

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 30TH SEPT/1ST. OCT. 1942.(MINE-LAYING)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 probable 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, moreover 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 2800 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 bases on the north coast from Wilhelmshaven to Rostock are expected to have cloud and 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 mine-laying 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%)
 (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 fog 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 their 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 of the 25 aircraft despatched succeeded in laying their mines in the primary areas, although one is reported to have dropped its mine, owing to the fusing-catch failing to hold. One Wellington detailed for the Frisians planted mines at point $53^{\circ} 47' N.$ $05^{\circ} 15' E.$ 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 Holder

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 Primary Area	Mines laid in Alternative Area	Abortive Sorties.	Missing	No. of Mines Laid in Primary 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	8	1	-	-	10
	3	Woll.III	5	2	-	-	1	0
TOTAL			25	21	1	1	2	57

LUBECK, FLensburg AND WISMAR.

Meteorological Advice Submitted to the Command.

1. 0920 hours. It is estimated that the midnight frontal position will be from 60°N. 06°E. to 54°N. 06°E. (becoming warm to 50°N. 01°E) to the western Channel. At home bases there will be variable amounts of medium cloud and small amounts of low cloud. Fog will develop, particularly in the south, and although it is as yet impossible to give the precise time of onset, it seems likely that patches will have formed by 2300 hours, and that it will have become general by 0200 hours. In Yorkshire there may be sufficient gradient to prevent fog. Over Germany, between 07°E. and 12°E. and north of a line approximately from Cologne to Rostock, there will be variable amounts of medium cloud. Elsewhere over Germany the weather will be fine. Visibility will be moderate in the north. Over France, there will be some variable amounts of layer cloud, well broken except along the north coast, where frontal cloud will be found.

1240 hours. The midnight front is now expected to lie further east from 60°N. 8°E. to the centre of Denmark to Bremen. Much medium cloud must now be expected over the coastal district of Germany, west of Rostock. Flensburg, Bremen and Lubeck will probably have 10/10ths. medium cloud; the two first named areas, some low cloud as well. Cloud will decrease eastwards and southwards, becoming scarce east of Rostock and in the middle Rhine.

1615 hours. Local fog is expected at home bases in the south (including 5 Group) from 2300 to 2400 hours, becoming more general from 0100-0200 hours. 4 Group should be free of fog all night. On the route to north Germany, there is a front to be crossed at approximately 7°-8°E., along which icing will be encountered. 7 - 10/10ths. medium cloud will be found over Wismar and Lubeck, and 10/10ths. over Flensburg.

Executive Orders.

2. Three targets were selected. Lubeck was to be attacked by Stirlings of 3 Group, Flensburg by Halifaxes of 4 Group and Wismar by Lancasters of 5 Group. The last named force was to be the largest, and was given two aiming-points; one in the built-up area and the second the Dornier factory outside the town. The operation was fixed to take place early, it having been decided that it was more important to return to bases before the fog thickened, than to wait for the moon to rise over the targets.

Sorties.

	Lubeck	Flensburg	Wismar	Total
3.				
(a) No. of sorties despatched.....	25	...	27	.....78.....130
(b) " " " reporting attack on primary target.....	17(68%)	12(44.4%)	60(77%)	89 (69.2%)
(c) " " " alternative target... 0	0	1	7	8
(d) " " abortive sorties:-				
technical defect... ..	1	4	5	11
inability to identify target... ..	1	5	9	15
crashed on take off... ..	1	1	1	3
mistaken recall... ..	1	1	1	3
(e) No. of missing aircraft.....	3	12	2	17

Plan of Attack.

4. Lubeck	Zero hour:- 2300 (period of attack:-	2300 - 2310)
Flensburg	Zero hour:- 2125 (period of attack:-	shortest possible.)
Wismar	Zero hour:- 2130 (period of attack:-	2130 - 2145).

Lubeck (shipbuilding yards.)

5. This target was to be attacked by Stirlings of 3 Group each carrying two containers of 30 lb. incendiaries and the maximum number of 1000 lb. G.P. bombs (R.D.X. filling). No special marking technique was to be used, but reconnaissance flares could be dropped to assist identification of the target, which was to be attacked at a height of between 4000 and 7000 feet, if cloud conditions permitted. The route across the North Sea was to be flown at the lowest possible height, in order to increase the difficulties of the enemy's warning system. Photographs were to be taken with bombing.

Flensburg (shipbuilding yards.)

6. The force attacking this target was to consist of 25 Halifaxes of 4 Group. (Standby aircraft were to be detailed in order to ensure a start at full strength.) Each aircraft was to carry two containers of 30 lb. incendiaries and the maximum number of 1000 lb. G.P. bombs (R.D.X. filling). Crews were to be detailed to fly the outward route at a height of less than 3000 feet to a point approximately 70 miles from the Danish coast; from this point to the coast they were to lose height and to fly as low as possible from the coast to Skanderborg. Some height was then to be gained to avoid, as far as possible, opposition from flak ships in the Little Belt. The attack was then to be made by approach up Flensburg fjord in a shallow dive, bombs being dropped at a height of less than 1000 feet. After attacking, aircraft were to keep as low as possible out to sea. The attack was to be completed in the shortest possible period, and the importance of timing the attack to coincide as exactly as possible with zero hour was emphasised. No marker flares were to be dropped and no photographs were to be taken in view of the low height of attack. One crew from each Halifax squadron was to be detailed to make a rapid reconnaissance of the target at the close of the attack.

Wismar (town and Dornier factory)

7. Lancasters of 5 Group were to attack Wismar town and the Dornier factory near. The attack was to be made in two sections, as follows:-

Section 1. Zero hour to zero + 5 mins.

This section was to consist of between a quarter and a third of the total force of Lancasters. One third of the aircraft of this section, manned by the best available crews, were to attack the Dornier factory with 30 lb. incendiaries, and the remaining two-thirds, manned by the next best available crews, were to attack the town also with 30 lb. incendiaries.

Section 2. Zero + 5 to zero + 15 mins.

One-fifth of the Lancasters of this section were to attack the Dornier factory with mixed H.E. and incendiary loads, while the remaining four-fifths were to attack the town, also dropping mixed H.E. and incendiaries. Reconnaissance flares, fused to open not higher than 1500 feet above the ground, were to be used for target identification. All crews were instructed to take photographs with bombing.

See Instructions.

8. None of the targets are within the Gee coverage. It was stressed that Gee ranges at low altitude vary greatly from day to day, and that pulses may be obtained at ranges greater than those at which they first fade.

Routes Briefed. (see also accompanying diagram)

9. (a) Lubeck: base - 54°20'N. 04°00'E. - Rome - 55° 10'N. 10°18'E. - 54° 33'N. 11°08'E. 54°50'N. 11°11'E - Lubeck - 55°10'N.10°E. - Rome - 54°20'N. 04°E. - base.

(b) Flensburg: base - Ringjobing Fjord - Skanderborg - Odense - Flensburg - Hoogo - base.

(c) Wismar: Base - Mande - Narskov - Wismar - Narskov - Mande - Base.

Weather Experienced.

10. At home bases, there was local mist until midnight. Fog became general inLincolnshi

Lincolnshire by 0200 hours, and elsewhere by 0500 hours, with a few local exceptions. Visibility on the routes over the North Sea was good. B-10/10ths. cloud was encountered over Lubeck at 2,000 feet, but this contained a number of large gaps through which the target could be clearly seen. Visibility was also good over Flensburg, where there was no cloud, but at Wismar there was 10/10ths. from 5,000 to 16,000 feet, with heavy icing above 8,000 feet. (This suggests that the promised occlusion was much further east than had been expected). There were a number of cloud breaks, but haze prevented many aircraft from obtaining visual identification. The moon was 54% of full and above the horizon.

Navigation Aids

11. All three targets are outside the Gee coverage, as at present estimated; the outward tracks, across northern Denmark, left the existing Lattice charts at 360 to 370 miles from Daventry. Most aircraft flew low, especially those of 4 Group attacking Flensburg. Under the circumstances, there were some remarkable individual ranges, and the general performance was very good. It was noticeable that the greater ranges were obtained by aircraft going to the remotest targets.

Weight of Bombs Dropped.

12. (by aircraft reporting attack on primary).

	<u>LUBECK</u>	<u>FLENSBURG</u>	<u>WISMAR</u>	<u>TOTAL</u>
(a) H.E.....	36.6 tons.....	30.9 tons.....	72.3 tons.....	139.7
	including 82x1,000lb.	including 68x1,000lb.	including 27x4,000lb 18x3,000lb.	
(b) Incendiaries.....	3.6 tons.....	2.6 tons.....	79.7 tons.....	85.9

All aircraft attacking Lubeck and Flensburg carried mixed loads of H.E. + 30 lb. incendiaries. Of the 60 aircraft that bombed Wismar:
27 carried H.E. + 30 lb. incendiaries.
17 carried 30 lb. incendiaries only.
16 carried H.E. + 4 lb. incendiaries.

RESULTS.

Night Photographic Evidence.

13. Three of the aircraft detailed for Wismar took photographs (with bombing) that have been plotted near the Arado works at Warnemunde, where smoke screens were recorded in operation. Their positions are indicated on the accompanying diagrams. A fourth photograph taken 3 miles west of Rostock shows a smoke screen in action there too, while the fifth plotted photograph is near Wismar. 12 prints show open country and, in the cloud conditions prevailing, the attack seems to have become scattered along the north German coastal district.

Narrative of attack.

14. LUBECK. 17 of the 25 aircraft despatched report attacks on the primary where visibility through the cloud gaps was good enough for some pilots to pinpoint on the Elbe estuary. One pilot claims to have hit the slipway extension to the submarine yards. 3 aircraft failed to return.

15. FLENSBURG. The approach to this target along the fjord is now heavily defended; extremely intense light flak and at least 30 searchlights were reported. A concentrated low-level attack had been ordered but in fact it was spread over a period of 45 minutes. 12 of the 27 aircraft despatched report having bombed the target but an equal number are missing. Considering the small weight of bombs dropped, a considerable damage seems to have been done. In the built-up area three fires were reported to be burning, one of which crews agree was of major proportions, the glow being observed as far away as Sylt. Reports were also made of fires in the shipbuilding yards, and in a large building in the town. The searchlights were extinguished as soon as the bombing had ceased and in the absence of dazzle, results could be clearly observed as aircraft left.

16. WISMAR.....

16. Wismar. 60 of the 78 aircraft despatched report attacks on the primary, and 4 of the 6 photographs that have been plotted reveal the Warnemünde-Rostock area and from the reports of these crews it seems that a considerable number of aircraft bombed these targets. One pilot who pinpointed on the known decoy north-east of Wismar considered that the main effort was thus diverted. The absence of Pathfinders was generally regretted. There is no unmistakable landmark by which Wismar can be distinguished from Rostock in conditions of poor visibility, and in the absence of photographic evidence any estimate of the damage caused to the primary must be accepted with caution. It was reported that a number of fires, including one of considerable size, were started in the town. Only one pilot claims to have hit the Dornier factory. It is very likely that Rostock and Warnemünde suffered some damage, but poor visibility and, in the latter case, an effective smoke screen hindered accurate observation. Searchlights were more accurate and flak more intense at Warnemünde than at Wismar. 2 aircraft failed to return.

Defences

17. Lubeck. Cones of 15 to 20 searchlights were active to the north and south of the town. Aircraft illuminated through breaks in the cloud were engaged by moderate but accurate heavy flak. Slight "unseen" fire was also encountered. Several crews reported that they were not engaged by the heavy guns until they had released their bombs. Considerable light flak was also directed at aircraft over the target area after bombs had been dropped. One balloon was seen at 5,000 feet.

18. Flensburg. The attack was made at heights from 400 to 6000 feet and spread over a period of 45 minutes. This lack of concentration enabled full attention to be given by the defences to individual aircraft. Searchlights were active all along the inner part of the fjord, operating in cones of 20 to 30 beams along both sides and at the end; the majority were thought to be to the south. They were consistently successful in obtaining illuminations and caused considerable dazzle. Intense and accurate light flak was encountered by aircraft illuminated by the searchlights. Crews were strongly of the opinion that the light guns and searchlights had been considerably reinforced since the attack of 23/24th September.

19. Wismar. 6 to 8 heavy guns were in action, firing predictor control "unseen" with fair accuracy. Light flak was much in evidence, showing considerable increase since the attack on 23/24th September. The tracer was reported as self-destructing at 12,000 feet. 25 to 30 searchlights were in operation. These made some attempt to form cones, but the weather was against their effective employment; however, in conjunction with the ground mist, a considerable "glare" appears to have been created. 6 balloons were seen at heights between 2,000 and 5,000 feet.

Timing of Attack

20. <u>Lubeck</u>	No of A/C bombing early 10-0"	1
	" " " " within planned period	4 (23.5%)
	" " " " late, 0-10"	8
		13
<u>Flensburg</u>	" " " " more than 10" early	3
	" " " " within 5" of zero hour*	2 (16.7%)
	" " " " late 0-10 "	4
	" " " " more than 10" late	3
		12
	*(no planned period of attack)	
<u>Wismar</u>		
Section 1.	" " " " more than 10" early	5
	" " " " early 10-0",	5
	" " " " within planned period	3 (16.7%)
	" " " " late, 0-10"	3
	" " " " more than 10" late	2
		18

Section 2.

Section 2.	No of A/C	bombing	more than 10" early	11
"	"	"	early, 10-0"	21
"	"	"	within planned period	8 (19.0%)
"	"	"	late, 0-10"	2
				42

Other Targets Attacked.

21. Seven Lancasters, unable to pinpoint at Wismar, carried out attacks on other targets. Three claim to have bombed Warnomunde, one Travomunde, one Rostock, one Damgarten and one an unidentified area near the primary. A Halifax detailed for Flensburg reported attacking the aerodrome at Sylt. Fires were started in each instance, but no more definite results could be observed. It seems likely that a number of aircraft reporting attacks on the primary bombed Rostock and Warnomunde, causing appreciable damage.

Casualties.

22. The numbers of aircraft missing, damaged and intercepted on each target are given below.

Target	Sorties	Missing	Damage			Interceptions	
			flak	fighter	Not enemy action	attacks	not attacked
Lubeck	25	3(12.0%)	2(8.0%)	-	-	-	-
Flensburg	27	12(44.4%)	1(3.7%)	1(3.7%)	-	1(3.7%)	2(7.4%)
Wismar	78	2(2.6%)	7(9.0%)	1(1.3%)	1(1.3%)	1(1.3%)	2(2.6%)
Total	130	17(13.1%)	10(7.7%)	2(1.5%)	1(0.8%)	2(1.5%)	4(3.1%)

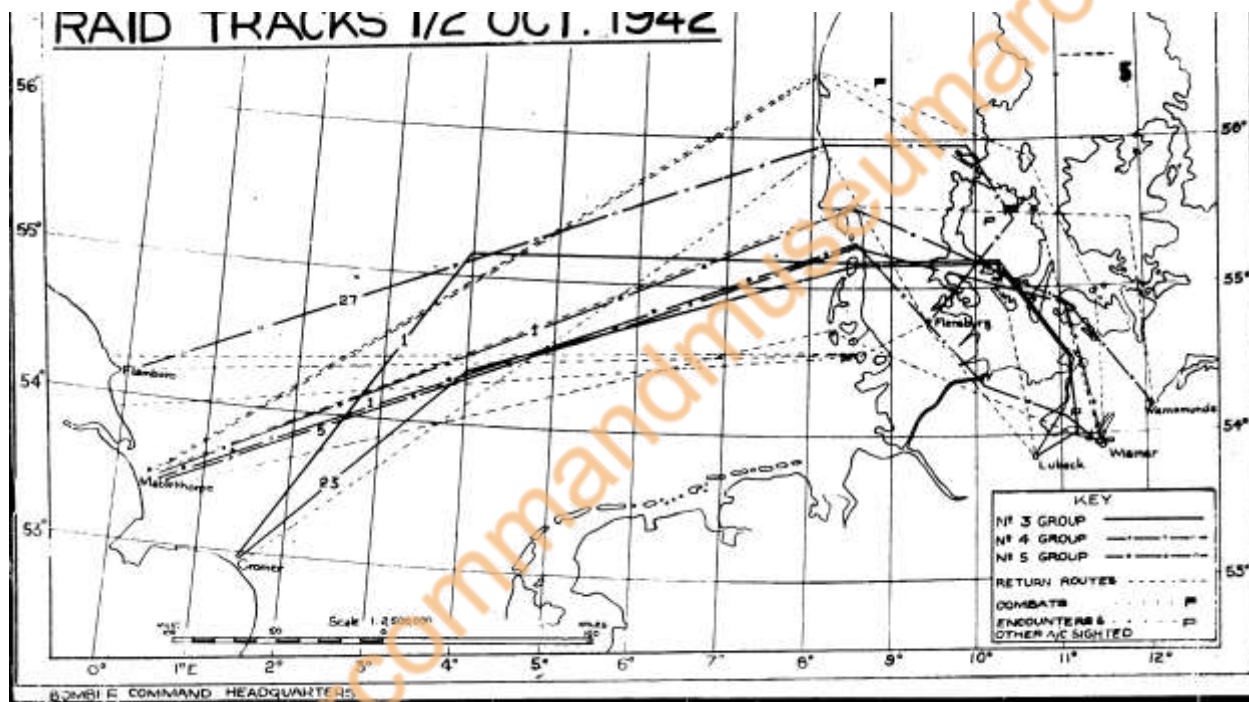
23. Wireless Intelligence indicated that approximately 18 sorties were flown by controlled night fighters, and 2 claims to have destroyed our aircraft were heard. Neither of these can be identified with observed losses. An aircraft was reported as destroyed by flak in the Esbjerg area, and this is affirmed by observations. 2 aircraft were seen to fall at Wismar, to causes unknown, and 1 was shot down, probably by flak, while held in a searchlight cone at Lubeck. Over Flensburg, at least 2 and possibly 4 aircraft were destroyed by light flak. Thus our losses may be assessed as 3, possibly 6, to flak and 11 to "causes unknown". The losses at Flensburg were probably due to the failure to achieve a concentrated attack. The 12 aircraft from which information is available bombed the target over a period as long as 45 minutes and between heights of 400 and 6,000 feet. The defences had been increased since the last attack.

Summary.

24. The attacks on Lubeck and Wismar were scattered by bad weather, and it is probable that the Flensburg raid was the most successful. No Pathfinders were sent.

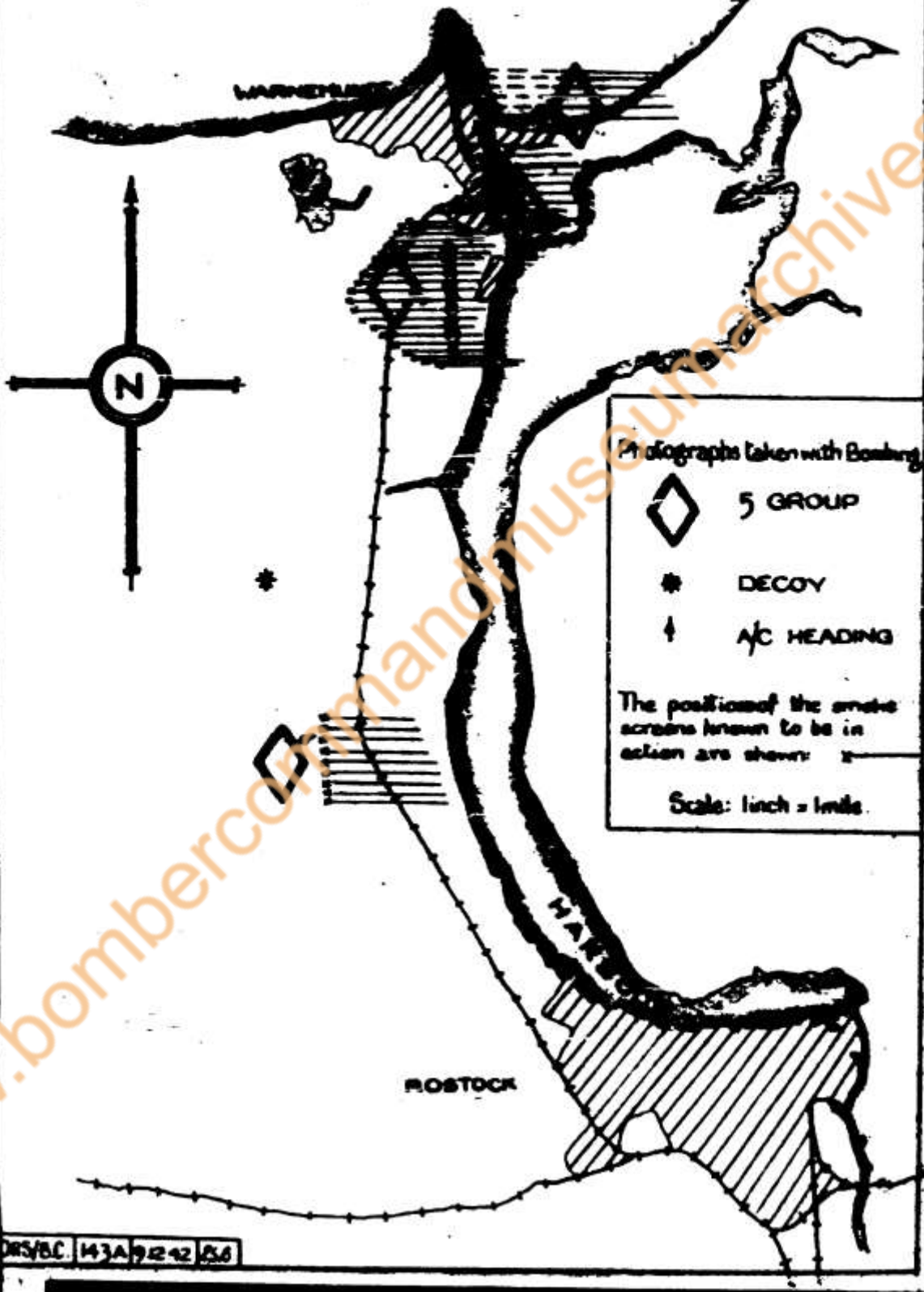
TARGET	Group	Type	Sorties	A/c reporting attack on		Abortive		Missing	Casualties/Damage by			Interceptions	
				primary area	alternative area	over enemy territory	not over enemy territory		flak	fighter	not enemy action	attacked	not attacked
LURICK	3	Stirling	25	17	-	1	4	3	2	-	-	-	-
FLERSBURG	4	Halifax	27	12	1	-	2	12	1AC	1AC	-	1	2
WESMAR	5	Lancaster	78	60	7	3	6	2	6 LAC	1*	1E	1	2
TOTAL			130	89	8	4	12	17	8+2AC	1+1AC	1E	2	4

* This a/c was damaged by both flak and fighter.



