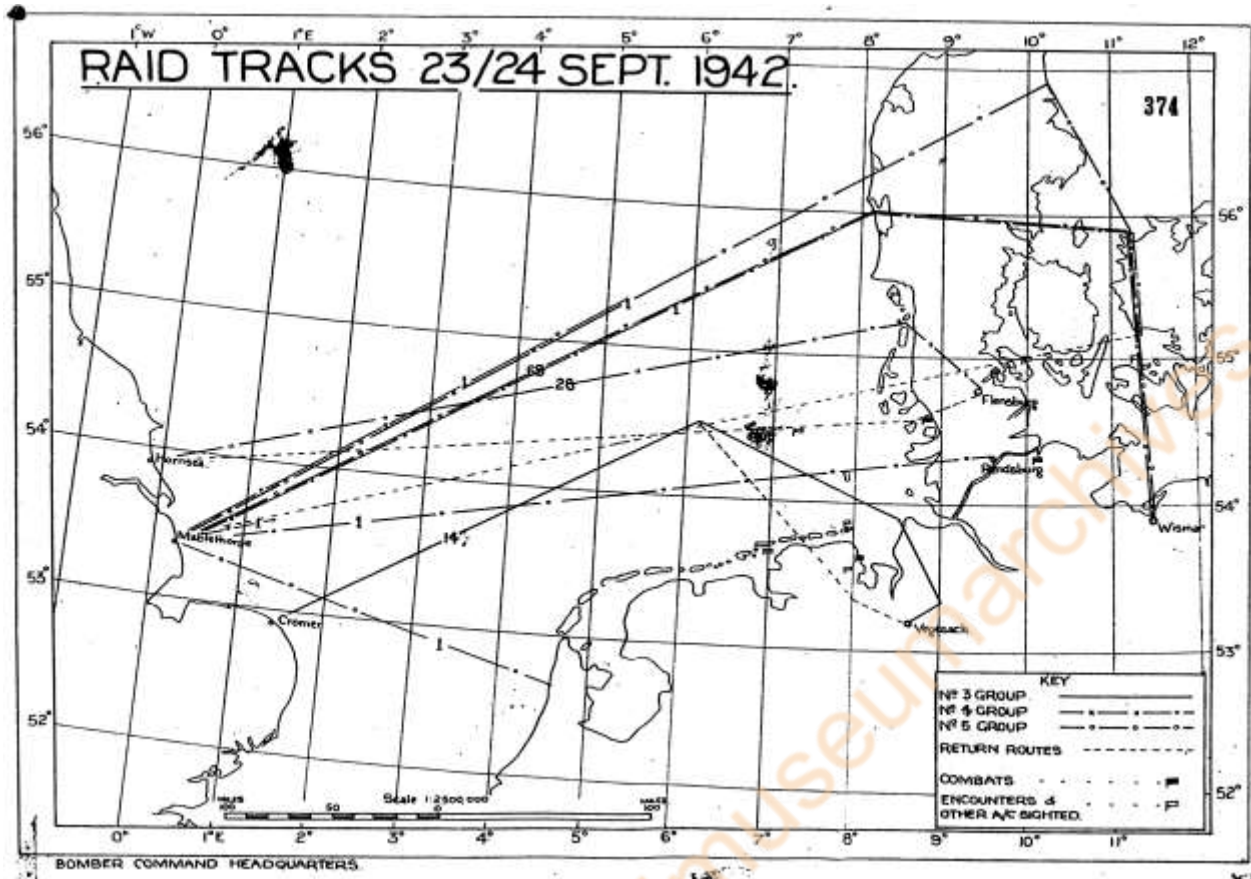
17. 26 Wellingtons of 1 Group and 8 Stirlings of 3 Group were despatched to lay mines in the following areas: Lorient, La Pallice, St. Nazaire, Frisian Islands, Heligoland Bight, Laeso Rende and the Little Belt. 28 aircraft claim to have accomplished their mission successfully and 69 mines were laid, including 39 in the Frisians area. Two aircraft are missing, but there is no evidence to indicate the cause of loss.

BC/S. 26342/2/ORS.
9th November, 1942.

Target	Sp.	Type	No. of sorties	Aircraft claiming to attack Primary	Aircraft falling to both Primary			Casualties				Interactions		
					Subsidiary other target	Over Enemy Territory	Not Over Enemy Territory	Missing	Damaged by Flak	Damaged by Enemy Aircraft	Not due to Enemy Action	Attacked	Not Attacked	
Wismar	5	Lancaster	83	50	7	16	6	4	8+4 A.C.	-	-	-	-	1
Flensburg	4	Halifax	28	16	4	3	-	5	5+1 A.C.*	1 A.C.*	-	-	2	-
Vegesack	3	Stirling	24	5	8	5	5	1	5	-	-	-	-	2
(Lorient	1	Hell. III	1	1	-	-	-	-	-	-	-	-	-	-
(La Pallice	1	Hell. IV	4	2	-	-	1	1	-	-	-	-	-	-
(St. Nazaire	1	Hell. III	2	2	-	-	-	-	1	-	-	-	-	-
(Frisian Is.	1	Hell. III	5	5	-	-	-	-	-	-	-	-	-	-
(Heligoland	3	Stirling	8	7	-	-	1	-	-	-	-	-	-	-
(Bight (a)	1	Hell. III	5	3	-	1	-	1	-	-	-	1	1	-
(Laeso Rende	1	Hell. III	4	3	-	1	-	-	-	-	-	-	-	-
(Little Belt	1	Hell. III	1	1	-	-	-	-	-	-	-	-	-	-
(Little Belt	1	Hell. III	3	3	-	-	-	-	-	-	-	-	-	-
Total			249	99	19	20	13	12	19+5 A.C.	1 A.C.	1	3	3	

* These 14 aircraft were not fitted with Gen.

* This aircraft sustained damage from both flak and fighters.



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BOMBER COMMAND REPORT ON NIGHT OPERATIONS 24/25th. SEPTEMBER 1942METEOROLOGICALMeteorological Advice submitted to the Command:

1920 hours. A depression centred over the Irish Sea is moving south-eastwards, and by midnight will probably be centred over East Anglia. At home bases visibility will generally be good, though near the centre of this depression there will be heavy rain locally, and elsewhere residual convection cloud. Over the North Sea and the coastal strip of North Germany there will be much convection cloud with showers and local thunderstorms; inland, cloud will decrease, and there should be comparatively little in the lee of high ground in the Middle Rhine. In the Ruhr, convection cloud is likely to persist on the edge of high ground, but it should generally be well broken. A cold front will be over South Germany from the Alps to Prague to Breslau, with a small wave near the Alps. There will be much medium cloud in areas adjacent to the front, and thunderstorms are likely near the front itself. Visibility will be good everywhere over North Germany.

1245 hours. It must be emphasised that convection cloud with local thunderstorms will be present over the North Sea, Denmark and the coastal strip of North Germany. Intense convection cloud is also expected off North-West France, but this should be less intense, and with good breaks, over the Bay of Biscay, south of Nantes. In the extreme south-west of the Bay, frontal conditions are expected, at least in the first part of the night, owing to a wave on the front now off north-west Spain. Otherwise, there are no changes from the forecast given at 0920 hours.

1600 hours. Bases will mainly be fit, apart from very local visibility trouble about dawn. On the routes to Denmark and the Baltic, to the Bay of Biscay, and as far east as 10° E, there will be towering cumulus cloud, with base above 1,500', except in showers. There is some risk of thunderstorms. Further east the amount of cloud is expected to decrease, and east of 15° E, visibility should be particularly good. The wind velocity on the Southern route will be 45 m.p.h.; it is not expected to be above 40 m.p.h. at 10,000'; and may be less for the eastern route.

Executive Orders.

In view of the weather conditions, rainelaying operation was ordered.

Sorties.