FINAL PLOT OF NIGHT PHOTOGRAPHS
TAKEN 1/2nd OCTOBER 1942. TARGET WISMAR.

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NO. 196593
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Bomber Command Report on Night Operations 23rd October 1942

KREFELD, METZLAVINE and L. 17 266 1942

Metereological Advice Submitted to the Command.

1. 0920 hours. A flat area of high pressure is expected over England and West Germany. At home bases there will be small amounts of cloud and fog will develop, becoming general after 0300 hours. Broken strato-cumulus cloud will be found over the North Sea coastal strip of Germany. Inland over west Germany there will be small amounts of cloud, with industrial haze and extensive fog developing after midnight; the same conditions will prevail over France, except that here fog is likely to be localized.

1625 hours. Home bases will be fit for take off (except very locally in the South of 4 Group and the North of 1 Group) and until midnight for return; with visibility generally up to 2,000 yards. Local fog is likely in most areas after midnight, but should not be general in 91.92, 2 and 3 Groups before 0200 hours. There is now a good deal of strato-cumulus cloud over the Ruhr, which is expected to clear to small amounts of cloud; but this cannot be guaranteed, and in any case thick haze will remain.

Executive Orders.

2. The Ruhr seemed to promise the most favourable weather conditions and since the danger of fog at home bases made an early return imperative, Krefeld was selected as being the nearest target.
 In addition, three aircraft were ordered to lay mines off the Frisians.

Sorties.

3.	(a)	Number of Sorties despatched.....	188
	(b)	" " " reporting attack on primary area.....	152 (80.9%)
	(c)	" " " reporting attack on alternative area....	7 (3.7%)
	(d)	Number of abortive sorties:-	
		(technical defects.....)	15
		(inability to identify target.....)	2
		(navigational error.....)	1
		(pilot ill.....)	1
	(e)	Missing.....	22 (11.7%)
			7 (3.7%)

Plan of Attack.

4. Zero Hour ----- 2048 hours

Period of Attack : 2045 - 2105 hours.

The attack was to be divided into 4 sections :-

Section 1.	Pathfinders (13 aircraft)	.....	2048 - 2050 hrs.
Section 2.	3 Group	.....	2047 - 2057 hrs
Section 3.	1, 4 and 5 Groups	.....	2050 - 2100 hrs
Section 4.	Remainder of Pathfinders	.....	2055 - 2105 hrs

5. In Section 2, 50% of the aircraft were to carry maximum loads of 30 lb. incendiaries, and the remainder (except Wellington 423's) were to carry maximum loads of 4 lb. incendiaries, of which up to 6% were to be of the explosive type. Wellington 423's were to carry one 400 lb H.C. bomb. Aircraft of Section 3, consisting of Wellingtons and Halifaxes of 1 Group, Wellingtons and Halifaxes of 4 Group and Lancasters of 5 Group, were to carry mixed H.E. and incendiary loads. Section 4 was to consist of about one-quarter of the Pathfinders carrying full loads of H.E. bombs. The target was to be marked by the Pathfinders between zero hour and zero + 5. At zero hour 4 Stirlings were to drop long sticks of reconnaissance flares across the target area for identification. The remainder of the Pathfinders in Section were then to illuminate the town by releasing short flare-sticks.
 A small

RESULTS.

Night Photographic Evidence.

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

By ground detail	35	within 3 miles	11
		between 3 & 5 miles	1
		outside 5 miles	23

Unplotted photographs with bombs:
 that have recorded ground detail upon country .. 11
 with no ground detail, but with fire-tracks that
 indicate location .. 12

The night photographs show that incendiaries were dropped on the target area, and this was no doubt one of the main factors which caused the attack revealed by the accompanying diagram. The distribution of incendiaries was entirely random, apart from the cluster of photographs near St. Mary's Church, north-west of Krefeld. There is no known factory in that locality, but several of the photographs in question show incendiaries burning there, and these are probably the cause of small diversion of effort. Three aircraft which bombarded the aiming point towards the end of the attack obtained photographs which showed incendiaries in the built-up area of Krefeld.

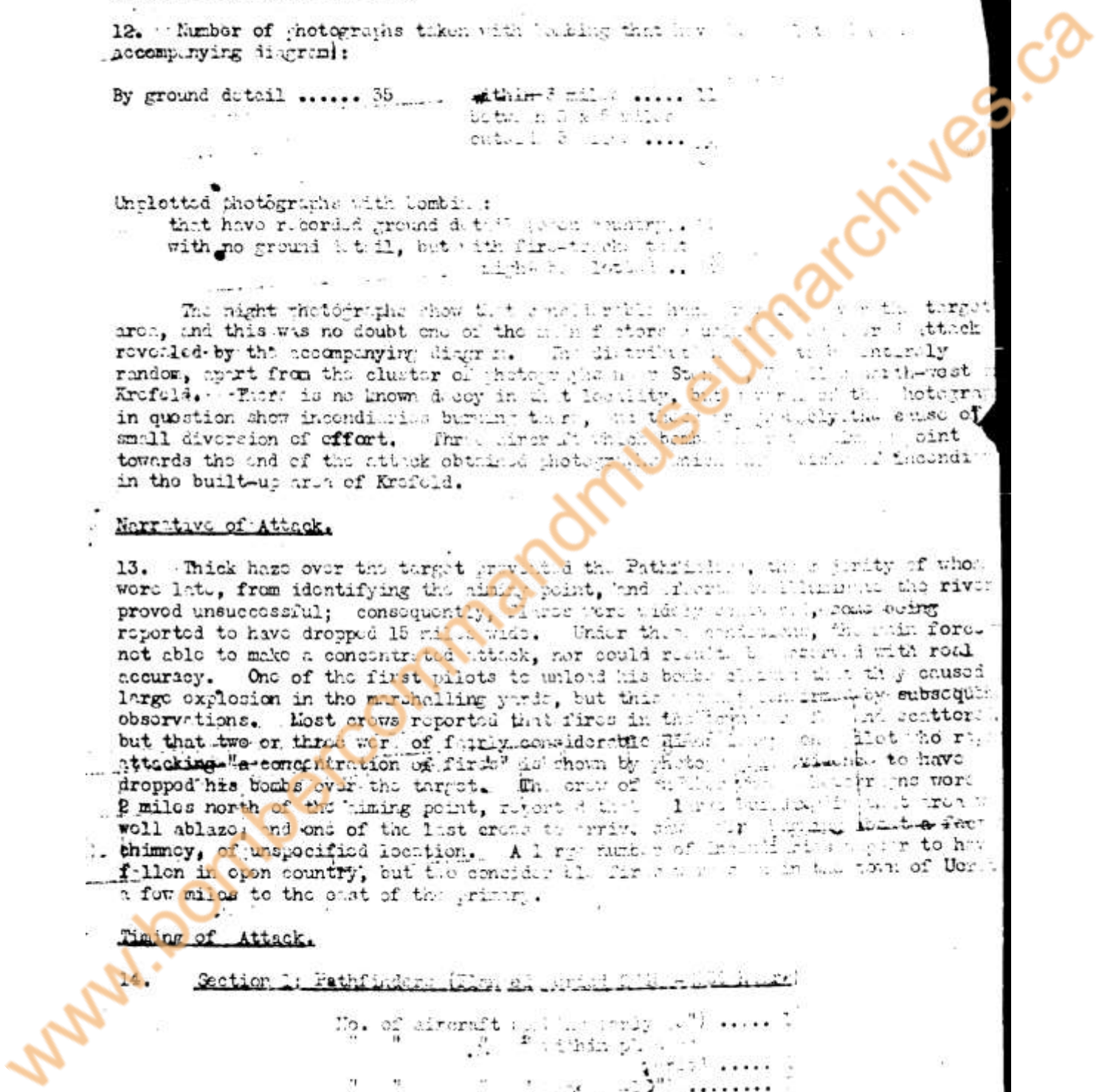
Narrative of Attack.

13. Thick haze over the target prevented the Pathfinders, the majority of whom were late, from identifying the aiming point, and efforts to illuminate the river proved unsuccessful; consequently, bombs were widely scattered, some being reported to have dropped 15 miles wide. Under these conditions, the main force not able to make a concentrated attack, nor could results be measured with real accuracy. One of the first pilots to unload his bombs claimed that they caused large explosion in the marshalling yards, but this claim was confirmed by subsequent observations. Most crews reported that fires in the town were scattered, but that two or three were of fairly considerable size. One pilot who reported attacking "a concentration of fires" was shown by photographs to have dropped his bombs over the target. The crew of another aircraft, whose bombs were 2 miles north of the aiming point, reported that a large building in that area was well ablaze, and one of the last crews to arrive saw a large building about a few miles from a chimney, of unspecified location. A large number of incendiaries appear to have fallen in open country, but the considerable fire caused in the town of Uerdingen a few miles to the east of the primary.

Timing of Attack.

14. Section 1: Pathfinders (Element 1) (1st 1000 ft. 1000 ft.)

No. of aircraft	1st 1000 ft. 1000 ft.	.....	1
" "	" "	.....	1
" "	" "	.....	1
" "	" "	.....	1
" "	" "	.....	1



Section 2: 3 Group (planned period 2047 - 2057 hours)

No. of aircraft bombing within planned period ...	19
" " " " late (0 - 5")	9
" " " " more than 5" late	<u>4</u>
	32

Section 3: 1, 4 & 5 Groups (planned period 2050 - 2105 hours)

No. of aircraft bombing early (10-0")	15
" " " " within planned period ...	69
" " " " late (0-10")	9
" " " " more than 10" late	<u>1</u>
	94

Section 4: Pathfinders operating as part of the main force (planned period 2055 - 2105)

No. of aircraft bombing early (10-0")	1
" " " " within planned period ...	5
" " " " late (0-10")	<u>2</u>
	8

Other Targets Attacked.

15. 7 aircraft, unable to identify the primary, bombed alternative targets. One pilot reports having attacked Dusseldorf, another Hohenbudberg, and the remaining five built-up areas in the region of the primary. Results could not be observed accurately, on account of the prevalent haze. The defences of Duisburg and Dusseldorf were reported to be active, but otherwise there is no evidence to suggest what localities were attacked.

Casualties.

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

Sorties	Missing	Damage				Interceptions		
		Flak	Fighter	Not Enemy Action	Total	Attacks	Approaches	Total
188	7(3.8%)	11(5.8%)	0	1(0.5%)	12(6.4%)	1(0.5%)	4(2.1%)	5(2.7%)

The percentage of aircraft missing is below the average for the Ruhr. The proportion of interceptions is low, and the absence of fighter damage unusual. Over the target area there was moderate inaccurate flak from batteries of 4 guns or less. Considerable searchlight activity was reported by crews, but searchlights were recorded on less than half the photographs obtained over the target. En route, intense light and some heavy flak was encountered with searchlight co-operation in the Leyden area. Compared with the usual standard of activity in the Ruhr, defences appear to have been relatively light.

17. Our own observations and Wireless Intelligence indicate the following: Approximately 10 sorties were made by controlled night fighters, and 1 aircraft was claimed to have been destroyed by them. This cannot be identified with any observations of our own aircraft. One aircraft was shot down by fighter and 2 or possibly 3 by flak over Krefeld. A further aircraft seen falling at Krefeld was probably a Ju.88, claimed as destroyed by a Halifax. 1 aircraft was shot down by fighters in the Leyden-Scheveningen area, and 1 possibly by fighters at 's-Hertogenbosch. Our losses may be allocated, therefore, as 2 to fighter, 2 to flak, and 3 to causes unknown, of which 1 may have been fighter and another flak.

Summary.

18. Visibility over the target was insufficiently good for the extent of the damage to be accurately observed, and no daylight reconnaissance has been carried out. Such evidence as exists suggests that the raid was too dispersed to cause

extensive damage, although, in view of the number of aircraft reporting attacks on the primary, it is reasonable to suppose that considerable scattered damage was caused.

MINELAYING.

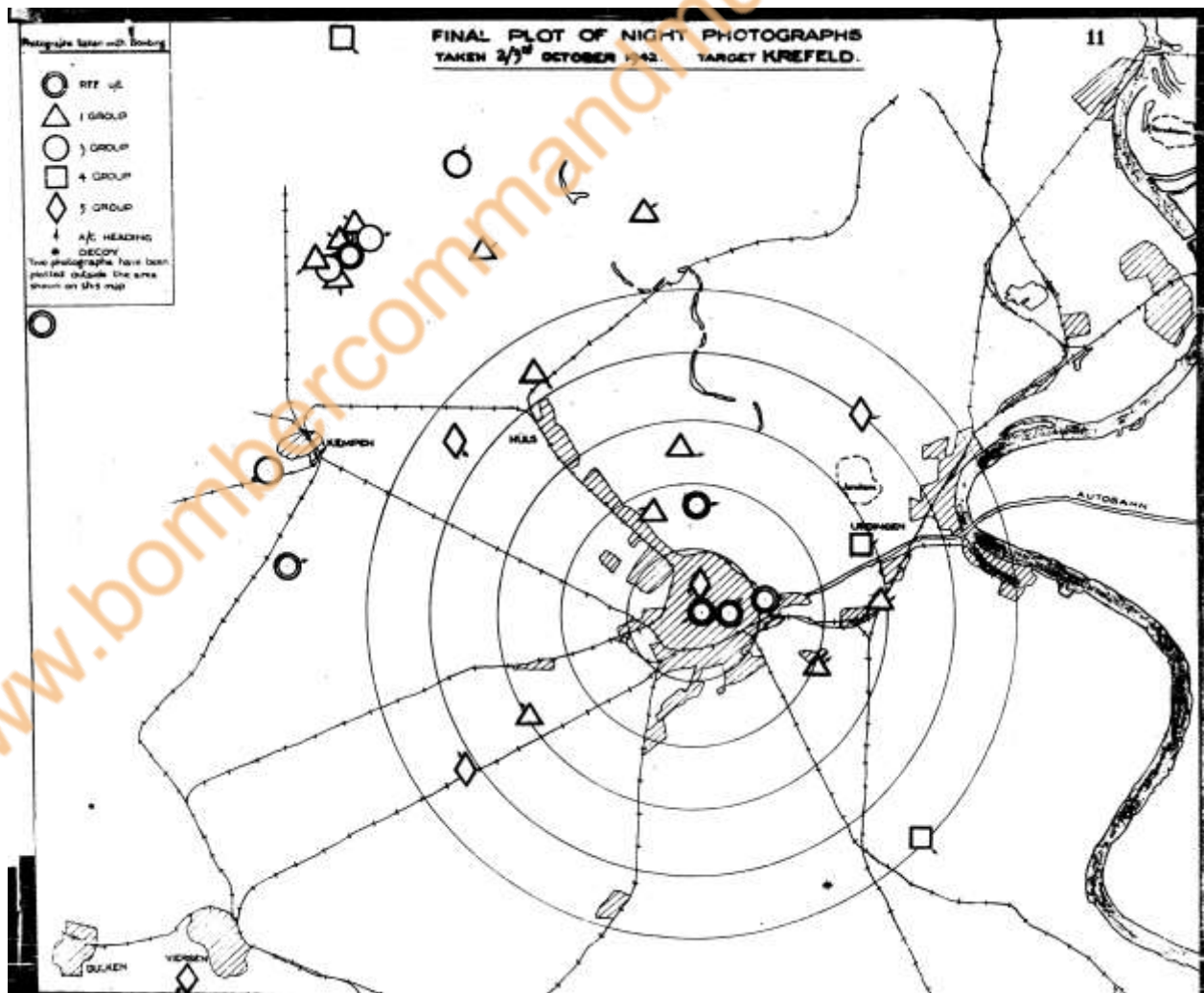
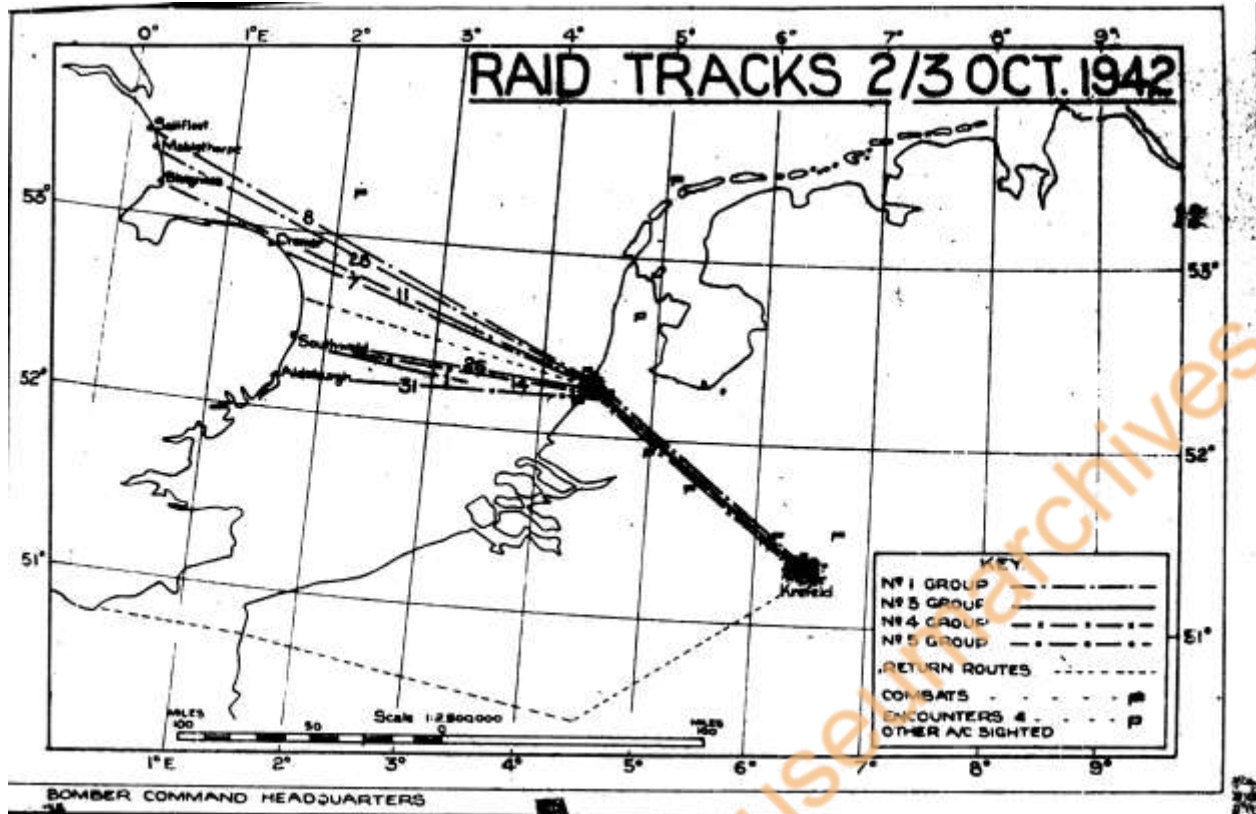
19. 3 Wellington III's of 3 Group were detailed to lay mines off the Friesians. Each aircraft carried 2 mines. The operation was successfully completed without incident.

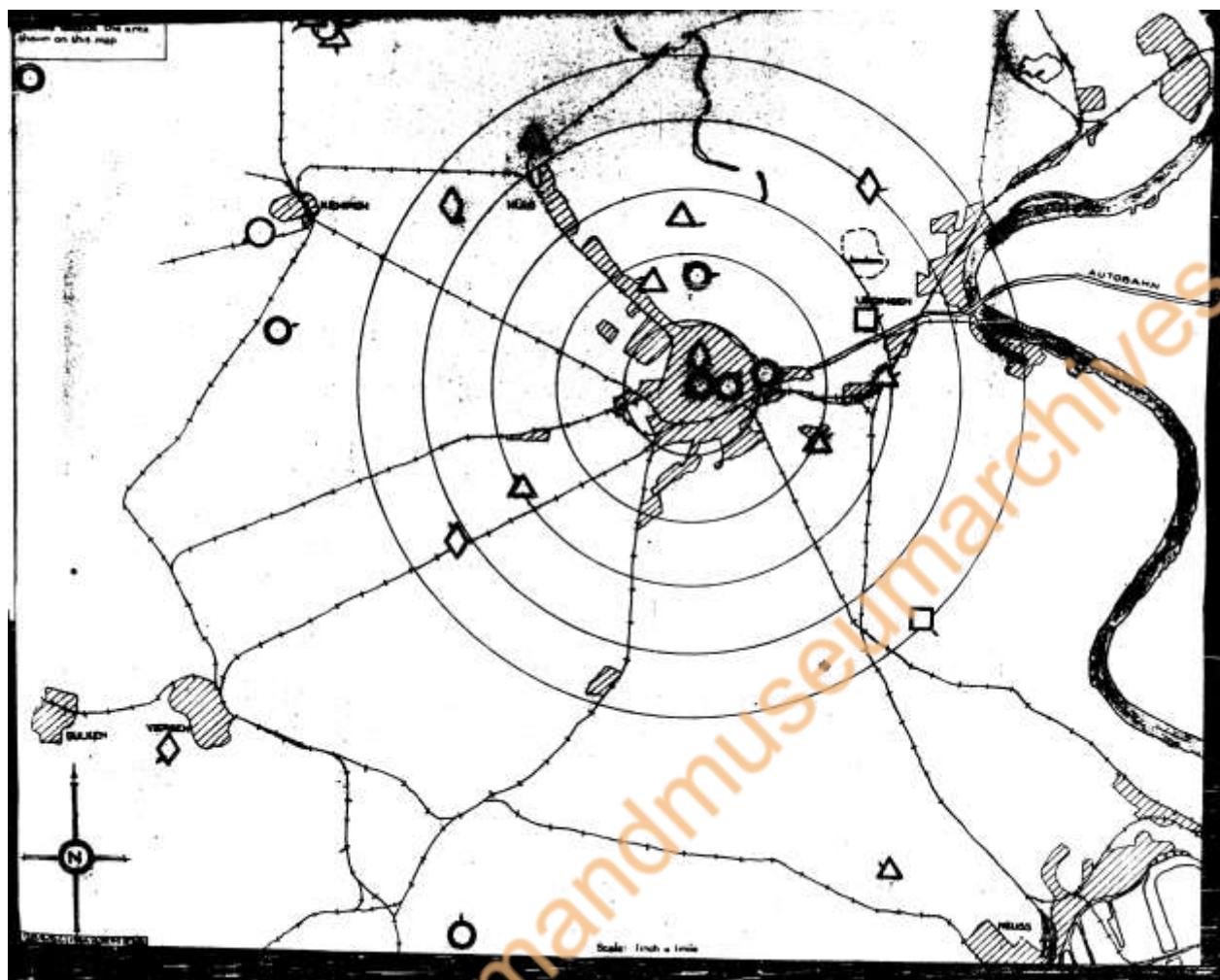
BC/S. 26342/1/ORS.
14th December, 1942.

Target	Group	Type	Sorties	Aircraft reporting attack on		Abortive Sorties		Missings	Damage			Interceptions		
				primary area	alternative area	Over enemy territory	Not over enemy territory		damaged by flak.	Damaged by fighter	not due to enemy action	Attacked	Not attacked	
KREFELD	199	Well.III	11	10	-	-	-	-	-	-	-	-	1	
		Lanc.	7	7	-	-	-	-	1	-	-	-	-	
		Star.	10	9	-	1	-	-	1	-	-	-	-	
	1	Well.II	7*	7	-	-	-	-	-	-	-	-	-	1
		Well.III	23	20	-	-	3	-	2	-	-	-	-	2
	Well.IV	19*	17	1	-	1	-	-	-	-	-	1	-	
		H.L.	9	6	1	-	2	-	1	-	-	-	1	
	3	Well.III	26	23	1	-	1	1	1	-	-	-	-	
		Star.	13	9	-	-	3	1	2	-	-	-	-	
	4	Well.III	9	6	-	-	2	1	-	-	-	-	-	
		H.L.	30	19	2	1	1	3	1	-	-	-	-	
	5	Lanc.	24	19	2	-	2	1	1	-	-	1 E	-	
Total				188	152	7	2	20	7	9	-	1 E	4	
									2 A.G.					
<u>MINELAYING</u>														
Friesian Islands.	3	Well.III	3	3	-	-	-	-	-	-	-	-	-	

* These 26 aircraft were fitted with Gou.

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Copy No. 16.....APPENDUM - NIGHT RAID REPORT NO. 166.BOMBER COMMAND REPORT ON NIGHT OPERATIONS 2/3rd OCTOBER, 1942.KRSFELD.

A daylight reconnaissance was carried out on 28th December, 1942, which covers damage caused in the night raid of 2/3rd October and the small daylight raid of 23rd October, when 4 aircraft bombed on E.T.A. a series of H.E. incidents, accompanied in some cases by fire, lie across the town in a line N.W.-S.E. Two very large industrial buildings connected with the local silk industry have been destroyed and 3 other manufacturing plants damaged. The police barracks and the Reichsbank have been seriously hit and about 50 houses in various parts of the town have been damaged. Nearly all this damage may be attributed to the night raid, which thus appears to have achieved greater success than was indicated by the photographs taken with bombing.

/s. 26342/3/ORS.
1st January, 1943.

/FVD.

COPY NO. 16 2 JAN 1943
 TIME 5
 342.

Bomber Command Report on Night Operations, 5th October 1942

LACHEN

Metereological Advice Submitted to the Command.

0915 hours. The midnight frontal position is estimated as: Split to Folkestone, warm front to 50°N. 8°W., then cold south-westwards. At home bases, south of a line from the Wash to Pembroke, there will be rain and low cloud. North of this line, cloud will be variable, and visibility will be moderate to good. It is possible that the clearance will spread somewhat further south than had been anticipated. Rain and low cloud will spread from the front over the coastal area of north Germany. Inland there will be broken medium cloud, which will soon disperse southwards. Visibility in the Ruhr will improve, with a southerly surface drift. Further south, much haze will be accompanied by local fog. Winds at 10,000 feet will be from 230° - 260° north of the front, and from 270° - 275° south of the front. Below 10,000 feet, wind velocity will be from 30 to 35 m.p.h. Freezing level in the front will be 4-5,000 feet.

1245 hours. The clearance appears to be penetrating yet further south, and bases north of a line from Folkestone to Bristol should be fit at midnight. An outbreak of thundery rain over north and west France and south England may result in some medium cloud at Lachen, and will make the route rather worse. Freezing level south of the front will be from 6-7,000 feet. It is unlikely that pinpointing on the coast will be feasible. From every point of view, an early operation is desirable; bases will be less liable to deterioration, and there will be less medium cloud and haze over the target.

1610 hours. The line of clearance at home bases is expected to be Folkestone to Lezard by midnight. Bases north of this line should be substantially clear, at least until well after midnight. 3 Group may have take-off troubles with patches of cloud below 1,000 feet. The cold front is moving south rather faster than had been expected this morning, and it is possible that the edge of the belt of medium cloud now lying across the route may just have reached Lachen by the planned time of attack. At present this seems unlikely, but it does make it desirable that the operation should be timed as early as possible. Haze will be considerable in the target area, and will thicken steadily after dark.

Executive Orders.

2. A high proportion of bases were expected to be fit, but over target the amount of cloud, the strength of the wind and the absence of moon and star light did not justify deep penetration of the more heavily defended enemy areas. Lachen was selected as the most suitable target under these conditions. The southern route, via Le Crotoy, was chosen, to avoid the heavier coast defences. Although a cold front might have to be crossed on this route, it was expected that no appreciable icing would be encountered below 5,000 feet.

Sorties

3.	(a) No. of sorties dispatched.....	357
	(b) No. of aircraft reporting attack on primary target.....	194 (71.4%)
	(c) No. of aircraft reporting attack on alternative target....	5
	(d) No. of abortive sorties:	
	(technical defects.....)	26
	(inability to identify target.....)	23
	(sickness of crew.....)	1
	(navigational error.....)	1
	(late on target.....)	2
	(a/c struck by lightning.....)	2
	(a/c hit by flak (over East Angles).....)	1
	(a/c crashed en route on journey - cause unknown....)	4
	(e) No. of missing aircraft.....	3 (0.8%)

Sorties (cont.)

P.B. 11 of the 25 Pathfinder sorties were abortive; 8 of these were due to the weather, while two A/C were struck by lightning, one catching fire in mid-air, and another crashed before crossing the coast.

Plan of Attack

a. Zero Hour:- 2117 hours.
Period of Attack: 2118 to 2140 hours.
The attack was planned in three sections.
Pathfinder Force. (21 A/C) 2118 - 2130 hours.

Main Force.

Section I (mainly H.E.) 5 Group (part) : 2130 - 2135 hours.

Section II (H.E. and inc incendiary) 1, 3, 4, 5 Group (part) and remainder of Pathfinders: 2135 - 2140 hours.

The Pathfinders were to mark the target between zero hour and zero + 5. One third of this Force was to illuminate the target area at zero hour for identification by the following third, who were to drop flares to illuminate the aiming point itself. The remaining third of the Pathfinder aircraft taking part in this operation were then to mark the centre of the target more permanently by dropping salvoes of 200 lb. incendiaries, to raise 'blob' fires at the aiming point. No coloured flares were to be used.

(b) The first part of the Main Force was to consist of between one half and two thirds of the Lancasters of 5 Group which were taking part in this operation, manned by the best available crews and carrying mixed H.E. and incendiary loads. 50% of these aircraft were to carry 30 lb. incendiaries, and the remainder 10. incendiaries - the load being made up, in each instance, with 1 x 4000 lb. H.C. bomb. The rest of the Main Force consisted of aircraft from 1 Group, 3 Group and 4 Group, together with the remaining 5 Group Lancasters and Pathfinders under training. Bomb loads were to be as follows:-

1 Group:- Wellingtons:- maximum economical load of 4 lb. incendiaries (except Wellington 423's).

Halifaxes:- 12 containers of 4 lb. incendiaries plus the maximum number of 1000 lb. G.P. Bombs.

3 Group Wellingtons and Stirlings:- maximum economical load of incendiaries; 50% of these aircraft to carry 30 lb. incendiaries and 50% to carry 4 lb. incendiaries.

4 Group Wellingtons (except 423's):- maximum economical load of incendiaries.

Halifaxes:- 6 containers of 4 lb. incendiaries, plus 6 containers of 30 lb. incendiaries, plus the maximum number of 1000 lb. G.P. Bombs.

5 Group 50% of the Lancasters to carry 30 lb. incendiaries, and 50% to carry 4 lb. incendiaries, plus 1 x 4000 lb. H.C. bomb in each instance.

It was especially emphasized that all aircraft other than the Pathfinders were to drop flares within 50 miles of the target. Instructions were also given that all aircraft of sections 2 and 3 were to be ready to turn before zero + 4.

(c) General Instructions.

Planned co-ordination:- B 8.91
C 36.15

Plan of Attack (cont.)

Approach was to be made from west to east along the G lattice line, and bombs were to be released visually when the pulses first appeared correctly in line.

Target E.T.A. was to be checked, if possible, by obtaining a pinpoint on the river Maas.

Route Briefed.

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

base - Le Crotoy - Aachen - turn right - Eupen - base.

Weather Encountered.

6. (a) 8-10/10ths. frontal cloud, based from 1-2,000 feet and with tops from 15-16,000 feet extended to the French and Dutch coasts. Iceing and static were encountered, and visibility over the whole of the route was poor. Over the target, there was reported to be 4-8/10ths. medium cloud at 11-12,000 feet, and visibility was hazy. The moon was below the horizon. Much cloud was encountered on return to bases south of a line from Yarmouth to Bristol.

(b) 12 photographs out of 79 taken with bombing and showing ground detail reveal light, drifting cloud with tops below 12,000 feet (in some instances below 8,000 feet). Two photographs (from 16,000 feet) show thick cloud banks, and several suggest that considerable haze was present.

Navigation Aids.

7. Only one aircraft, of 4 Group, obtained a God fix over the target. The average range was as low as 276 miles, and, as no extraordinary enemy jamming was reported, this low value must be attributed to prevailing meteorological conditions.

Weight of Bombs Dropped on Primary Target.

8. (a) H.Es. 183.0 tons
(including 77 x 4,000 lb. and 101 x 1,000 lb.)

(b) Incendiaries: 263.17 tons.

No. of a/c carrying H.E. only.....	15
" " " " 4 lb. incendiaries only.....	62
" " " " 30 lb. incendiaries only.....	12
" " " " 250 lb. incendiaries only.....	3
" " " " flares only.....	3
" " " " H.E. + 4 lb. incendiaries.....	66
" " " " H.E. + (4 + 30)lb. incendiaries.....	20
" " " " H.E. + flares.....	184
	<hr/>
	184

Results.

Night Photographic Evidence.

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

By ground detail 56 Within 5 miles of Aachen 6

Concentration near Aachen:

within 3 mile circle 11
between 3 and 5 mile circles 25
outside 5 mile circle 14

- (a) that have recorded ground detail (open country) 24
 - (b) with no ground detail, but with fire-tracks that might be plotted 34
- 58

The night photographs show that the main weight of the attack was dissipated over the open country between Mochelen, Maastricht and Sittard, from 13 to 23 miles north-west of Aachen. At intervals throughout the operation, a small number of aircraft bombed the built-up area of Aachen. There is no known jockey in the neighbourhood of the diversion, but certainly seen after zero (2115 hours, incendiaries were burning near Stein, and in the prevailing conditions of mist and haze these seem to have led aircraft astray.

Narrative of Attack.

10. Through a series of minor mishaps a large proportion of the P.F.I. failed to reach the target area. This together with the bad weather conditions, resulted in the attack being scattered. Those aircraft which reached the target area seem (as far as may be judged from pilots' reports) to have been deceived by the resemblance between the pattern of woods around Mochelen and those near Aachen. Some pilots attacking with the Main Force who bombed open country near Mochelen, submitted reports referring to damage inflicted on Aachen and in view of this no evidence of successes in the primary area can be relied upon as accurate, except in the few cases in which the pilot's report is definitely confirmed by photographic evidence. These, however, do suggest that a number of small fires were started in the town, while there are two reports from aircraft over the south-west of the target of a large red fire spreading through a wide area. A big building a mile to the east was also seen to be alight. Visibility over the primary was hampered by haze, and complaints were received that the Pathfinder's flares were burning too high, even as much as 8,000 feet.

Defences.

11. Owing to the weather conditions and the widespread nature of the attack little information was obtained about flak defences. It appears that in general they did not open up until after bombing, and that they were slight. There was a suggestion that enemy fighters were active over the target area, since tracer was seen when no flak fire was observed in the vicinity; this would have had the effect of restricting the flak fire. Accurate heavy flak was encountered from Lens, and both heavy and light from Brussels. A big concentration of searchlights was reported at Maastricht. Photographs taken by the six aircraft reaching the Aachen area recorded one salvo of 5 guns and a number of smaller ones. 3 photographs show heavy flak and 2 show searchlights.

Timing of Attack.

12.	No of aircraft attacking early (10 - 0")	.....	3
	" " " " " within planned period	.....	149 (80%)
	" " " " " late (0-5")	.....	16
	" " " " " late (5 - 10")	.....	12
	" " " " " more than 10" late	.....	4

Other Targets Attacked.

13. Five aircraft reported that they attacked alternative targets, but one of these, a Lancaster of 106 Squadron is shown by photographic evidence actually to have bombed the primary. Two other Lancasters appear to have attacked the area of Maastricht, where one pilot reported that a "dummy tower" was receiving attention. A Wellington claims to have started fires on an aerodrome 5 miles north of Le Crotoy, and another Lancaster to have bombed an unidentified town in Germany.

Casualties

Casualties.

14. (a) No. of aircraft missing.....8(3.1%)
 (b) No. of aircraft damaged:-
 flak.....15(5.8%)
 fighter..... 0
 not enemy action....16(6.2%) = 31(12.1%)
 (c) No. of interceptions:-
 attacks..... 4(1.6%)
 other interceptions.7(2.7%) = 11(4.3%)

The proportion of aircraft missing is a little below the average for the Ruhr. The proportion of damage not due to enemy action is high, and may be explained by the bad weather conditions. The percentage of fighter attacks is slightly below the average for this area, and none of them caused any damage. Our own observations and Wireless Intelligence indicate that approximately 11 sorties were flown by controlled night fighters, but no claims were made. One aircraft was shot down over Aachen, probably by flak, and at least one other aircraft was seen to fall in flames in this area. 3 losses, probably to fighter, were observed in the Lillo-Brussels-Charleroi region. Our losses may therefore be assessed as 1 probably to flak, 3 probably to fighter and 4 to unknown causes, of which the weather may have been one.

SUMMARY.

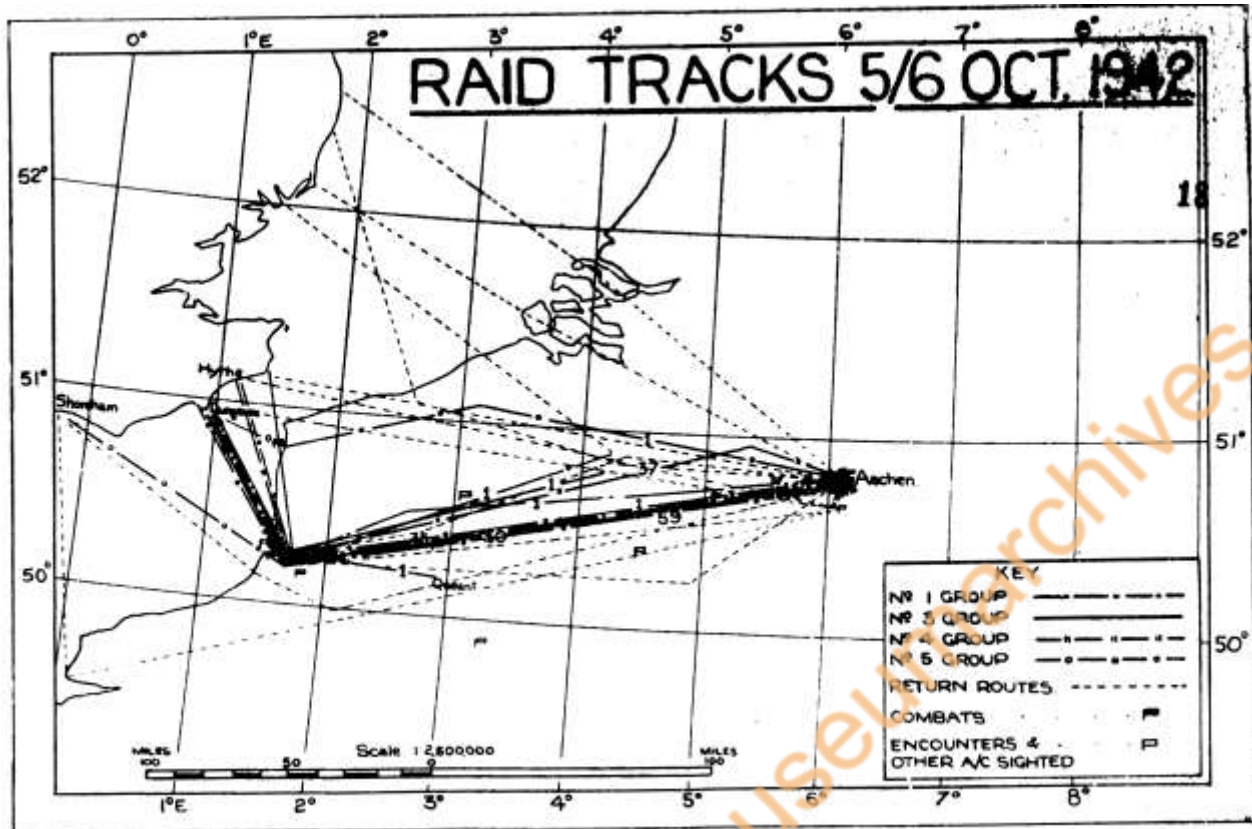
15. the Pathfinders' plan of attack was disorganized by minor mishaps, which together with the bad weather conditions, resulted in the attack being very scattered, except for a concentration in open country 18 miles north-west of Aachen. Some damage was, however, caused in the target area. 8 aircraft failed to return.

BC/S.26342/2/ORS.
 5th, December 1942.

FORM 10 (11/12/42) (REVISED) 1942.