(a) Number of sorties despatched.....	51
(b) " " " reporting minor in Primary Area.....	44 (86.3%)
(c) " " " reporting minor in Alternative Area.....	4
(d) Abortive Sorties	(1 Weather)
	(1 Technical)
	(defect and pilot)
	(ill).....
(e) Missing.....	1

Weather Encountered

Visibility at bases was worse than expected; rain fell in northern and central areas and some diversions were necessary. Electric storms were encountered over the Frisians and Heligoland Bight, a cumulo-nimbus cloud based at 800 ft., but generally there was medium cumulus or cumulo-nimbus at 2,000 ft., and the target areas were visible in full moonlight. The weather over the Baltic was less disturbed during operations, and visibility was clear except when 10/10ths. cloud at 4-5,000' obscured the full moon.

...../4. Results.

Results.

44 aircraft report 128 mines successfully laid in the areas allotted to them. 66 of these were laid off the Frisian and in the Helligoland Bight, and 62 in the Baltic and its western approaches. Four Lancasters laid mines in alternative areas, and one other, in addition to its primary task, dropped two G.P. bombs on Praesto aerodrome and machine-gunned a German army convoy between Vidob and Emden. A Wellington IV was struck by lightning over Helligoland, but suffered no damage beyond losing its trailing aerial.

BC/S.26342/2/ORS.
7th, November 1942.

Helligoland Bight (S)	1	Well. IV	5	5	-	10	-	-	-	1	-	-	-
Frisian Islands	1	Well. IV	15	15	-	30	-	-	-	-	-	-	-
S. of Texel	3	Well. III	5	4	-	8	-	1	-	-	-	-	-
Frisian Islands	3	Stirling	3	3	-	18	-	-	-	-	-	-	-
Bornholm Is.	5	Lancaster	4	3	1	12	-	-	-	-	-	-	378
Behmern Channel	5	Lancaster	1	1	-	4	-	-	-	18	28	2	-
Meinwerde	5	Lancaster	2	2	-	2	-	-	-	1	-	-	-
Knocke	5	Lancaster	2	1	1	4	-	-	-	-	-	-	-
Danzig	5	Lancaster	2	2	1	4	-	-	-	-	-	-	-
Pillau	5	Lancaster	3	2	1	6	-	-	-	-	-	-	-
Gdynia	5	Lancaster	3	2	-	4	-	1	-	-	-	-	-
Cadot Channel	5	Lancaster	2	1	-	5	-	-	1	-	-	-	-
The Sound	5	Lancaster	2	2	-	10	-	-	-	-	-	-	-
			51	44	4	128	-	2	1	3	2	2	-
										(18,280	(28)		

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 25/26th SEPTEMBER, 1942.

MINUTEMeteorological Advice Submitted to Bomber Command.

1. 0330 hours. The midnight position of fronts is estimated as follows: (1) cold front from 50°N. 10°E. to Luyder Voo to Cherbourg to the west of England (2) from 55°N. 15°E. to Munberg to the east of the North Sea, with a wave at 49°N. 9°E. But these calculations are subject to a greater margin of error than usual, owing partly to lack of data but also to the complexity of the situation. At home bases convection clouds will be well broken inland, but will be accompanied by showers off the east coast. The latter conditions will be exaggerated over the North Sea, where convection clouds will prevail to great heights, with freezing level probably below 5,000'. There will also be cloud to great heights, probably with thunderstorms, on the cold front over the low countries and the North German coast. Over Germany, between the fronts, there will be broken high cloud and patches of low cloud. Along front (2) there is likely to be a belt of rain and low cloud. Visibility will be moderate to good at home bases and, except in areas of precipitation, on the Continent.
- 1245 hours. The midnight position of front(1) is now expected to be as follows: Sylt to Texel to Thames Estuary to Portland Bill to Brittany, then south-westwards. There will be a belt of rain over this country, probably affecting East Anglia, most of the night. Over the southern North Sea and the Bay of Biscay thundery showers are anticipated, with more continuous rain near the front.
- 1615 hours. All Groups are threatened with sporadic outbreaks of rain and low cloud, which will tend to persist locally, especially in the southern half of the country, where occasional local clearances of sky may lead to local fog formation. In the north half of the home base area, the weather will improve slowly with clearing skies inland; but showers will persist near the coast. On the route to the Frisian Islands, and over the area itself, the weather will generally be showery with local thunderstorms; cloud base will be from 1,000 to 1,500 ft, with high tops. Over the Bay of Biscay conditions will, on the whole, be stormy, with frequent outbreaks of rain bringing cloud down to 1,000 ft. But there will be local breaks in the cloud.