Target	Sp.	Type	Sorties	A/C reporting attack on		Abortive sorties		Missing	Casualties - damage by:			Interceptions	
				primary area.	alter-native area.	over enemy territory	not over enemy territory		flak	fighter	not due to enemy action.	att-acked	not att-acked
AACHEN	P.F.P.	Hellcat	1	8	-	2	1	1	-	-	1	1	1
		Wolff.III	7	4	-	1	2	-	-	-	-	-	-
		Wolff.III	6	1	-	3	2	-	-	-	1+1 B	-	-
1.		Hellcat	10	9	-	-	-	1	-	-	-	-	-
		Wolff.III	5	2	-	1	2	-	-	-	-	-	-
		Wolff.III	23	19	-	2	2	-	1	-	1+2 E	1	2
		Wolff.III	19	14	-	-	5	-	1	-	-	-	-
3.		Stirling	22	18	-	-	5	-	2	-	3 E	1	3
		Wolff.III	28	22	-	1	5	-	1	-	1+1 G	-	-
4.		Hellcat	27	23	-	3	4	3	2+1 B	-	1+1 E	-	1
		Wolff.III	20	9	1	4	4	2	1+1 G	-	1 E	-	-
5.		Lancaster	67	55	4	2	5	1	3+1 G	-	1 E	1	-
TOTAL			257	184	5	19	41	8	11+2 G: 3 B	-	4+1 G: 2 E+2 E	4	7

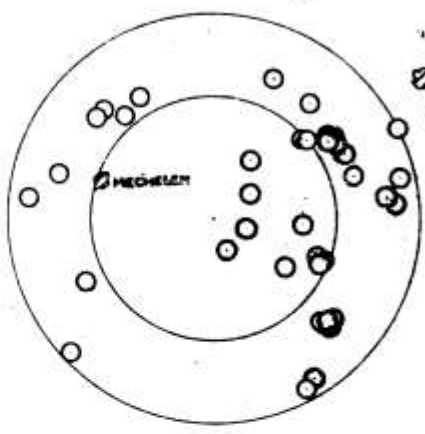
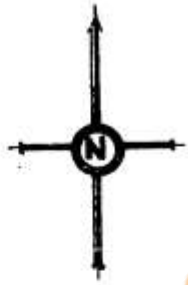
■ These 24 aircraft were not fitted with Gee.



BOMBER COMMAND HEADQUARTERS

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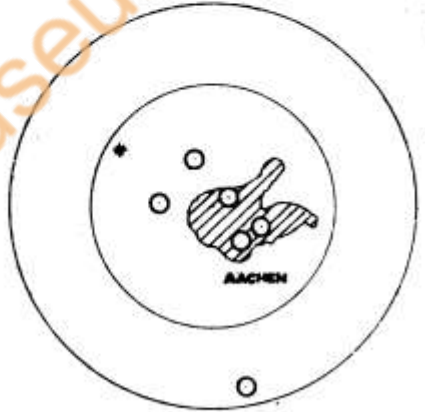
Photographs taken with Bombing ○
 Two photographs have been plotted
 at Seraing, outside the area shown
 on this map.
 Positions are approximate
 * DECOY



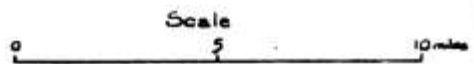
SITTARD

MAASTRICHT

MECHELEU



FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 9/6 OCTOBER 1942 TARGET **AACHEN**
 CONCENTRATION **MECHELEU**



OPERATIONAL DATA 7-41-42

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Bomber Command Report on Night Operations, 6/7th October, 1942.OSNABRUCK.Meteorological Advice Submitted to the Command.

0920 hours. The midnight frontal position will be from 55°N. 24°E. to Frankfurt to Nantes. Weather should be fine at home bases, though fog will form towards dawn. Over the North Sea coastal strip of Germany, layer cloud will be well broken; further inland it will be found in patches, and will generally be inconsiderable until the medium cloud associated with the front, from which it extends 100 miles to the north, is reached. On the front itself there will be much cloud and rain. South of the front there will generally be small amounts of cloud. Over France, there will be much medium cloud north of the front, and variable amounts of layer cloud south of the front. North of the front over Germany, visibility will be moderate to good during the first half of the night; later there will be local haze.

1250 hours. The front over Germany will extend fully as far south as suggested at 0920 hours, but is most unlikely to be further north. Fog will probably descend on home bases at about 0300 hours.

1615 hours. Bases in industrial and low-lying areas will be affected by mist patches at midnight, when visibility will be 1. Fog will become troublesome at about 0100 hours; at 0200 hours there will be rather general mist and fog, which will be widespread after 0300 hours. Over Osnabruck there will be 6/10ths, medium or high strato-cumulus cloud from 8-10,000 feet. Freezing level will be at 4,000 feet.

1840 hours. The report from Met. Reconnaissance was discussed. There should not be more than 6/10ths. medium cloud in the target area before 2200 hours, and quite probably less.

Executive Orders.

The choice of target was chiefly influenced by two factors; the state of cloud over the relative areas, and the time when fog was expected to become general at home bases. Osnabruck seemed convenient with regard to range, and two special meteorological reconnaissances supported the belief that at the time of attack there would be insufficient cloud to interfere seriously with the operation. The route was chosen with the intention of avoiding heavy defences as far as possible, and so as to give the Pathfinders the best chance of fixing their position and marking the target.

Statistics.

(a) No. of aircraft despatched	237
(b) " " " reporting attack on primary target	210 (88.2%)
(c) " " " " " " alternative target	27
(d) " " abortive sorties:-	
(technical defects)	19)
(inability to identify target . . . 1)	
(attacked by fighters 1)	21
(e) " " missing aircraft	6

Time of Attack.

Zero hour:- 2115.

Period of attack:- 2115 - 2140

The operation was planned as follows:-

Section 1 Pathfinders (29 aircraft):- zero - 1 to zero + 5.
 Section 2 Groups 1, 3, 4, & 5 & :- zero + 2 to zero + 26.
 remainder of Pathfinders.

/Lieut Pathfinder.....

Each Pathfinder aircraft in section 1 was to drop one bundle of 2 white and 1 green flares over the Dummer See, 20 miles north-east of the target. It was stressed that, as the enemy would probably copy these coloured flares, they were to be relied upon as a marker, but were to be used to help aircraft of section 2 to identify the lake, from which a lined run to the target would be made. Approximately one-third of the Pathfinders taking part in this attack were to illuminate the target area at zero - 1 for the assistance of the remaining two-thirds. The latter, also using flares, were then to illuminate the town itself, to identify the aiming point for the main force. No aircraft other than the Pathfinders in Section 1 were to drop flares within 50 miles of the target. A few Pathfinder aircraft were to drop 1 red and 2 white flares over Makkum (on the east side of the Zuyder Zee.) Aircraft of Section 2 were to be over the target from zero + 2 to zero + 25, but were on no account to bomb before zero - 5. In event of 10/10ths. cloud cover, with base not below 10,000 feet, it was recommended that crews should bomb from just below cloud base. Flak opposition was expected to be light.

Bomb Loads.

5. All aircraft of 3 Group and Wellingtons of all Groups (with the exception of 423's) were to carry a maximum economical incendiary loads. Wellington 423's were to carry their normal load of 1 x 4000 lb. H.C. bomb. The remaining aircraft of Groups 1, 4, and 5 were to carry mixed H.C. and incendiary loads. The few Pathfinders attacking in section 2 were to drop H.C. bombs. One crew selected from each of squadrons 14, 145, 150 and 501 was to reconnoitre the target at the close of the period of attack. The importance of obtaining accurate wind velocity to ensure a correct course and A.I.M. on the run from the Dummer See to the target was stressed.

Geo Instructions.

6. Co-ordinates of the target: B. 5.64 C. 38.19.

Co-ordinates of last turning point (Dummer See) B. 5.35. C. 38.45
If signal strength permitted, a Geo fix was to be taken at the moment of bomb release, and the readings obtained were to be recorded in the Geo questionnaire.

Routes Briefed.

7. The briefed route for all Groups was as follows (see also accompanying diagram) :- base - north of Texel - Dummer See - Osnabruck - turn right - Enkhuisen - base.

Weather Experienced.

8. Variable layer cloud, mainly 4-7/10ths. with tops between 6,000 and 9,000 feet, prevailed over the route. Visibility was 10 to 20 miles. Wind velocity at 10-15,000 feet was 20-30 m.p.h. from 240 - 270°. Similar cloud was met over the target increasing at times to 7-10ths., and occasionally decreasing to 2-3/10ths. Tops were between 4,000 and 6,000 feet. From 500 to 1,000 feet, cloud was thick. There was a ground haze, and average visibility was 5 miles. Wind velocity at 10-15,000 feet was 25-30 m.p.h. from 250-270°. Some bases south of a line from Yarmouth to Birmingham were cloudy, with occasional rain or drizzle. Cloud base fell below 1,000 feet in many places during the night, and at dawn was occasionally to be found at surface level. North of the same line, there was little cloud, but local mist and fog patches developed from midnight, and rain fell into Lincolnshire towards dawn.

9. Out of approximately 100 photographs taken with bombing, 27 show strato-cumulus cloud, mostly in thick banks entirely hiding the ground. The cloud level was some distance below 10,000 feet, the height at which some of the photographs were taken. The searchlight beams recorded in the prints revealed sporadically dense haze layers, some distance above the ground.

Navigational Aids.

10. This target lies close to the present limit of Gee cover, and, as on the preceding night, only one aircraft (again of 4 Group) succeeded in obtaining a fix by this method over the target. All Groups, except 4, had an average range of 300 miles. The losses of this figure may be attributed to the poor propagation conditions.

Weight of bombs dropped by a/c reporting attack on primary

11. (a) H.E. 189.5 tons

(including 78 x 4,000 : 9 x 2,000 : 78 x 1,000 lb.)

(b) Incendiaries. 272.8 tons

N.B.	No of a/c carrying	H.E. only	22
"	"	4 lb. incendiaries only	72
"	"	30 lb. incendiaries only	13
"	"	4 lb. incendiaries + H.E.	32
"	"	30 lb. incendiaries + H.E.	38
"	"	4+30 lb. incendiaries + H.E.	19
"	"	flares only	9
"	"	flares + H.E.	5
			<u>210</u>

RESULTS.

Night Photographic Evidence:

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

By ground detail	42	within 3 miles	32
		between 3 & 5 miles	4
		outside 5 miles	6
			<u>42</u>

Unplotted photographs with bombing :-	
that have recorded ground detail: (open country)	34
(built up area of a town)	1
with no ground detail but with fire-tracks	
that might be plotted (approx)	<u>32</u>
	67

If only the photographs taken with bombing, which show ground detail be considered out of a return of 77 photographs, 32 (42%) have been plotted within 3 miles. The plot of night photographs shows that a good concentration of attack was achieved on and around Osnabruck. In view of the recorded concentration of incendiaries burning near the target, it is certain that a considerable number of the 32 aircraft returning photographs showing fire-tracks only, were in fact on the target. Possibly about half of these might be plotted within the three mile circle if a fire-plot were undertaken.

About 30 minutes after the beginning of the attack, a number of aircraft took photographs of the built-up area of Osnabruck, and sticks of incendiaries were then burning in the old town and the suburbs to south and east. At intervals through the attack, more photographs of Osnabruck were obtained, showing a number of incendiary sticks well alight. There is no evidence of the operation on this night of the two decoys, 4 miles west of the town.

Narrative of Attack:

13. Nearly 90% of the aircraft despatched report attacks on the primary. Visibility over the target was obstructed by cloud and haze, but the pathfinders succeeded in clearly illuminating the town as well as the Dummer See, which had been fixed as the aiming-point of the operation. In fact, rather too many flares were dropped over the target area, where visibility was reported to be hampered by their dazzle. A number of aircraft dropped their bombs too early between the lake and the town, but by 2130 hours, 15 minutes after zero hour, there were a large number of scattered fires burning.

These quickly.....

These quickly took hold, and crews of later aircraft reported concentrations of large fires, especially in the centre of the town. It was reported that some of these were in the area of the main railway station and marshalling yards, but the ground haze prevented a detailed identification of the damage. One pilot ordered to reconnoitre the target at the close of the attack reported 12 large fires in the town, and many on the outskirts. Several crews could still see the glow from 100 miles away.

Daylight Reconnaissance.

14. Daylight reconnaissance was not carried out till six weeks after the attack, when fairly complete cover was obtained. No large areas of devastation were revealed, but considerable damage had evidently been done to industrial and railway works, chiefly by fire. Altogether 4 very large, 3 large, 5 medium and some 80 smaller buildings have been completely destroyed, and at least another 25 of various sizes damaged. Buildings and works which have suffered heavily include F.H. Hammerson (cotton yarn and weaving mills), the copper and wire works, the metal works, Mollerings soap factory and the military barracks at Netterhoide. On some of these repairs were seen to be in progress, and a number of static water tanks had been constructed. Two probable 4,000 H.E. incidents were seen in the centre of the town, 10 adjacent buildings having been demolished in one instance and 6 in the other. About two-thirds of the total damage seems to have been caused by fire. The south-east of the town suffered most heavily.

Defences.

15. Moderate heavy flak was reported from the high ground surrounding the town, probably mainly predictor control "unseen" in the early stages and "detrerrent fire" later in the attack. Slight and ineffective light flak some possibly from 37mm. guns, came from the town area. Searchlights, of which at least 50 were reported in the vicinity of the target area, were extremely active, but their co-operation with flak was apparently hampered by the broken cloud. In view of the reports of "unseen" fire, it is possible that the searchlights were operating, in part at least, for the benefit of night fighters, several of which were observed over the target. Up to 15 balloons were reported flying over the town at heights between 5,000 and 8,000 feet. Photographs recorded an average intensity for heavy flak of 1.5 single gun discharges per aircraft. This is necessarily a minimum figure.

Timing of Attack

16. Section 1. (Pathfinders)

No. of aircraft claiming to attack early (5-0")	4
" " " " " within	
" " " " planned period (2115 -2120)	5 (35,7)
" " " " late (0-10")	5
	<u>14</u>

Section 2. (Main force)

No. of aircraft claiming to attack within planned period	182 (92.9)
" " " " " (2117-2140)	
" " " " " late (0-5")	9
" " " " " "(more than 5")	5
	<u>196</u>

Other Targets Attacked.

17. No claims were made of attacks on alternative targets.

Casualties.....

Casualties.

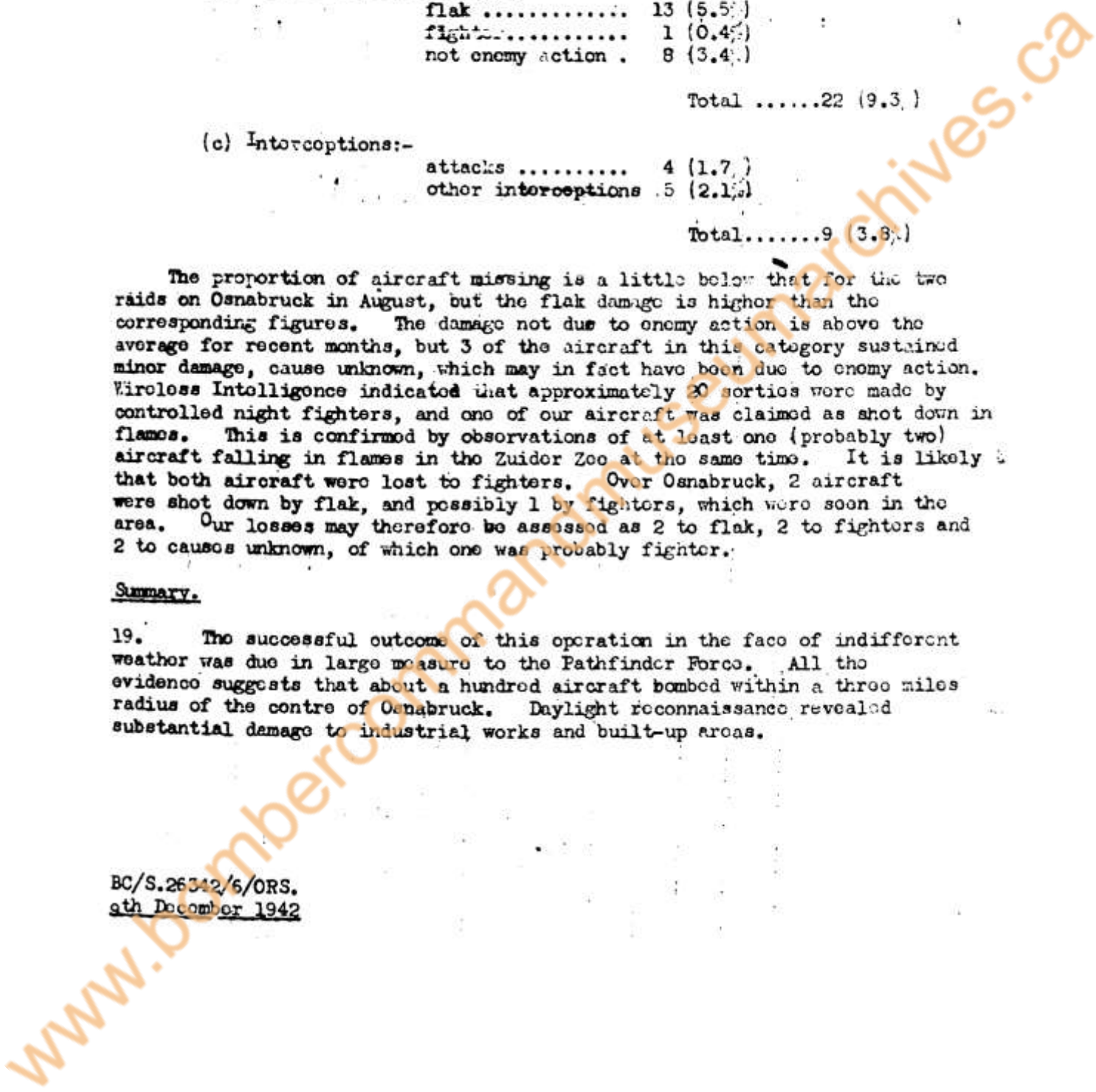
18.	(a)	No. of aircraft missing	6 (2.5)
	(b)	No. of aircraft damaged:-	
		flak	13 (5.5)
		fighters.....	1 (0.4)
		not enemy action .	8 (3.4)
		Total	22 (9.3)
	(c)	Interceptions:-	
		attacks	4 (1.7)
		other interceptions	5 (2.1)
		Total.....	9 (3.8)

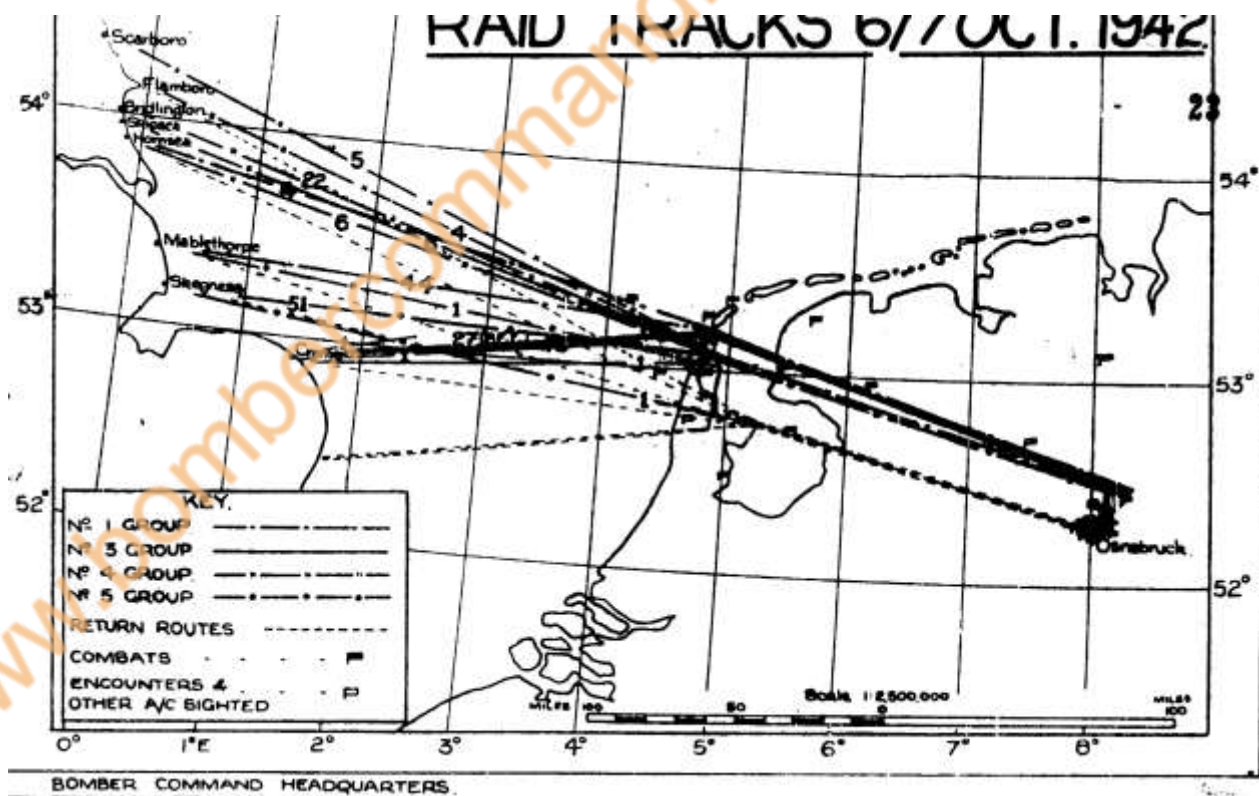
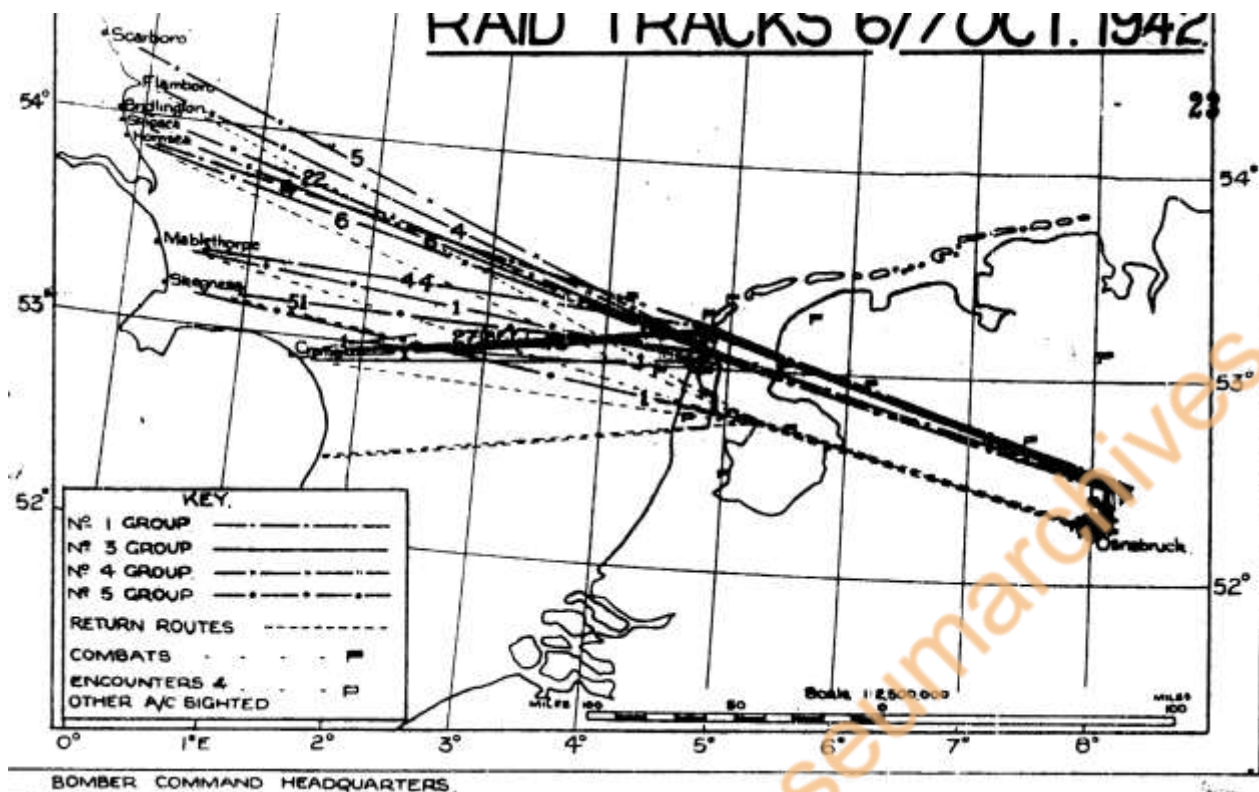
The proportion of aircraft missing is a little below that for the two raids on Osnabruck in August, but the flak damage is higher than the corresponding figures. The damage not due to enemy action is above the average for recent months, but 3 of the aircraft in this category sustained minor damage, cause unknown, which may in fact have been due to enemy action. Wireless Intelligence indicated that approximately 20 sorties were made by controlled night fighters, and one of our aircraft was claimed as shot down in flames. This is confirmed by observations of at least one (probably two) aircraft falling in flames in the Zuider Zee at the same time. It is likely that both aircraft were lost to fighters. Over Osnabruck, 2 aircraft were shot down by flak, and possibly 1 by fighters, which were seen in the area. Our losses may therefore be assessed as 2 to flak, 2 to fighters and 2 to causes unknown, of which one was probably fighter.

Summary.

19. The successful outcome of this operation in the face of indifferent weather was due in large measure to the Pathfinder Force. All the evidence suggests that about a hundred aircraft bombed within a three miles radius of the centre of Osnabruck. Daylight reconnaissance revealed substantial damage to industrial works and built-up areas.

BC/S.26342/6/ORS.
9th December 1942





light flak was reported; no controlled night fighters were heard, although two aircraft were reported as seen. Two of our aircraft are missing, and observations indicate that one was shot down by light flak off the Dutch coast, north of IJmuiden. There is no evidence as to the cause of loss of the other, which was operating off the west coast of France.

BC/S.26342/r/OAS.
17th November, 1942.

Target	Group	Type	Series	A/C claiming to		Abortive		Missing	Casualties			Interceptions		
				Primary Area	Alternative Area	Over Enemy Coasts	Not over Enemy Coasts		No. of aircraft lost in Primary Area	Down by Flak	Down by Fighter	Not due to A/C	Attacked	Not Attacked
MILWAUKEE St. Nazaire	1	W.II.III	3	2	-	-	-	1	4	-	-	-	-	26
		W.II.III	3	2	-	1	-	4	1	-	-	-	-	
Brest	1	W.II.III	6	5	-	1	-	10	-	-	-	-	-	-
St. Nazaire	1	W.II.III	6	5	-	-	-	10	-	-	-	-	-	-
Lorient	3	W.II.III	1	1	-	-	-	1	8	-	-	-	-	-
		Strling	14	10	-	4	-	50	-	-	-	-	-	-
Lorient	3	W.II.III	1	8	-	1	-	51	-	-	-	-	-	-
		W.II.III	4	3	-	-	1	-	6	-	-	1	-	-
Ostend	3	W.II.III	6	5	-	-	1	-	10	-	-	-	-	-
		Strling	1	1	-	-	-	-	9	-	-	-	-	-
		TOTAL	67	65	-	3	7	211	1	-	1	-	-	

* There are 14 aircraft were not fitted with GPs.

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 9/10th OCTOBER, 1942
MINELAYING.Meteorological Advice Submitted to the Command.

1. 0920 hours. The midnight position of fronts is estimated as follows: (1) minor warm front from North to South of (2) main warm front from Stornaway to South-west Scotland to South-west Ireland (3) cold front to west of Ireland. At home bases, there will be much medium cloud with rain, and increasing low cloud. A belt of rain and low cloud is expected along front (1); between this front and 10°E, there will be much medium cloud near the coast, but this may be broken in the extreme south of Germany. East of 10°E, medium cloud should be well broken, with some clear areas. Except in rain, visibility will everywhere be good. On the routes to Germany, wind velocity at 15,000 feet will be 60 to 70 m.p.h. Over west France there will be much medium cloud, and, later, increasing low cloud with rain.

1235 hours North of a line from the Wash. cloud is increasing to 10/10ths, and is falling below 1,000 feet with rain. South of this line cloud is falling, but it should remain above 1,000 feet, except locally. The outlook is best in East Anglia, where rain is likely to be only intermittent. Developments are taking place so rapidly that a detailed forecast for the latter half of the night is not yet possible. Cloud should not fall below 1,000 feet over Heligoland, the Frisians and the German Bight, but is likely to be very low over Brittany, Normandy and the Western Channel. Wind will increase rapidly during the day at bases over the North Sea, and may reach gale force in the Southern North Sea and the Heligoland Bight.

1600 hours. 1, 4 and 5 Groups will have very strong winds at bases tonight, and occasional rain seems probable over Britain and the Frisians.

Executive Orders

2. In view of weather conditions, a searchlighting operation was ordered.

Sorties.

3.	(a) No. of aircraft despatched (7 from each of 3 Groups)	14
	(b) No. of aircraft reporting to designated Primary Area.	13
	(c) No. of aircraft reporting to designated Alternative Area	1
	(d) No. of aircraft missing	0

Weather Encountered.

4. On the route to the Frisians, and over the target area, there was 10/10ths cloud down to 1,000 feet. Visibility was moderate to poor. Wind velocity over the Islands at 1,500 feet was 50 m.p.h. from 250°. There was no moon.

Results

5. 26 mines were laid in the primary area. All the aircraft despatched completed the operation, except one which was hit by heavy flak from a convoy and was forced to jettison its load at a point 53° 06' 07" N, 06° 07' E, just north of Scharmonnikoog. Otherwise, there were no incidents.

BC/S 26342/5/ORS

17th November, 1942

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 11/11 TH. OCTOBER 1942.

(LINELAND)

Metereological Advice Submitted to the Command.

0915 hours. The midnight position of fronts is estimated as follows: (1) cold front from 60°N. 11°E. to Lincolnshire 50°N. 10°W. (2) cold front from 50°N. 21°E. to north of Berlin to south of Copenhagen Paris to Nantes (3) warm front from 50°N. 21°E. to Breslau. Conditions are expected to be fair, apart from narrow belt of bad weather on front (1). Over Germany, there will be a fairly wide belt of rain and low cloud on and behind front (2), and much cloud, with a few breaks, on the coastal strip west of Hamburg. Low cloud and rain will prevail over the warm sector in the Danzig area, and in north Germany variable amounts of medium low cloud are expected. Over Central and Southern France, ahead of the cold front, there will be well broken medium cloud, with some strato-cumulus. Visibility outside the main areas should generally be moderate to good. Wind velocity over the southern North Sea and north coast of France at 15,000 feet will be 50 to 60 m.p.h. from 10°.

1140 hours. Bases should be free of trouble. There is no assurance at present that cloud will be above 1,000 feet in the Nantes-Lorient area. La Pallice, Bordeaux and the Frisians, with cloud base above 1,000 feet and moderate to good visibility, are most suitable for mining in the early part of the night, although this would be crossing the cold front, the freezing level of which will be at 8-9,000 feet, with high icing index above. If this front continues to move south after midnight, the West-Nantes area may offer convenient targets later in the night. Wind velocity on route to west France at 8,000 feet will be 50 m.p.h. from 270°; on the Frisians 50 m.p.h. from 280°.

1545 hours. Slight local troubles are possible at home bases in the south. West, Nantes and the Frisians will be fit for mining, especially after midnight. Routes to La Pallice and Bordeaux will cross the cold front, where cloud will be at 600-1,000 feet, with freezing level 10,000 feet and high icing index. In the area, there will be a good deal of strato-cumulus, generally below 1,000 feet. It will be best to operate early, as the front is moving south.

Positive Orders.

In view of weather conditions, a mining operation was ordered.

Losses.

(a) No. of sorties despatched.....	47
(b) " " " reporting having mined primary area.....	42 (89.4%)
(c) " " " " " alternative area.....	1
(d) " " abortive sorties:	
(visibility to identify targets.....)	2
(navigational error.....)	1
(cause unknown (a/c crashed on outward journey).....)	1
(e) No. of a/c missing.....	0

Weather Encountered.

5/10ths. convection cloud, based at 1,500 feet, was reported in the Channel, this was broken over the Bay of Biscay, where visibility over targets was good apart for patches of low stratus. Broken convection cloud was accompanied by stratus over the North Sea, and thickened to 10/10ths with static over the Heligoland area; but it was based at 1,500 feet, and where visibility was good. Wind velocity at 1,000 feet over Lorient was 25 m.p.h. from 290°; at the same height over Brest, it was 35 m.p.h. from 280°. There was no moon.

...../Results.

Results.

5. 42 aircraft of the 47 despatched reported having reached their targets, and laid 119 mines. One other aircraft, detailed for the Gironde estuary, planted its load about 10 miles west of the allotted position. No enemy fighters were encountered and there was little opposition from flak, one aircraft sustaining minor damage. A Stirling crashed at Bodney on the outward journey, after the pilot had reported difficulty in controlling the aircraft, although two of the crew were killed, and the exact cause of loss is as yet unknown. No aircraft was missing from this operation.

BC/S.26542/2/ORS.
17th. November 1942.

Target	Q.	Type	Sorties	A/C claiming to mine		Interdiction		Missing	No. of mines laid in Primary Area.	Casualties			Interferences
				Primary Area.	Alternative Area	Over Enemy Coasts	Not over Enemy Coasts.			Des. by Flak	Des. by Fighter	Not due to E.A.	
<u>NEURAY</u>													
St. Nazaire	1	Well.III	5	5	-	-	-	-	11	-	-	-	-
La Rochelle	1	Well.III	5	4	-	2	-	-	8	-	-	-	-
Brest	1	Well.III	1	1	-	-	-	-	2	-	-	-	-
		Well.III	4	-	-	1	-	-	6	-	-	-	-
La Pallice	2	Well.III	2	2	-	-	-	-	10	-	-	-	-
Gironde Estuary	2	Stirling	10	8	1	-	1	-	22	1	-	12	-
South of Toul	1	Well.III	5	5	-	-	-	-	10	-	-	-	-
Prickles Island	4	Well.III	10	10	-	-	-	-	30	-	-	-	-
TOTAL			47	42	1	3	1	-	119	1	-	12	-

* Details of A/C were not fitted with fuel.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 11/12th OCTOBER 1942
MINELAYING.Meteorological Advice Submitted to the Command.

1. 0915 hours The frontal position of the front is estimated to be from Bordeaux to the Alps to Vienna. There will be variable amounts of medium and low cloud, with showers, over central and east-west Germany, and broken medium cloud in the Munich area. Convection cloud will be dispersed over the Ruhr and Upper Rhine, and also at home bases, where it should be moderate to good, with local deteriorations towards dawn.

1140 hours Convection cloud will still be broken above 1,500 feet over the west coast of France; including Bordeaux, and will be present in force over the Heligoland Bight between 1,000 and 1,500 feet, and will drop to 600 feet in showers. The front is now expected to be along the west coast of Spain.

1545 hours. No change.

Executive Orders.

2. A minelaying operation was ordered.

Sorties.

3. (a) No. of aircraft despatched.

(b) No. of aircraft reported having mined primary area. 69 (3)

(c) No. of aircraft reporting having mined alternative area. 4

(d) Abortive sorties: Technical defect 4

Inability to identify target 4

(e) Missing. 3

Weather Encountered.

4. Fair weather was encountered over the coastwards and to north France, except for a few showers over the North Sea. Over north-west France there was 5/10 to 7/10ths cloud at 2,000 feet, with occasional light rain. Large cumulus and cumulo-nimbus clouds, varying from 2/10 to 8/10ths, prevailed over Kiel, Lubeck Bay and the Heligoland Bight; this was based at 2,000 feet, but fell to 1,000 feet in scattered showers. The heaviest cloud was experienced off the west coast of Denmark, with isolated patches of flak and lightning. Visibility was good over all targets.

Results.

5. 69 of the 84 aircraft report having laid 161 mines in their target areas. Four aircraft planted their loads outside of their primary area, two off the North Frisians, one in the Great Belt and one in the Baltic. Light flak was encountered from many coastal areas en route, but there were no areas of unusual intensity. Three aircraft sustained damage, in no case serious. Controlled night fighters were active in Danish areas, but there is no evidence that they had any success. Three of our aircraft are missing and observations indicate that one of these may have been shot down by flak near Eckernaford. The others cannot be accounted for.

PLANT 11/24/49 October 1947.

TARGET	GROUP	TYPE	SERIES	A/C REPORTING MISSILES LAID IN		ABORTIVE		MISSING	No. of misses laid in Primary Area	Casualties		Inter-ptions	
				Primary Area	Alternative Area	Over Enemy Coasts	Not Over Enemy Coasts			Dam- aged by Flak	Dam- aged by Figh- ter	Lost due to Enemy action	Attack ed by Enemy
LORIENT	1	Woll.III	3	3	-	-	-	6	-	-	-	-	-
		Woll.III	2	2	-	-	-	4	-	-	-	-	-
ST. HELENE	1	Woll.IV	5	5	-	-	-	10	-	-	-	-	-
KIEL	1	Woll.III	5	5	-	-	-	10	-	-	-	-	-
LITTLE BELT	1	Woll.III	6	5	-	1	-	10	1	-	-	-	-
		Woll.IV	4	1	1	3	-	2	152	-	-	-	-
MIDLAND	1	Woll.IV	2	2	-	-	-	2	-	-	-	-	-
		Woll.IV	2	1	-	-	-	4	-	-	-	-	-
OSPREY	1	Woll.IV	7	10	-	-	-	21	-	-	-	-	-
PRINCE ISLANDS	1	Woll.IV	9	8	-	1	-	16	-	-	-	-	-
ISLANDS	4	Halifax	1	1	-	-	-	4	-	-	-	-	-
RENBORG	3	Woll.III	5	4	-	-	1	8	-	-	-	-	-
ST. PETERS	3	Stirling	7	6	-	1	-	24	-	-	-	-	-
STOCKHOLM	3	Stirling	4	2	-	2	-	6	-	-	-	-	-
WEST BELT	3	Woll.III	4	3	1	-	-	6	-	-	-	-	-
WEST GULF	3	Stirling	6	4	1	-	-	12	-	-	-	-	-
S. ISLANDS	3	Stirling	5	3	-	1	1	9	-	-	-	-	-
TOTAL			60	69	4	5	2	3	161	1	-	-	-

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Bomber Command Report on Night Operations, 12/13th. October 1942. 2/24

(WISMAR and KINDELAYING)Meteorological Advice Submitted to the Command.

1. 0920 hours. It is estimated that at midnight there will be an occluded front from 60°N. 04°E. to 55°N. 02°E, warm over the Bristol Channel and cold to central Wales and to just south of Ireland. At home bases, there will be a belt of low cloud and rain along the cold front, behind which the cloud should lift and break. In the warm sector, and on the warm front, there will be much low cloud with occasional slight rain or drizzle. Ahead of the warm front (on the south side) much medium cloud is expected, with some breaks in the low cloud and occasional light rain. Medium cloud will be broken over the North Sea coast of Germany; this will decrease southwards, and over central and southern Germany weather will be fine, but mist will develop in valleys during the night. Small amounts of cloud are expected along the Baltic coast. Over Brittany, there will be a good deal of low strato-cumulus cloud, while along the remainder of the north coast of France broken layer cloud will prevail. Inland over France, and along the west coast south of 47°N., weather will be fine, with mist developing in valleys.

1250 hours. There should be no cloud below 1,500 feet over mining areas. Wismar, however, is threatened by medium cloud and strato-cumulus at about 2,000 feet. This may be very intense, probably averaging from 5/10 to 7/10ths., but possibly as much as 10/10ths. However, this may be avoided if the operation is planned early. The front will affect bases tonight, and rain must be expected with cloud based at about 1,000 feet, and some patches at least below that level. The position of the bad weather zone at any given time cannot be estimated accurately, but it should never be wider than 50 miles. Northern Groups must expect trouble after dusk, but conditions should be better late in the night. Other Groups will experience difficulties after midnight. Layer cloud, based at 1,000 feet, will prevail on the front over the North Sea, and although this may extend to great heights, no serious obstacle should be presented on this route. Freezing level here will be between 5,000 and 7,000 feet.

1600 hours. The frontal zone of bad weather is now expected to lie through Lincolnshire at midnight, whence it will move slowly southwards. Conditions near this front should not be prohibitive - cloud will generally be above 1,000 feet and rain will only be local - but, if diversions are necessary, good weather should be found both north and south of the front. There is some indication that cloud conditions at Wismar will be better than had been anticipated, there should not be more than 5/10ths. below 10,000 feet. The previous forecast for mining areas is confirmed.

Executive Orders.

2. In view of the forecast of deteriorating weather at bases, Lancasters of 5 Group were considered to be most favourably situated and equipped to operate against the town of Wismar and the adjacent Dornier factory, and to return before serious landing trouble might be encountered. 1 & 3 Groups were ordered to continue with the mining plan.

SortiesWISMAR

3.	(a) No. of sorties despatched.....	53
	(b) No. reporting attack on primary target.....	49 (93.1%)
	(c) No. reporting attack on alternative target.....	2
	(d) No. of abortive sorties:-	
	technical defects.....	5
	inability to identify target....	1

Plan of Attack.

4. Wismar (town and Dornier factory)

Zero hour - 2035 hours.

Period of attack - 2035 to 2050 hours.

The target was to be attacked by Lancasters of 8 Group in two sections:-

Section 1. Zero to zero + 5.

5 Lancasters, manned by the best available crews, were to attack the Dornier Factory with 30 lb. incendiaries. 30 Lancasters, manned by the next best available crews, were to attack the town, also with 30lb. incendiaries.

Section 2. Zero + 5 to zero + 15.

15 Lancasters were to attack the factory, with loads of 4000 lb. H.E. plus 30 lb. incendiaries. 13 Lancasters were to attack the town, with loads of incendiaries made up with 1000 lb. G.P. bombs.

All aircraft were to carry flares, fused to open not higher than 1500 feet above ground, and these were to be used for target identification and illumination. The height from which aircraft were to bomb was to be left to the discretion of individual captains, but they were to be warned that 1000 lb. bombs were being dropped by some aircraft, the minimum "safety height" for this type of bomb being 4000 feet. Crews of Section 1, whose function was to be that of fire-raisers, were to be specially briefed to make every effort to identify the aiming points with certainty before bombing. If the aiming point could not be distinguished, the town itself was to be attacked. No aircraft in Section 2 was to drop flares or bombs before zero + 5. Photographs were to be taken of bombing by all aircraft.

Goce and Navigational Instructions.

5. Target co-ordinates: B 4.13
C 39.52

The importance of making the best use of Goce as a navigational aid was stressed; navigators were to be instructed to make more use of position lines when only two pulsos were available. When beyond Goce coverage, astro-fixes and position lines were to be used for position fixing. The final E.T.A. on the target was to be calculated with the greatest possible accuracy, and navigators were to adhere strictly to this time.

Route Briefed.

6. The briefed route was as follows (see also the accompanying diagram):

Base - Mend - Nakskov (Isle of Lolland) - Wismar - return same route.

Weather Experienced.

7. Visibility over the target was bad. There was 5/10-10/10ths. cloud tops to 1,000 feet, a ground haze and no moon. Difficulties were increased by an effective smoke-screen. On the route over the North Sea, 5/10-10/10ths. cloud, tops 7,000 feet, was accompanied by 5/10 - 9/10ths. low cloud bases 1,000 - 1,500 feet, and visibility was moderate.

Navigational Aids.