2. Executive Orders. In view of the weather, a small minelaying operation was ordered.

Sorties.

3. No. of sorties despatched 10
 " " " claiming to lay mines in primary area....10

Weather.

4. At home bases, local mist and fog, developing during the night, rendered visibility moderate. Cloud was generally above 1,500' though patches below 1,000' were reported south of a line from Felixstowe to Luffham to Bristol. On the route to the Frisians cloud conditions were similar, though
 wind

velocity at 2000' was 15-20 m.p.h. from 330°. Over the target area, visibility was excellent; there was 80% moon, and the small amounts of cloud were based at 2,000'.

Results.

5. All the aircraft dispatched were able to identify the target area visually and report that all their 10 mines were successfully laid. One aircraft was engaged with machine gun fire from what was believed to be an E-boat 3 miles north-west of Belorus, but suffered no damage. Otherwise the operation was without incident.

BC/s. 26342/2/ CR3.
7th November, 1942.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 26/27TH SEPTEMBER, 1942.

FLensburg & MINELAYING

Meteorological Advice Submitted to the Command.

1. 0925 hours. It is estimated that the midnight position of fronts will be as follows (1) warm front 62°N, 6°E. to St. Abb's Head to Foynes (2) cold front south of Hamburg to 50½°N, 5°E. to Paris to 47°N, 0°E. (3) cold front from just southwest of Paris to 49°N, 3°E. to 44°N, 0°E. (4) Warm front from Danzig to Nurnberg to 46°N 5°E. At home bases in North England rain will spread with increasing cloud from the north-west; further south there will be variable amounts of cloud, with fog patches towards dawn. Over the North Sea convection cloud will be high-topped, and freezing level will be at 4,000'. There will be well broken cloud, mainly medium, over the coastal strip of north Germany from Wilhelmshaven to Stettin; inland over Germany, south of 53°N, there will be increasing amounts of medium cloud, thinning to 10/10ths around 51°N and towards Danzig. Over North-West France there will be variable amounts of convection cloud, with some good breaks. It will be generally cloudy over Central France. Visibility over Germany will be moderate, with industrial haze, and rain is to be expected near front (4).

1250 hours. There is no evidence of a wave on front (4). This will mean more medium cloud along the Baltic coast between Kiel and Stettin than was suggested earlier. It is not possible to place the edge of this cloud sheet exactly, but there is still a high expectation of the medium cloud breaking between Kiel and Rostock. East of Rostock, however, there will be much medium cloud, and low cloud with rain is also possible.

1610 hours. Targets: 10/10ths medium cloud and possibly low cloud and rain are to be expected over Wismar, but prospects are much better in the area of Bremen Emden and Wilhelmshaven. Over the Frisian Islands there will be broken convection cloud, base 1,500'. Small amounts of dying convection are anticipated over the Kattegat and Flensburg, together with 5/10ths - 7/10ths medium in the latter region. At home bases, 2 and 3 Groups should be free from fog all night; but in 91, 92 and 93 Groups fog will become troublesome after midnight, and very troublesome by 0200 hours. Eastern stations and high stations in 1 and 5 Groups will be fit all night, but in other parts of these Groups, and in the whole of 4 Group, there will be patches of fog by 0200-0300 hours.

Executive Orders

2. A small force of heavy bombers was despatched to attack the shipbuilding yard at Flensburg, but a final study of the weather conditions led to the cancellation of this operation and to the recall of these aircraft which had taken off. Aircraft were also detailed to lay mines in the Baltic approaches, Kiel Harbour and off the Frisians, but many of these, too, had to be recalled.

Sorties

3.	(a) No of Sorties Despatched.....	29
	(b) " " " claiming to bomb Primary Area.....	1
	(c) " " " " " Alternative Area.....	1
	(d) Abortive sorties: -	
	Technical Defects.....	2
	Inability to identify target.....	1
	Accepted recall to base.....	22
	(e) Missing.....	1

Weight of bombs dropped by aircraft claiming attack on Primary Target

4.	H.E.	2.38 tons, (6 x 1,000 lb.)
	Incendiary	0.32 tons,

...../Route briefed.

2

Route briefed

5. South end of Ringkjøbing Fjord to Skanderberg to south-west of Odense Fjord to Flensburg.

Weather

6. Cloud on the route was 3/10ths to 4/10ths, based at about 2,000', with smaller amounts locally. The weather was slightly bumpy. Wind velocity varied from 10 to 15 m.p.h. up to 7,000'. The moon was above the horizon and 99% full; visibility was from 10-20 miles, deteriorating to 1-5 miles towards Denmark and north Germany, although it was reported as good over the target itself, where cloud was 6/10ths at 4,000'.

Results

7. 27 Halifaxes were sent to attack the ship building yards at Flensburg, but, owing to unfavourable weather conditions at 1800, a general recall signal was despatched, which prevented most aircraft from completing their task. One, however, had almost reached the target, so it proceeded to carry out its attack from 4,000 ft; the bombs were thought to have fallen on the dock area. Shortly after leaving the target, this aircraft dropped leaflets, as did two others; one in East Schleswig-Holstein, the other in central Denmark at a point 55°56' N 9°0' E. The former of these two shot down the He.110 which attacked at 2325 hours off the North Frisian Islands; the other reported seeing the aircraft hit the sea in flames and sink immediately.

Casualties

8. The missing aircraft was attacked and presumably damaged by a fighter at 2303 hours, and this may be held to be the cause of loss.

MINE LAYING

9. 25 Wellingtons of 1 Group, and 27 Wellingtons and 18 Stirlings of 3 Group, were despatched to lay mines in the following areas; Frisian Islands, Great Belt, Little Belt, Kiel Harbour, Laeso Rande and the Kattegat. Bad weather led to the recall of 29 aircraft before they reached enemy territory, and three others were prevented from accomplishing their task by poor visibility. 36 aircraft reported laying 75 mines in their primary areas, including 50 off the Frisians. In addition, two Stirlings detailed for the Kattegat jettisoned their loads off the west coast of Denmark. One aircraft crashed on landing and lost its port wing; otherwise, there were few casualties, two aircraft sustaining slight damage from flak and one from an enemy fighter. A Wellington despatched to Kiel Harbour is missing. There were several observations of an aircraft seen falling in flames off the west coast of Schleswig, north of Esbjerg, at about 2310 hours, which may be relevant, although the position is a long way from the route. There is no indication of the cause of loss, although there is a possible fighter success about this time.

BC/S. 26342/2/ORS.
4th November, 1942.

September 26/27th, 1942.

Target	Op.	Type	No. of sorties	W/C reporting attack on		Abortive Sorties		Missing	Casualties			Interruptions	
				Primary Area.	Alternate Area.	Over Enemy Territory	Not over Enemy Territory		Damaged by flak	Damaged by Enemy W/C	Not due to Enemy Action	Attacked	Not Attacked
<u>Whaling</u>													
<u>Prison Islands</u>	1	Well. III	8	8									379
		Well. IV *	2	2									
	3	Well. III	8	8									
<u>UNDO BARRAGE</u>	3	SB. plane	3	1			4						
<u>UNDO BARRAGE</u>	3	Well. III	15	6			9	1	3 AC	1	1		
		SB. plane	12		2		18						
<u>UNDO BARRAGE</u>	3	Well. III	4				4						
<u>UNDO BARRAGE</u>	1	Well. III *	3			3							
		Well. IV *	2	2									
<u>UNDO BARRAGE</u>	1	Well. IV	3	2				1					
<u>UNDO BARRAGE</u>	4	Well. III	28	1	1	18	7	1	3 AC	1	2	1	
TOTAL			99	37	3	21	36	2	1 AC 1	3 AC	2	3	1

* These 14 aircraft were not fitted with Geo.

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BOMBER COMMAND REPORT ON OPERATIONS - 29/30th SEPTEMBER, 1942.MINE LAYINGMeteorological Advice Submitted to the Command.