8. Much better ranges with Goce were obtained than in the three previous runs but the performance, even at a greater height, was very inferior to that on the night 1/2nd. October. The average range was 334 miles and the range taken made readings beyond 360 miles unlikely. One aircraft found a range at a range of 400 miles at 9,000 feet by extrapolation from the lattice 300.

Weight of Bombs dropped by Aircraft reporting attack on the Primary.

H.E. 33.5 tons. (including 12 x 4,900 lb. and 27 x 1,000 lb.)

Incondiarics: 72.8 tons.

28 A/C carried 30 lb. incendiaries only.

12 " " 30 lb. incendiaries + H.E.

9 " " 4 lb. incendiaries + H.E.

RESULTS.

Air Photographic Evidence.

Of photographs taken with bombing there are returns from 14 aircraft of prints with ground detail, of which 4 have been plotted a little west of Wismar (see map). 4 more lie somewhat east of Lubeck and 6 remain unplotted. The latter suggests that in the prevailing cloudy conditions, aircraft experienced great difficulty in locating the target. Three photographs show a smoke screen operation west of Wismar.

Narrative of Attack.

The weather at Wismar has seldom been favourable to our bombers, and this raid provided no exception to the rule. Under conditions of extreme darkness and thick low cloud, 49 of the 59 bombers despatched reported attacks on the primary, but it seems probable that the main effort was directed 15 to 20 miles west of the target-point, about halfway between Wismar and Travemunde. Two or three large fires were seen burning in this area. On the other hand, one pilot who was on his third visit, and was certain he was over the town, reported a huge fire in the target area, by the light of which the factory was clearly visible, and which seemed to have increased four-fold when he last observed it from 70 miles away. Several other reports tend to confirm this but in the absence of photographic evidence, it cannot be considered as conclusive.

Defences.

The town's defences were reported as surprisingly weak; little light flak and only a moderate amount of heavy flak was encountered. The number of searchlights, however, had increased since the last visit. A smoke screen covered the aerodrome to the coast west of the town, and two balloons were seen flying at 6,000 feet.

Reconnaissance.

No daylight reconnaissance has been carried out since the attack.

Timing of Attack

Section 1 (incendiaries only).

A/C claiming to attack early.....	1
" " " within planned period	
(2035-2040).....	3(10.7%)
" " " 0-10 min. late.....	13
" " " more than 10 min. late.....	11
	<hr/>
	28

Section 2 (H.E + incendiaries)

A/C reporting attack early.....	1
" " " within planned period	
(2040-2050).....	7(33.3%)
" " " 0-10 mins. late.....	9
" " " more than 10 mins. late.....	4
	<hr/>
	21

Other Targets Attacked.

15. Two aircraft claimed to have attacked alternative targets, one at Lubeck and one an aerodrome at 54°27'N. 11°15'E. (Rohrn Island) No results could be observed, owing to cloud and darkness.

Casualties.

16. Two aircraft failed to return. There were several observations of aircraft seen to go down in the Lubeck-Wismar area, including one which is reported to have blown up in mid-air and illuminated the target, but there is no evidence of the cause of loss. No fighters were seen in the neighbourhood, and it is therefore probable that flak was responsible. One aircraft was attacked by a night fighter near Kegnaes after leaving the target area, and suffered fairly extensive damage. No major damage from flak was reported.

MINELAYING

17. 47 aircraft of 1 and 3 Groups were detailed to lay mines in the following areas:

Heligoland Bight, Frisian Islands, Esberg, Kattegat, Little Belt, Elbe estuary and Bayonne. 39 report having accomplished their task successfully, and 86 mines were laid. One aircraft detailed for the Elbe estuary went astray, and the pilot reports having laid two mines in deep water off Wilhelmshaven. 7 sorties were abortive, 4 due to the weather and 3 to technical defects. All aircraft returned safely, except one which crashed near Langtoft after having laid its mines, and was burnt out. The crew were injured, but none fatally. The cause of the crash is thought to have been a technical defect, which the crew cannot explain; the port engine failed and two loud explosions followed, whereupon the aircraft became uncontrollable. Two aircraft were damaged by flak, in neither case seriously. Defences were generally reported to be quiet. Some night-fighters were seen, but there were no encounters.

BC/3.26342/5/ORS.
1st. December 1942.

Summary of Aircraft Losses (Warfare Period)

Type	Group	Type	Serials	Losses to enemy attack on		Aborted		Ditched	Rogue lost in primary area.	Casualties			Interactions	
				Primary Area	Alternative Area.	Over enemy territory	Not over enemy territory			flak	igniters	not enemy action	Attacked	Not Attacked
Waco	5	Leicester	50	09	2	2	4	2		1	100	-	1	-
MIDLANDS														34
Holland	1	Well.III	1	1	-	-	-	2						
Bright		Well.IV*	3	3	-	-	-	10						
Bobson	1	Well.II*	3	3	-	-	-	6				1	2	
		Well.III	2	2	-	-	-	4						
Little Salt	1	Well.III	2	2	-	2	1	2						
Elbo		Well.IV*	5	5	-	1	-	8	100					
Osney	12	Well.III	2	1	1	-	-	2						
Prison Islands	3	Well.III.	10	9	-	1	-	18						
Lutnant	3	Stirling	4	3	-	1	-	12						
Rayson	3	Stirling	6	5	-	1	-	15	1					
MIDLANDS TOTAL			67	39	1	6	1	86	1,100	-	100	-	1	4
TOTAL			100	38	3	8	5	2	86	2,100	100	100	1	4

* These 14 aircraft were not fitted with Geos.

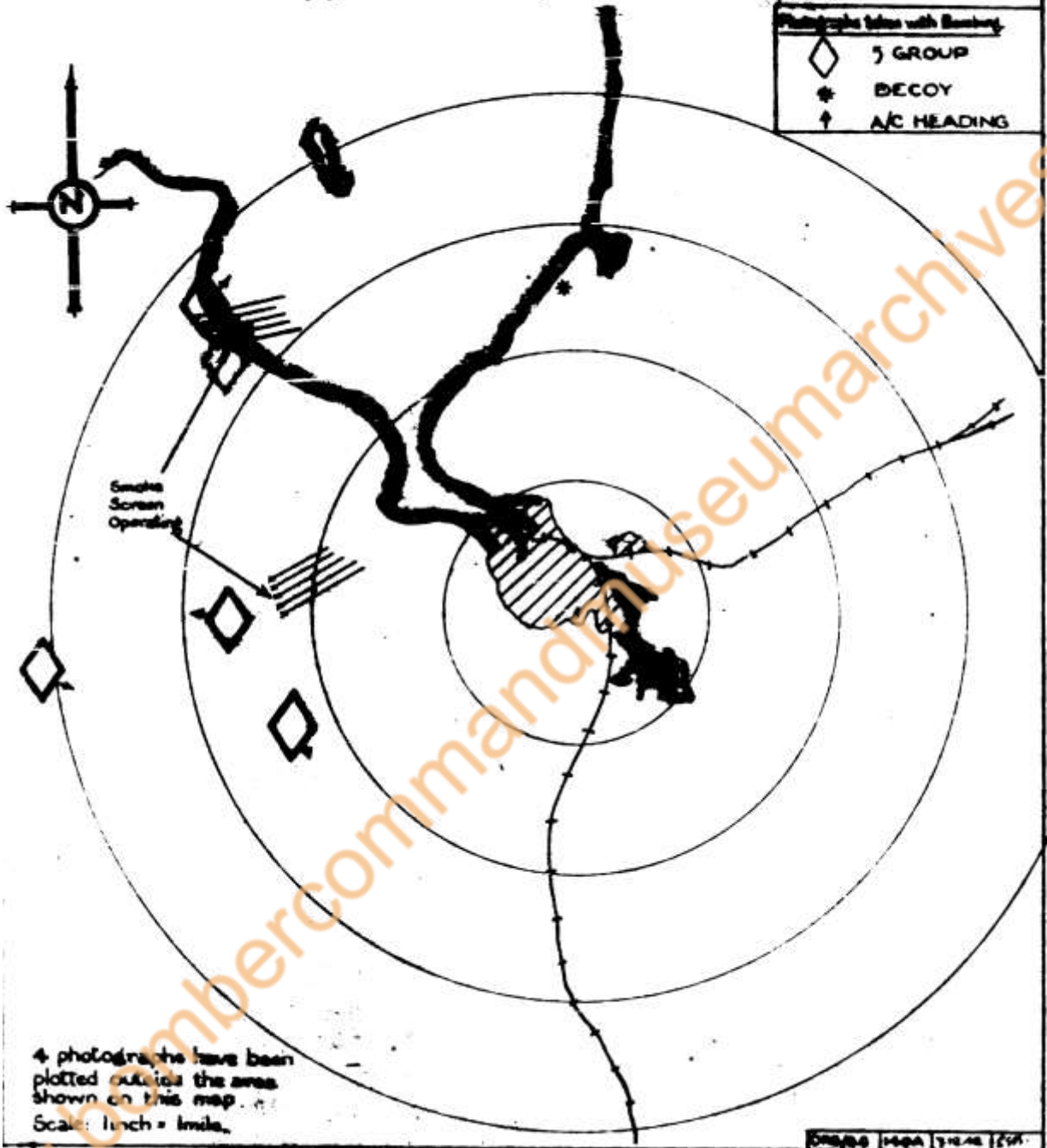
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FINAL PLOT OF NIGHT PHOTOGRAPHS 35°

TAKEN 12/19th OCTOBER 1942 TARGET WISMAR

Photographs taken with Bomber

- ◇ 3 GROUP
- * DECOY
- ↑ A/C HEADING



4 photographs have been plotted outside the area shown on this map.
Scale: 1 inch = 1 mile.

GROUP 3 1942 1942

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 13/14th JAN 1943

11 JAN 1943
36

Kiel

Meteorological Advice Submitted to the Command.

1. 0920 hours. It is estimated that at midnight there will be a ^{sh}occluded front from 57°N. 15°E. to just south of Hamburg to Cologne to Paris to north-west France, becoming warm to west Ireland, with a small warm sector south-westwards from 50°N. 5½°E. At home bases, there will be broken medium cloud, and fog is expected to develop. Rain and low cloud are spreading from the west, but bases should not be affected before to-morrow, except possibly in the north. Over north Germany behind the front, there will be convection cloud with good breaks and visibility will be moderate to good. Cloud should be well broken in the areas of Kiel, Hamburg and Bremen, especially in the latter part of the night. On the south side of the front, there will be much cloud, generally both at medium and low levels, but with a few breaks. Over France near the front, there will be a good deal of cloud and occasional rain. Behind the front over north-east France broken convection cloud will prevail.

1400 hours. The outcome of tonight's attack on Kiel will depend largely on timing. 2100 hours is suggested as most suitable for zero hour, but later information may make it advisable to postpone the operation for one or two hours. If the attack is accurately timed, there should be good visibility over the target, with less than 5/10ths. broken low and medium cloud. Showers will probably be encountered over the Heligoland Bight, with cumulus tops to 15,000 feet. All Groups expect local visibility troubles at bases from 2200 hours, but should be able to provide sufficient diversion within themselves. No extensive diversion area can be anticipated in 91, 92 and 93 Groups. 4 Group expects a freshening wind to improve visibility later in the night.

1600 hours. The clearance behind the front should take place at Kiel before 2110 hours. Such a time over target will enable Groups to land all aircraft with only local diversions. After 0200 hours visibility troubles may be quite serious south of the Humber. It is therefore recommended that the present T.O.T. should stand.

Plan of Attack.

2. KIEL has been selected as tonight's objective. Weather conditions at bases necessitate an early return, and it is calculated that this target should be cleared of cloud cover comparatively soon after dusk. Zero hour will be at 2110 hours, and the attack should be completed by 2145 hours. The operation will take place in three sections, as follows:-

- Section 1 (zero to zero+ 10) Pathfinders (planned to consist of approx. 25 aircraft.)
- Section 2 (zero to zero+ 12) 3, 4 and 5 Groups (Stirlings, Halifaxes and Lancasters only.)
- Section 3 (zero + 10 to zero + 20) 1 Group (Wellingtons and Halifaxes), 3, 4 and 5 Groups & Pathfinders under training (Wellingtons only.)

3. Half the Pathfinders in Section 1 will act as "finders" and the remainder as "illuminators". At zero - 1 the finders will each lay a long stick of flares, released at 6-second intervals, across the target, by means of visual D.S. or Gee fixes, in three directions viz:-

- (a) from 54°20'N. 10°12' E. to 54°20' N. 10°02' E.
- (b) from 54°19'N. 10°12' E. to 54°19' N. 10°04' E.
- (c) from 54°18'N. 10°12' E. to 54°18' N. 10°04' E.

In addition, each aircraft in this section will illuminate the last turning point (the Solentor Sec, 12 miles east of Kiel), with one red and two white flares dropped over the centre of the lake. As the enemy will probably copy these they are to be regarded only as a means of identifying the land-mark and not as markers. At zero hour, 4/10ths. of those aircraft detailed to act as illuminators will lay

—short-sticks-of-flares, released at 4-second intervals, across the actual aiming points. At zero + 8 the remaining fifth will follow suit. 9 illuminator-aircraft will carry 4,000lb. incendiary bombs to help mark the target. Any finder-aircraft able definitely to identify the aiming point may, at the pilot's discretion, act as an illuminator.

4. Aircraft of Section 2 will be over the target from zero to zero+12, but will not drop their bombs before the target has been illuminated by the Pathfinders. All will carry mixed loads of H.E. and incendiaries except Stirlings of 3 Group, which will carry incendiaries only.

5. Aircraft of Section 3 will carry mixed H.E. and incendiary loads with the following exceptions:-

- (a) All Wellingtons of 1 Group, and most Wellingtons of 3 Group will carry maximum incendiary loads.
- (b) The remaining Wellingtons of 3 Group will carry 1,000 lb H.E. bombs.
- (c) Wellingtons 423's will carry their normal load of one 4,000 lb H.E. bomb.
- (d) Pathfinders under training will carry various H.E. loads.

6. No flares will be carried except by Pathfinders of Section 1. After dropping their bombs, all crews will withdraw at high speed, losing height on crossing the enemy coast as low as possible. A selected crew from each Lancaster squadron and from squadrons 103, 142, 150 and 306, will reconnoitre the target at the close of the period of attack and report on the measure of success achieved.

Gee Instructions.

7. Target co-ordinates B = 3.77
C = 40.05

When outside Gee coverage, positions should be checked by means of astro-fixes. Position lines must only be used when two pulses are obtainable.

Routes Briefed.

8. All Groups : base - 54°N. 04°E. - Mondo - Baggenkop - Selanter See - KIEL - 54° 20'N. 05° 00' E. - base.
For details of routes taken see accompanying diagram.

Sorties.

9.	(a)	No. of sorties despatched	288
	(b)	" " reporting attack on primary area	237 (82.3%)
	(c)	" " " " alternative area....	5
	(d)	" " abortive sorties: (technical defect.....	28
		(navigational error.....	1
		(attacked by fighter.....	2
		(damaged by flak.....	2
		(collided with other aircraft	2
		(sickness of crew.....	1.33
	(e)	Result not known (1/0 crashed on return).....	2
	(f)	No. of aircraft missing	8

Weather Experienced.

10. Nil to 3/10ths. cloud was encountered over the target at the time of attack. Despite a slight ground haze and an effective smoke screen over the docks, visibility was good. There was a west fly wind of velocity 15 m.p.h. The moon was below the horizon. Conditions on route were fine 30E.; then 2-3/10ths. cumulus was met, increasing to 5/10ths. at 7°E., when it was accompanied by occasional convection cloud. This extended upwards to 10,000 feet, with moderate clear ice on cloud tops and some static. Over Denmark cloud broke to nil, and visibility was good. The mean wind velocity at 12,000 feet was 25-30 m.p.h. from 290°.

At bases, local mist appeared in 3 and 4 Groups by midnight, but visibility improved later. Elsewhere, visibility was generally moderate, with cloud seldom below 5,000 feet until zero hours. Then rain spread rapidly from the west and cloud base fell, but remained in most places above 1,000 feet.

Navigational Aids.

11. Average Gee ranges obtained on this night by the whole Command were similar to those of the previous night obtained by 3 Group only. Gee was successfully used by aircraft of 3 Group to position the turning-point.

Weight of Bombs Dropped

(/c claiming to attack the primary.)

12. H.E.:- 233.6 tons (including 81 x 4,000 lb)
150 x 1,000 lb)
Incendiaries:- 312.9 tons (including 9 x 4,000 lb)

No of aircraft carrying	H.E. only	24
" " " "	H.E. + 4lb. incendiaries	32
" " " "	H.E. + 30 lb. incendiaries	36
" " " "	H.E. + (4+30) lb. incendiaries	49
" " " "	4 lb. incendiaries only	47
" " " "	30 lb. incendiaries only	11
" " " "	(4 + 30) lb. incendiaries	6
" " " "	flares only	13
" " " "	flares + 4,000 lb. incendiaries	9
		237

Night Photographic Evidence.

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

By ground detail	58	within 3 miles	22
		between 3 and 5 miles	15
		outside 5 miles	21
			58

Unplotted photographs with bombing:-

that have recorded ground detail (possibly suburbs of Kiel obscured by smoke screens)	7
(open country)	23
with no ground detail but with fire-tracks that might be plotted (approx.)	46

The night photographs show that the weight of attack which fell on Kiel struck heaviest at the ship-building yards east of the southern end of the harbour and the adjacent built-up districts further east. Alschowagen suburb received particular attention. Throughout the operation there was a scattered attack on the north and west outskirts of the town by individual aircraft. A few others bombed Holtenau near the entrance to the Kiel canal. The photographs have recorded concentrations of incendiaries mainly on the shipbuilding area and the compact residential districts to the east, but in the absence of a fire-plot it is hardly possible to give an estimate of the number of incidents, owing to the relatively small photographic coverage of ground detail, and to the obscuring of the smoke screens.

14. In spite of the success implied by the above analysis, there is no doubt that the great concentration of attack intended was not achieved, since approximately half the weight of attack was drawn away on to open country between 4 and 8 miles east south-east of Kiel in the direction of approach from the last turning point. (see diagram). There are two known decoys in this area, namely those at Erdbeerberg and Reisdorf. They were both photographed about 15 mins. after zero hour, when the sea mine was certainly not in operation. The effectiveness of the smoke screens in concealing the harbour may also have contributed to the diversion. A plan showing their position is attached to the report. Possibly the lake at Pohnsdorf, 3 miles south-east of Kiel, may have acted as a natural decoy.

Narrative of Attack.

15. The Pathfinders were prompt and accurate - one pilot, a Group-Captain attacking with the Main Force, said that the flares would have enabled any aircraft lost in the Baltic to reach the target - but smoke and haze hampered the identification of target features. Most crews were agreed that the raid was highly successful, with many well concentrated fires. One large orange blaze was thought to involve a factory. By 2140, 3 large fires were reported in the west of the town, and by 2205, 20 minutes after the close of the attack, 2 considerable ones were noted in the south. A pilot detailed to reconnoitre the target after the bombing had ceased reported 27 separate large fires in the built-up area. At the height of the raid the concentration appeared too great for the defences, which ceased firing for some time.

Daylight Reconnaissance.

16. The P.R.U. cover includes all the town and docks, except the north-west sector in the neighbourhood of the Kiel canal and the torpedo-boat harbour. Scattered incidents of damage are seen throughout the town, but the extent of the destruction is small considering the scale of the attack. The residential districts of Raisdorf and Elmschenhagen appear to have suffered most, about 50 houses and farm buildings having been destroyed by fire and H.E. Industrial damage, chiefly by fire, includes the destruction of the two brickworks at Elmschenhagen and a very large unidentified industrial building, as well as blast damage to two large buildings on the south side of the naval arsenal. This account excludes the effects of a 4,000 lb. bomb clearly shown by a night photograph to have burst in the western part of the town, just outside the limit of the P.R.U. cover, as well as the scattered bombing in the northern outskirts and in Holtenau.

Timing of Attack.

17. Section 1 (Pathfinders).

No. of aircraft attacking early (3-0").....	2
" " " " within planned period.....	14
" " " " late (4-6").....	6
	<u>22</u>

Section 2.

No. of aircraft attacking early (1")	1
" " " " within planned period	30
" " " " late, (0-10")	67
" " " " more than 10" late	27
	<u>125</u>

Section 3.

No. of aircraft attacking early (10-0")	12
" " " " within planned period.....	36
" " " " late (0-10")	31
" " " " more than 10" late.....	9
	<u>90</u>

Defences.

18. Crews were generally in agreement that the searchlight defences had been intensified and perhaps extended. At an outset 3 or 4 cones of 20-30 beams were in action in the target area, whereas on previous occasions a single cone of 30 to 40 beams had most commonly been reported. The greatest concentrations were thought to be to the south of the target area and to the west of the harbour. As the raid progressed saturation became evident, and many of the searchlights were lowered for a considerable period. A smoke screen was in operation, and this may have added to their difficulties. Accurate heavy fire was directed at "seen" targets in the searchlight cones. Reports on its intensity were conflicting, and it is possible that the volume fell off as the defences became saturated. After the searchlights had been lowered, some accurate "unseen" fire was encountered.

Some unusually heavy bursts were reported. Intense light flak was encountered from the deck area, much of the tracer self-destroying as high as 17,000 feet. A number of balloons were reported at heights from 5,000 to 10,000 feet; there may have been a circular barrage round the decks.