1. 0920 hours The midnight position of fronts is estimated as follows: (1) occluded from south-west Ireland to south-west England to Paris to the Pyrenees (2) occluded from 50°N. 10°E to 60°N. 12°E. to Danzig (feeble over north-west Germany). At home bases there will be variable amounts of cloud, based generally above 1,000 feet, and fog patches must be expected locally. The situation over the British Isles is complex, however, and the forecast for home bases may have to be modified later in the day. Over Germany, variable amounts of cloud are generally expected, but there should be some good breaks except near the frontal belts. There will be much low cloud and rain over central France. Convection cloud will be broken over west France, and visibility should be good in this area.

1250 hours At a Group Conference, there was disagreement as to the likelihood of sufficient cloud cover to justify a low-level attack at dusk over north-west Germany. With regard to bases, 1, 4, and 5 Groups are worried by the prospect of low stratus from about 2400 hours, while 2 and 3 Groups are expecting rain and low cloud. It seems certain that in the area from 52°N. to the Wash and from 7° to 11°E, there will be a rapid increase of medium cloud, and possibly also of low. But the situation is complex, and cannot accurately be forecast. By this afternoon views may have changed, particularly concerning bases.

1600 hours All Groups expect low cloud to fall to between 500 and 1,000 feet and all except 4 Group, who are uncertain, expect intermittent or continuous light rain. 2 and 3 Groups hope that towards dawn, frontal trouble may have moved north of their area. 91, 92 and 93 Groups do not offer diversions. 91 Group expects cloud to be based at 1,000 feet, with visibility from 1 to 2 miles. There is no definite information to permit of an accurate forecast for the north plain of Germany, but an increase of medium, and perhaps of low cloud may be anticipated. In the Baltic, there will be much cloud and rain, and possibly thunderstorms. Rain and cloud with high tops will prevail on the route south-westwards to the Bay of Biscay; the Channel will be three-quarters covered, and over the Bay itself cloud will be based at 1,500 feet.

Executive Orders

2. In view of the weather, a small mine-laying operation was ordered.

Sorties

3.

(a) No. of sorties despatched.	14
(b) No. reporting having laid mines in primary area.	2
(c) No. reporting having laid mines in alternative area.	9
(d) Abortive sorties (inability to identify target).	2
(e) Missing.	1

Weather encountered

4. At home bases, mist and fog patches affected 5 Group by 0200 hours. After 0300 hours rain spread rapidly from the east coast to 1°W, but cloud remained above 1,000 feet. Visibility improved somewhat after 0600 hours. Rain and low cloud were encountered over the North Sea. The target areas in the Baltic were visible only through breaks in the cloud, which was 10/10ths down to 500 ft. and in many places dropped to sea level. The moon was 72% of full, and above the horizon.

/Results

Results

5. Only two aircraft were able to identify their targets in the Baltic through breaks in the cloud, one off Sassnitz and one off Swinemunde. In neither case could any results be observed, and the latter aircraft was forced by flak and searchlights to lay mines slightly south of the target. Each carried 3 mines. The Kattegat had been given as an alternative area, and here the cloud breaks were frequent enough to allow of pinpointing. 7 aircraft report having laid 17 mines in this area, although in some cases it was impossible to see them strike the water. The crew of one shot up a collection of 4 fishing smacks at 55° 15' 05° 20' E. Two other aircraft laid 6 mines off the west coast of Denmark, north of Ringkjøbing. One aircraft detailed for Swinemunde flew over the town at 500 feet, and on encountering intense flak the pilot descended to roof-top height. This aircraft and one other was forced by the weather to abandon their mission. One aircraft despatched to Swinemunde is missing, but there is no evidence to indicate the cause of loss.

BC/S. 26342/5/ORS.
17th November, 1942.

Night 27/28th September, 1942.

TARGET	GROUP	TYPE	No. of Sorties	w/c reporting mines laid in		Abortive (Over enemy coast)	MISSING	No. of mines laid in primary area*	Casualties	Interceptions
				Primary Area	Alternative Area					
SWINEMUNDE	5	LANCASTER	4	1	1	1	1	3	-	-
SASSNITZ	6	LANCASTER	6	1	5	-	-	3	-	381
KATTEGAT	5	LANCASTER	4	-	2	1	-	-	-	-
TOTAL			14	2	8	2	1	6	-	-

* In the Baltic, 17 mines were laid in the target, and 6 north

Ringkjøbing, as alternative areas.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 30TH, SEPT/1ST, OCT. 1942.(MINSLAYING)Meteorological Advice Submitted to the Command.

1. 0915 hours. The exact position of midnight fronts is doubtful, but it is estimated that there will be a warm front from the Orkneys to Solway Firth, becoming cold to Humber to Thames Estuary to 48° N. O., becoming warm to a centre of low pressure over Spain. There is a prefrontal warm front from 55° N. O. to Cologne to north of Munich. Rain and cloud are expected locally at home bases, with fog developing in places. Over Germany there will be variable amounts of medium cloud and small amounts of low cloud, except near the front, where there will be an increase in both medium and low cloud. There will be much cloud and occasional rain over north-east and central France, and broken convection cloud over north-west France. Visibility will be moderate over Germany, and moderate to good over France.

1230 hours. The threat of an early onset of fog at home bases is serious, wherever the cloud breaks. Cloud and rain are expected to persist in parts of East-England, making this threat most serious in the Midlands. Over the plain and coast of north Germany there will be broken medium cloud, and little or no low cloud. There is now no evidence of the warm front over the Continent.

1615 hours. 1, 4, 5, 91 and 92 Groups expect local fog from 2300 hours onwards, becoming general at 2400 hours. The situation regarding 2 and 3 Groups is doubtful, owing to the threat of very low cloud and rain from the south. South-east Scotland, north-west England and 92 Group are suggested as diversion areas; also the south coast west of the Isle of Wight, although here, too, rain may have spread up from the south towards dawn. All German beaches on the north coast from Wilhelmshaven to Rostock are expected to have clear skies or small amounts of medium cloud. A front over the North Sea at about 2° or 3° E. will have to be crossed on the route to North Germany; but this is only a narrow belt of bad weather.

Executive Orders.

2. In view of the weather conditions, a small minelaying operation was ordered.

Sorties.

3. (a) No. of sorties despatched.....25
 (b) No. of sorties reporting to have laid mines in
 Primary area.....21(84%)
 Alternative Area.....1
 (c) No. of sorties reporting to have laid mines in
 Alternative Area.....1
 (d) Abortive Sorties (technical defect).....1
 (e) Missing.....2

Weather Encountered.

4. Visibility at bases was moderate, with rain and occasional rain. Patchy fog was experienced in Yorkshire after midnight. 10/10ths. medium cloud, based at 1,000 feet, was encountered over the Frisians; the moon was 64% of full, but did not rise until most aircraft had started for home. It was very dark, and there was a thick sea haze. Visibility was poor. Conditions were slightly better off the Dutch coast, where there was 8/10ths. - 10/10ths. cloud based at 3,000 ft., but even here visibility was only fair.

Results.

5. Despite the weather conditions, 21 aircraft despatched succeeded in laying their mines in the primary areas, although one is reported to have dropped safe, owing to the fusing-catch failing to hold. One Wollington detailed for the Frisians planted mines at point 53° 47'N. 05° 15'E. through a navigational error, while another reached its target south of Texel, but was unable, owing to a technical defect, to release its mines. A little light flak was encountered from Don Holdoer

and the Frisian Islands, and more intense opposition was met from ships, and in particular from one convoy off Terschelling. Two A/C were hit, though not seriously. Two others are missing, but there is no evidence to indicate the cause of loss.

BC/S. 26242/5/ORS.
17th. November 1942.

Target	Group	Type	Sorties	A/C reporting Mines laid in		Abortive Sorties.	Missing	No. of Mines Laid in Primary Area.
				Primary Area.	Alternative Area.			
South of Texel	1	Woll.II	2	2	-	-	-	4
		Woll.III	3	2	-	-	1	3
Frisian Islands	1	Woll.III	5	4	-	1	-	8
	3	Woll.III	20	0	1	-	-	1
		Woll.III	5	0	-	-	1	0
TOTAL			25	21	1	1	2	57