19. Observations of crews during this operation tend to confirm the existence of a coastal searchlight belt from Brunshüttel up to Ribo. Searchlight concentrations are numerous throughout the greater part of Schleswig-Holstein, from just south of the Kiel Canal up to Apenland.

20. The average overall intensity of heavy flak indicated by the night photographs was considerably less than that experienced on the previous raid on this target. The flak was mainly in the form of single discharges. One-third of the 44 aircr ft plotted within 5 miles of Kiel recorded searchlights and nearly one half heavy flak. Only 6 recorded light flak.

Other Targets Attacked.

21. A aircraft, prevented by the weather or technical defects from attaining their objective, dropped their bombs respectively in Sylt, Grechelling, Kendsburg and an unidentified town in the Heligoland area. Another aircraft arrived too late to be able to attack the target with safety, and instead bombed a concentration of searchlights to the south-west of the town. No decisive results were observed in any instance.

Casualties.

22.	(a)	No. of aircraft missing	8 (2.3%)
	(b)	No. of aircraft damaged:	
		flak.....	20 (6.3%)
		fighter.....	1 (0.3%)
		non-enemy action	9 (3.1%)
	(c)	No. of interceptions:	
		attacks.....	5 (1.7%)
		other interceptions	4 (1.4%)
			9 (3.1%)

The proportion of aircraft missing is less than the average for this target, and it is evident that the success of the raid was achieved at low cost. Wireless Intelligence indicated that approximately 30 sorties were made by controlled night fighters, and 2 claims to have destroyed our aircraft were heard. Neither of these can be identified. 4 aircraft were seen shot down over Kiel, 1 possibly 3, by flak (probably light flak), and 1 possibly by fighter. 1 aircraft was lost, cause unknown, between Molderf and Cuxhaven, and another, probably to flak, at the mouth of the Elbe. Two aircr ft collided near Fems Island, but both returned safely. Our losses may be assessed as 2, possibly 4, to flak, 1 possible to fighter, and 3 to causes unknown.

Summary.

23. This attack on Kiel achieved a fair measure of success, but roughly half the bombs probably fell in the adjacent countryside. It seems likely that residential districts to the south and east received more damage than industrial works, but the shipbuilding yards certainly suffered. The losses sustained were below average.

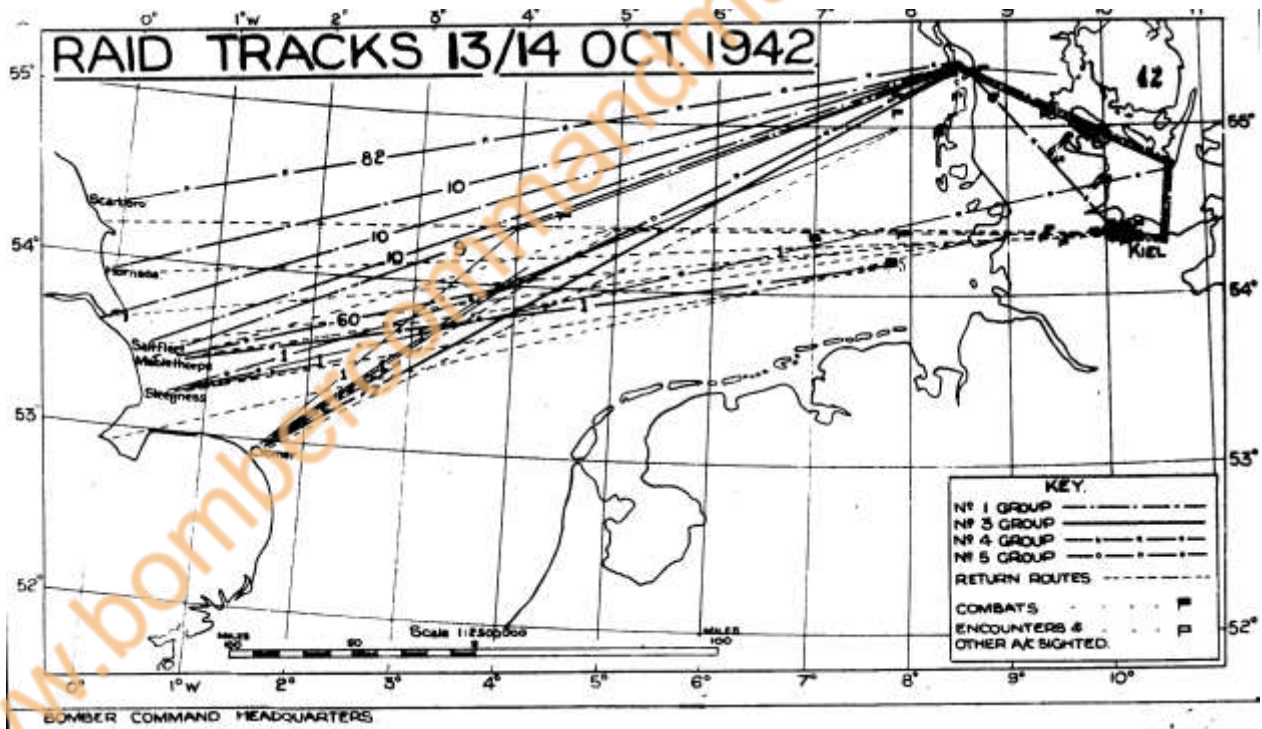
3C/S.26342/S/CRS.
21st December, 1942

MLK/VP.

R.I. Report 13/14th October, 1942

Target	Group	Type	Sortie	No of aircraft reporting attack on		Sorties over		Result not known	Missing	Damage			Institutions	
				primary area	alternative area	over enemy territory	not over enemy territory			flak	fighter	not enemy action	attacked	not attacked
K.I.	2, V.P.	Halifax	8	8	-	-	-	-	-	1AC	-	-	-	-
		Wilmington III	6	4	-	-	1	-	-	1AB	-	-	-	-
	1	Halifax	18	10	-	-	2	-	-	2	1	-	1	-
		Wilmington II	7*	6	-	-	1	-	-	-	-	-	1	-
	2	Wilmington III	17	14	-	-	1	-	-	1	-	-	1	-
		Wilmington IV	13*	9	2	-	1	-	-	1	-	-	1E	-
	3	Halifax	4	4	-	-	-	-	-	-	-	-	-	-
		Wilmington	2	2	-	-	-	-	-	1	-	-	-	-
		Wilmington III	21	27	-	-	2	-	-	2	1:40:14	-	1AC:1E	1
	4	Halifax	48	23	-	-	1	3	-	1	1	-	-	1
Wilmington III		27	16	2	-	5	-	1	1	1	-	1:1E	-	
5	Wilmington	69	62	-	-	1	5	-	1	-	-	1E	-	
	TOTAL		288	237	5	6	30	2	8	12:5AC 1A:1B 1E	1	2:1AC 1B:1E	5	4

* * These aircraft were not fitted with Gee R.B. Figures for 3 Group include 4 Halifaxes, 3 Wilmingtons and 2 Wilmington-III's of the V.P.F. that attacked with the Main Force.



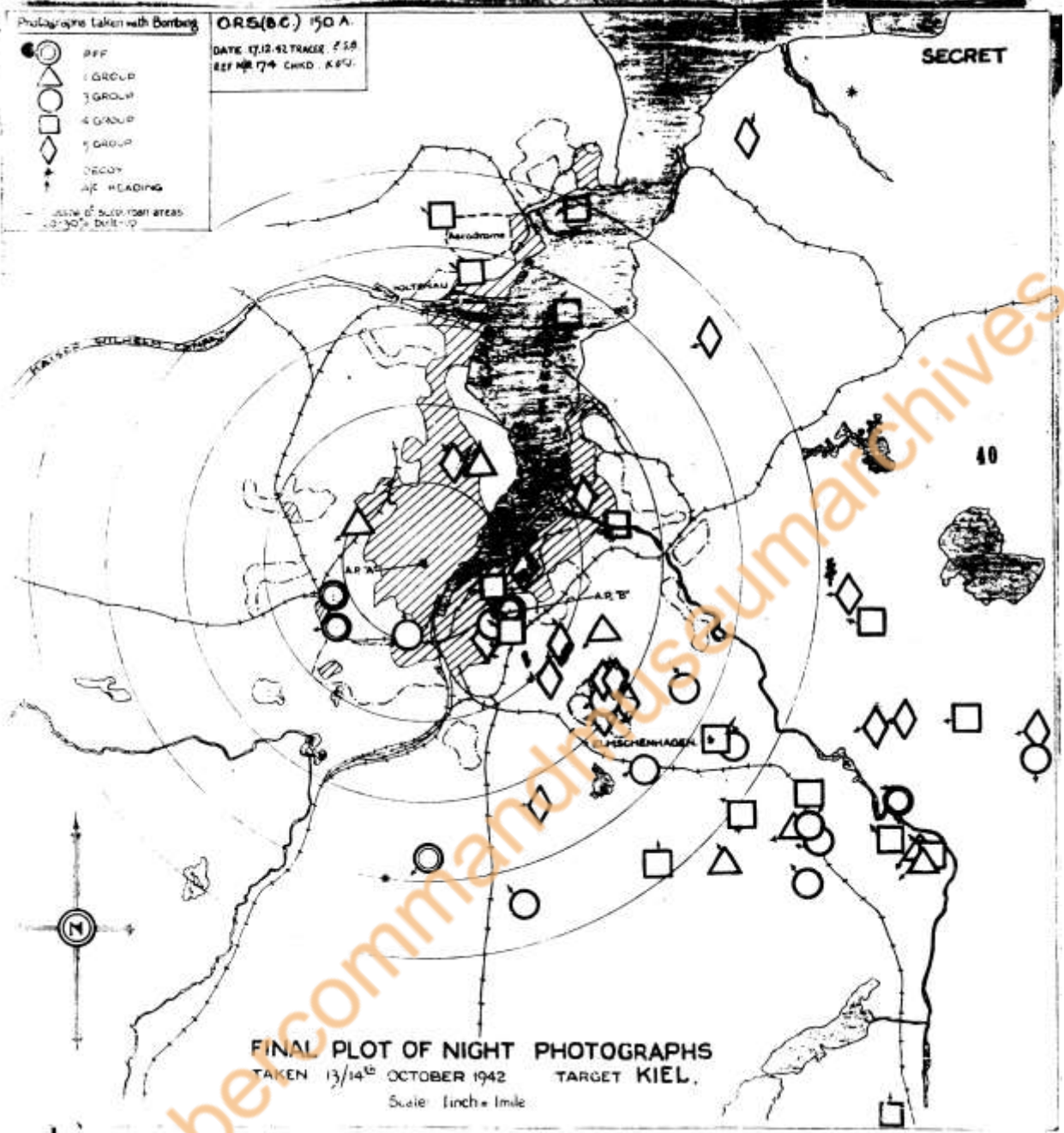
Photographs taken with Bombers

ORS(BC) 150 A.

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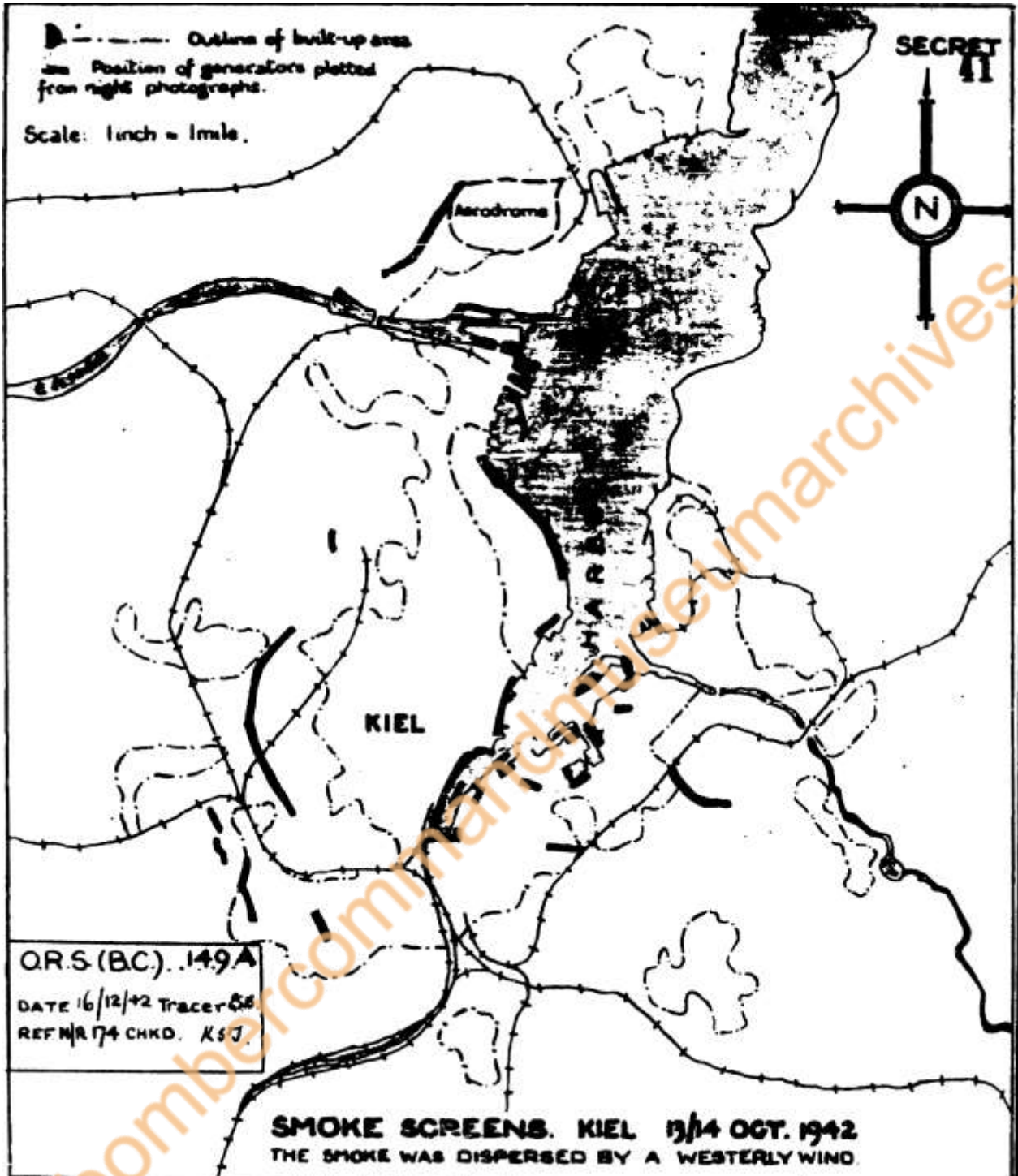
SECRET

- REF
- △ GROUP
- GROUP
- ◇ GROUP
- GROUP
- ◇ DECOY
- A/C HEADING
- AREA OF SUPPORT AREAS
- 2-30% Dwell-up



FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 13/14th OCTOBER 1942 TARGET KIEL.
 Scale 1inch = 1mile

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 14/15th OCTOBER, 1942.

(MINELAYING)

Meteorological Advice Submitted to the Command.

1. 0320 hours. At midnight there will be an occluded front from Iceland to 50°N. 03°E. (becoming warm to 50°N. 05°E. and cold to Yorkshire) to south Wales. It is difficult to estimate accurately the position of the cold front, owing to its irregular development. At home bases, there will be a belt of rain and low cloud on the cold front. Over East Anglia and south-east England (i.e. in the warm sector) there will be much cloud, but generally above 1,000 feet. Over north-west Germany, a good deal of medium and broken low cloud is expected; the latter will decrease southwards, and give way to well broken medium cloud. This will prevail in small quantities over the Rhine and south Germany, where there will be local ground haze during the latter part of the night, and mist in valleys. Layer cloud will be present in variable amounts over central and southern France, and in considerable quantities over northern France.

1230 hours. Bases in Operational Groups will be in the warm sector, and will experience considerable cloud. This will generally be based at 1000-1,500 feet, but will occasionally drop below 1,000 feet, especially in East Anglia. All southern bases in 91, 92 and 93 Groups are expected to have low cloud, below 1,000 feet. Over the Frisian Islands, cloud will be based above 1,000 feet, after the warm front has passed through. Over west France, cloud base will be below 1,000 feet north of 46½°N. and a little higher south of this line. Considerable low cloud will be met over the English Channel and north-west France, occasionally based at surface level in fog or drizzle.

1540 hours. No change.

Executive Orders

2. In view of weather conditions, operations were restricted to a small minelaying operation.

Sorties

3. (a) No. of aircraft despatched (Wellingtons 1 Group)	5
(b) " " reporting to have mined Primary Area	2
(c) Abortive (unable to identify target)	3
(d) No. of aircraft missing	0

Weather Encountered

4. Over the Bight area there was 10/10ths layer cloud based at 1,000 feet, with patches as low as 500 feet. Similar conditions prevailed on the route over the North Sea. Visibility was moderate.

Results

5. 5 Wellingtons of 1 Group were detailed to lay mines off the Frisians, but three of these were prevented by the weather from accomplishing their mission. 4 Mines were laid in the target area. All the aircraft returned safely.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 15/16th October, 1942.

Cologne.

Meteorological Advice Submitted to the Command.

1. 0925 hours. It is estimated that at midnight a cold front will lie from 60°N. 20°E. to Berlin to 50½°N. 10°E. to Mannheim to the French coast south of Nantes. Over Germany, convection cloud with breaks is probable in the Hamburg - Kiel - Bremen area; further inland, in the Ruhr - Hanover area, cloud amount should be small. There will be cloud extending to great heights along the cold front, with icing conditions above 5,000 feet. South of the front, the amount of cloud is likely to be variable. There should be no weather troubles at home bases, where visibility is expected to be good, with little cloud.

1240 hours. Conditions at Cologne should be good, with little or no cloud and clear visibility.

Executive Orders.

2. A good clearance of cloud was expected over the lower Rhine, but a very high wind made long distance targets out of range for some aircraft. COLOGNE was chosen as the objective, in view of the fact that this would not involve a very deep penetration of the enemy's defences, nor a slow return journey in the face of a strong headwind. It was also considered desirable to prevent the possible removal of the defences of the city, which had not been attacked since the devastating raid at the end of May, and it was hoped to nullify some of the progress made towards rendering public buildings and utilities serviceable again.

Sorties.

3. (a)	No. of aircraft despatched.....	289
(b)	" " " reporting attack on primary target.....	239 (82.7%)
(c)	" " " " " alternative target... ..	2
(d)	" " abortive sorties.. (technical defect.....21).....	29
	(weather..... 6)	
	(navigational error..... 1)	
	(bombardier's error..... 1)	
(e)	Number of aircraft missing.....	18
(f)	Result not known (aircraft crashed on return).....	1

Plan of Attack.

4. Zero hour: 2045
 Period of attack: 2045-2115

This operation was planned in two main sections.

- Section 1. Pathfinders zero to zero + 10.
- Section 2. Main Force. 1,3,4, and 5 Groups
 + remainder of Pathfinders...zero to zero + 30.

Section 1 In this operation the Pathfinders were to act either as "finders" or "illuminators" of the target. The method of finding was to be by the release of long sticks of flares, at 5 second intervals, in three different directions across the target area, at zero - 1. The primary method of illumination was by short sticks of flares, released at 3 second intervals across the aiming-point, when it had been identified; this was to be done by 7 aircraft at zero hour, by 2 aircraft at zero + 5 and by 2 at zero + 10. As a secondary method of illuminating the target, 3 aircraft were each to drop a pair of 4000 lb. incendiary bombs (giving a pinkish-red flame) about the aiming-point between zero and zero + 5. The distribution of these duties and the bomb-loads of the Pathfinders (Section 1) were to be as follows:-

finders:	9 Stirlings	2 x 3 flares
		.../illuminators

illuminators:	5 Halifaxes	15 x 4 flares
	6 Wellingtons	18 x 3 flares
	3 Halifaxes	2 x 4000 lb. incendiaries.

5. Section 2. The Main Force was to consist of all aircraft from 1,3,4 and Groups, which were taking part in this attack, plus the remainder of the Pathfinders. All aircraft of 3 Group (except Wellington 423's) and all Wellingtons of 1 Group were to carry maximum economical loads of 4 lb. or 30 lb. incendiaries. A few Wellingtons of 4 Group, the remainder of the Pathfinders, and 4 Lancasters of 5 Group were to carry H.E. bombs (Lancasters: 1 x 8000 lb. bomb). The remaining aircraft of Section 2 were to drop mixed loads of H.E. and incendiaries. Aircraft in this section were to be over the target between zero and zero + 30, but were not to bomb until the Pathfinders had illuminated the target. The most experienced crews of each squadron were to lead the attack. Aircraft in this section might carry reconnaissance flares, which were not, however, to be dropped within 50 miles of Cologne. One crew from each Lancaster Squadron and one each from 12, 101, 103, 150 and 301 Squadrons were to reconnoitre the target and report on the measure of success achieved.

See Instructions. Target Co-ordinates: B = 7.48
C = 36.50

6. See aircraft were to approach the target from west to east along the "B" latitude line, and navigators were to be instructed that, in view of the strong following winds forecast on the outward route, they should pay particular attention to D.R. and E.T.A. by constantly checking their ground speeds, by See fixes.

Route Briefed.

7. All Groups: base - Oudorp - COLOGNE - turn right - Maeseyok (51°07'N. 05°47'E) - Leyden - base.

(N.B. For routes taken, see accompanying diagram)

Weather Experienced.

8. Low cloud prevailed over the target, varying from small amounts at first to 8/10ths occasionally. Visibility was good, although there was no moon, but haze was reported. Very variable amounts of medium and low cloud were encountered over the North Sea, the former being based at about 14,000 feet and the latter at 2,000 feet, with tops to 8,000 feet. Icing was experienced in medium cloud in the south-west. Cloud at bases was variable and based above 2,000 feet. Visibility was good.

9. There is considerable photographic evidence about the cloud conditions prevailing over the target area on this night. 27 aircraft have returned photographs with bombing which show cloud mostly in heavy banks, with tops below 12,000 feet. 78 aircraft obtained photographs with ground detail (in some instances partly obscured by cloud) from heights ranging from 9 to 15,000 feet. The photographs from the greater heights are sufficiently clear for plotting but somewhat hazy - they were presumably taken through cloud-breaks. Allowance must be made for the fact that the photographic sample is not a random one, since aircraft presumably sought out gaps in the cloud through which to identify the target and drop their bombs, but the impression gained is that there was less than 5/10ths. cloud. The appearance of the searchlight beams suggests that the haze present was inconsiderable. At ground level there was a slight to moderate westerly wind.

Weight of Bombs Dropped,
(by aircraft reporting attack on primary)

11. H.E.: 222.5 tons (including 3 x 8,000 lb.)
68 x 4,000 lb.
17 x 2,000 lb.
146 x 1,000 lb.

Incendiaries: 296.8 tons.
(including 2 x 4,000 lb.)

.../No. of aircraft

No. of aircraft carrying	H.E. only.....	32
" " "	" H.E. + 4-lb. incendiaries.....	33
" " "	" H.E. + 30-lb. incendiaries.....	30
" " "	" H.E. + (4 + 30)-lb. incendiaries.....	38
" " "	" 4-lb. incendiaries only.....	61
" " "	" 30-lb. incendiaries only.....	12
" " "	" 4-lb. + 30-lb. incendiaries.....	18
" " "	" 4,000 lb. incendiaries only.....	2
" " "	" flares only.....	13

239

RESULTS.Night Photographic Evidence.

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

by ground detail.....	60	concentration south of Knapsack
		within 3 mile circle.....
		between 3 and 5 mile circles.....
		outside 5 mile circle.....
		60

Unplotted photographs (with bombing) that have recorded ground detail (open country)..... 18

The night photographs show that the main weight of the attack was spent on the triangle of country between Liechenich, Knapsack and Sechtem between 7 and 13 miles south-west of the centre of Cologne, the heaviest concentration being near Liechenich. The decoy at Gymnich, in this area, was photographed at 2055 when it was apparently not in action. Within 5 miles of the decoy at Widdig, 7 aircraft have been plotted, of which one obtained a photograph showing the decoy system alight towards the end of the operation. The photographs show many sticks of incendiaries, burning mostly in open country, though there were a few in the southern suburbs of Bonn. Some 50 or more aircraft returned photographs with bombing which show incendiaries alight, but no ground detail. These aircraft will have bombed in the general area under attack, and no doubt if a fire-plot were undertaken the effect of their inclusion would be to reinforce the existing open distribution.

13. Some such sequence as follows may be inferred from the plot of photographs; that in the prevailing weather conditions early aircraft failed to find Cologne, and that bombing became dispersed. Possibly light from flares, or fires reflected from the various sheets of water in the mine-workings south of Knapsack, caused these to act as natural decoys for the Rhine; certainly by 2050, five minutes after zero hour, the main concentration of attack began to build up in this district, later aircraft bombing where incendiaries were seen burning. In this fashion the attack continued for 20 minutes, with individual aircraft bombing at random to the south and west of Cologne outside the main concentration.

Narrative of Attack.

14. Heavy cloud on route, and the enemy's effective jamming of Gee, made navigation difficult, and the Pathfinders were consequently scattered. It is possible that they were misled by lighted decoys, strongly defended by heavy anti-aircraft artillery, in the area south-west of Cologne, and that the major proportion of the main force attacked there. It is impossible to estimate the amount of damage caused; there are in the area attacked a number of open-cut lignite mines and their associated workings, as well as the important power-station at Knapsack which may have suffered damage.

Day Reconnaissance.

15. No photographic reconnaissance has to date been undertaken.

.../Defences.

Defences.

16. No further information was gained concerning the defences of Cologne. More than half the air-photographs plotted at Licoenich and district record searchlights, but less than half show heavy flak, and there is only one instance of light flak. The average recorded intensity of heavy flak was slightly less than on the previous night at Kiel, although a number of crews reported that it was far more intense. In any case the effectiveness of the defences must have been hampered by the cloud, which screened aircraft from searchlights.

Timing of Attack.17. Pathfinders.

No. of aircraft attacking early (1 st)	4
" " " " within planned period	8
" " " " late (0-10 th)	3
	<u>15</u>

Main Force.

No. of aircraft attacking within planned period	221
" " " " late (0-15 th)	3
	<u>224</u>

Other Targets Attacked.

18. Two aircraft bombed alternative targets; one, the built-up area of Bruhl, the other, a flare-path at approximately 51° 28' N. 04° 49' E (in the area of Nassau). No results were observed.

Casualties.

19. (a) No. of aircraft missing	18 (6.2%)
(b) No. of aircraft damaged:-	
flak	27 (9.3%)
fighter	4 (1.4%)
not enemy action	3 (1.0%)
	Total 34 (11.8%)
(c) No. of interceptions:-	
attacks	9 (3.1%)
approaches and followings	30 (10.4%)
	Total 39 (13.5%)

The percentage of missing aircraft, flak damage and fighter damage is somewhat higher than for the previous raid of May 30/31st (1046 sorties). This was to be expected in view of the considerably lower concentration. The outstanding aspect of the later raid is the very much larger proportion of interceptions; the proportion of aircraft reporting attacks is approximately equal to the figure for the earlier raid. This suggests that more of the attacks were successful than usual. Wireless Intelligence indicated that approximately 21 sorties were flown by controlled night fighters and 9 claims to have shot down our aircraft were heard, only one of which can be identified. Six aircraft were seen destroyed over Cologne, but for four of these no cause can be determined. The other 2 were probably due to flak. One aircraft was shot down by controlled fighters (see above) at Schoveningen. 2 aircraft fell victims to flak near the Hague and Antwerp respectively and 2 possibly to fighters at Aachen and Ostend. Losses may therefore be allocated as 4 to flak, 3 to fighters and 11 to causes unknown.

Summary.

20. The course of this attack corresponds closely to the operations against Frankfurt on 8/9th September and against Aachen on 5/6th October. On all three of these raids the main weight of attack built up in an area a dozen or more miles short of the target. This was undoubtedly due to a combination of unfavourable weather conditions, with the misleading effects of incorrectly

.../placed

placed flares and active decoys, which together caused the diversions of effort.

OC/S.26342/5/ORS.

W/BMS
31st December, 1942.

ERRATUM.

NIGHT RAID REPORT NO. 173 (Kiel).

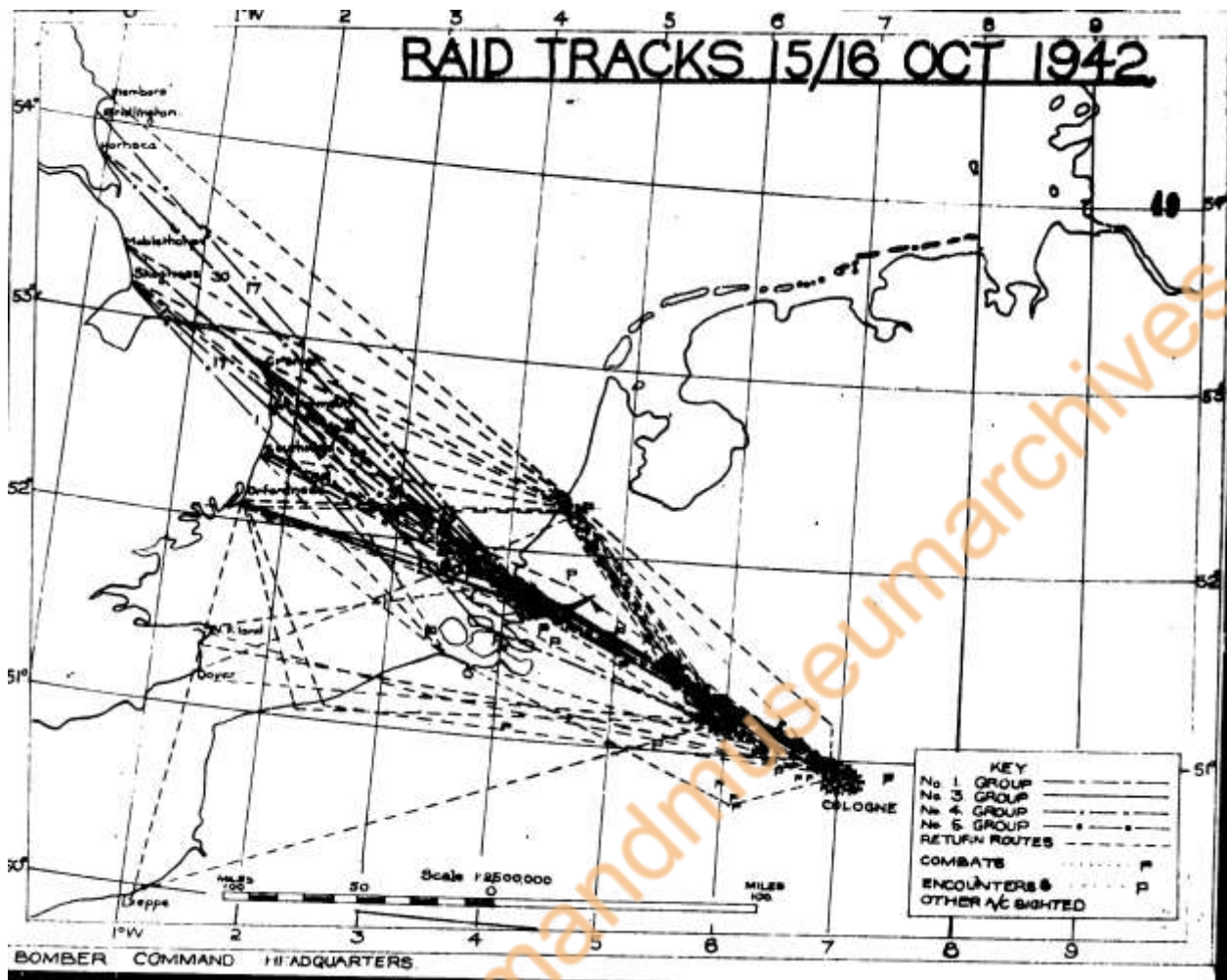
Paragraph 22. Line 17 - for Ross Island read Romo Island.

Target	Group	Type	Sorties	Aircraft claiming attack on		Abortive sorties		Result not known	Missed	Damage			Interceptions	
				primary area	alternative area	over enemy territory	not over enemy territory			Flak	fighter	not E/A	attacked	not attacked
OSLO/SHE:	P.F.F.	Stirling	7	7	-	-	-	-	-	-	-	-	-	-
	P.F.F.	Halifax	9	4	1	3	1	-	2	-	-	1	-	
	P.F.F.	Well.II	1*	1	-	-	-	-	-	-	-	-	-	
	P.F.F.	Well.III	5	3	-	1	-	1	1	-	-	-	-	
	1	Well.II	6*	6	-	-	-	-	-	-	-	-	-	
	1	Well.III	32	27	-	1	1	2	1:1E 1:1C	1:1C 1:1E	-	1	5	
	1	Well.IV	16*	11	-	4	-	1	-	1:1C	-	1	2	
	1	Halifax	11	9	-	-	-	2	1	-	-	-	-	
	3	Well.III	24*	24	-	-	-	-	1	1:1E	-	2	6	
	3	Stirling	37*	30	-	2	3	2	5 1:1C	-	-	-	7	
		Halifax	4*	4	-	-	-	-	1:1C	-	-	-	-	
	4	Halifax	50	39	1	1	6	3	1	-	1:1A	2	6	
	4	Well.III	25	20	-	-	3	2	8	-	1:1C 1:1E	1	1	
	5	Luicester	62	54	-	1	2	5	3	-	-	4	3	
TOTAL			289	239	2	9	20	1	18	23 3:1C 1:1E	2:1C 2:1E	1:1A 1:1C 1:1E	9	30

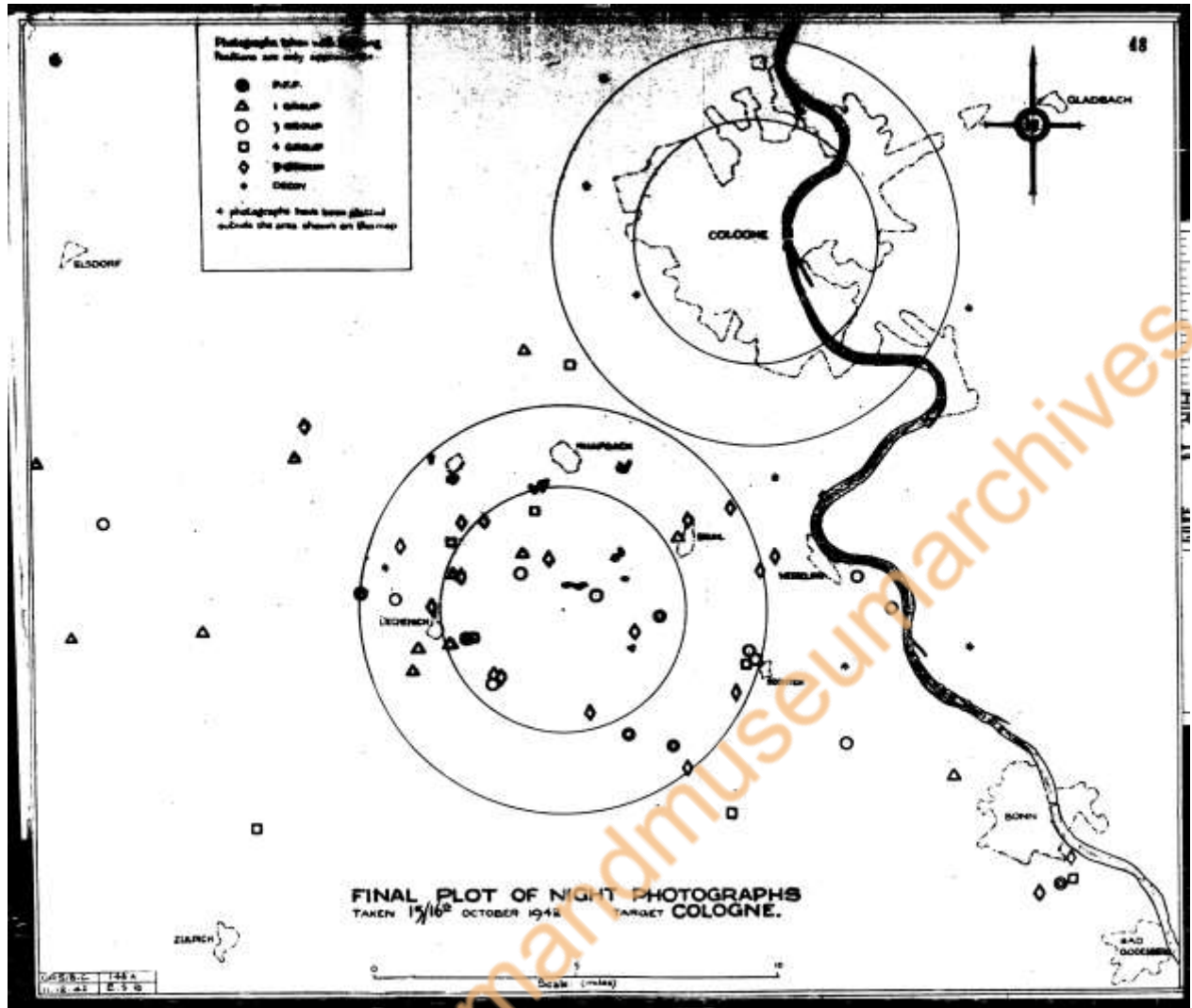
* These 23 a/c were not fitted with Gee.

■ These figures include 2 Wellington III's, 5 Stirlings and 4 Halifaxes (Pathfinders u/s) detailed to attack with the Main Force.

RAID TRACKS 15/16 OCT 1942



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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 16/17th OCTOBER, 1942.

(MINELAYING and LEMPETS)

Meteorological Advice Submitted to the Command

0935 hours. The midnight position of fronts is estimated as follows: (1) occluded front from south-east Scotland to north Holland to 57 N. 15 E. (2) warm front along the west coasts of England and Scotland (3) cold front from the Hebrides to west Ireland. The position of fronts approaching from the Atlantic is uncertain, but bases are unlikely to be affected by initial conditions, at least in the early part of the night, although cloud will not be low much above 1,000 feet. Behind the front over Germany, there will be much convection cloud, slightly broken near the coast and well broken inland. On the south of the frontal belt over Germany, and over central and east France, there will be variable amounts of layer cloud, with some clear areas. A good deal of light cloud is expected over Britain, but further south along the west coast of France it will decrease, and will generally be infrequent except in the extreme south-west, where there will be an increase of layer cloud.

1240 hours. Bases should be free of serious trouble to-night. There will be variable cloud above 1,500 feet, and occasionally where the occlusion is feeble, at 1,000 feet. Visibility will be moderate to good. Over the French coast from Corsica to Spain, small amounts of well broken cloud, base above 1,500 feet, are expected. South of 45°N, there may be rather more cloud, probably as low as 1,000 feet. Visibility should be good in all this area, and also in the Frisians, where cloud base will generally be above 1,500 feet, but may fall to between 600 and 1,000 feet in showers.

1545 hours. No change.

2110 hours. There are variable cloud masses over England, more broken in the south-west and north-east. The occluded front is still progressing south-eastward over Germany.

Executive Orders

A small minelaying operation was ordered, and five aircraft were detailed to drop leaflets on Nantes.

MINELAYINGStatistics

(a) No. of aircraft despatched	34
(b) " " reporting having mined Primary Area	27 (79.4%)
(c) " " " " " Alternative Area	0
(d) Abortive sorties: technical difficulties	1)
inability to identify target	2)
(e) Missing	4

Weather Encountered

Visibility over the Frisians was good, with 5/10ths - 10/10ths cloud base between 1,000 and 1,500 feet, accompanied by showers. Over the Bay of Biscay, cloud 0-5/10ths with base 1,500 feet and tops 2,500 to 3,000 feet, but patches of 1/10ths were encountered at 1,000 feet north of Biscaya. Visibility was moderate.

Results

27 of the 34 aircraft despatched reported having laid 66 mines in primary area, mostly in the Bay of Biscay. Light flash light aircraft was encountered over the island points on the west coast of France, the Ile d'Yeu and the Frisians, and one aircraft sustained fairly considerable damage. A Wellington was attacked at the coast of Morlaix by a seaplane, which failed on meeting resistance.

COPY NO. 16

Bomber Command Report On Night Operations. DATE: 19/12/1942.

MINELAYING

Meteorological Advice Submitted to the Command.

1. 0930 hours. The estimated position at midnight of the frontal systems is : (1) an occluded front from the Shetland Isles to 54½°N. 5°E. to Munich, and (2) a cold front extending from 60°N. 5°W. to the south-west (exact position doubtful). Over Germany, a belt of rain and low cloud will probably occur along the occluded front. To the east of the front convection cloud is likely to be encountered, with a few breaks in the north and good breaks further inland; visibility in this area should be good. On the west side of the front, layer cloud with a few breaks is expected; here, visibility will be moderate. There is likely to be much layer cloud over north France, but only small patches over central and southern France. At home bases conditions will probably be overcast, but cloud base should be above 1,000 feet except in the north, where occasional rain is likely. Visibility will be moderate. Wind velocity at 15,000 feet on routes east of 3°E. will probably be 50 m.p.h.; but it should be less on the routes to west France.

1250 hours. In the early part of the night there is likely to be a belt of occasional rain and low cloud in the region of the Frisians, with severe icing conditions above 5,000 feet. This will move eastwards. Cloud should break and lift towards the Danish coast. Low cloud will probably be met along the west coast of France as far south as 46½°N., but should break south of this point. All bases are likely to be affected by extensive cloud between 1,000 and 1,500 feet, with local patches below 1,000 feet. Bases in 91 and 92 Groups are likely to be unfit, owing to very low cloud.

1550 hours. As regards areas selected for minelaying, there is no change from the advice given at 1250 hours. At home bases, the cloud will be below 1,000 feet locally. Bases should, in general, be just fit for operations, but local diversions are likely to be needed.

Executive Orders.

2. A small minelaying operation was ordered.

Sorties.

3. (a) No. of aircraft despatched..(Stirlings of 3. Group).....7
 (b) No. of aircraft reporting mines laid in primary area.....5
 (c) No. of abortive sorties (technical defect.....1)
 (attacked by flak.....1).....2
 (d) No. of aircraft missing.....0

Weather Experienced.

4. 10/10ths. cloud was encountered over the North Sea, based between 1,000 and 3,000 feet, with local rain. These conditions prevailed over Denmark, but cloud broke to small amounts in the central Baltic, where visibility was good. At home bases, variable cloud prevailed during the early part of the night, but this increased later. Visibility was moderate. The moon was above the horizon and 62% of full.

Results.

5. 7 Stirlings of 3 Group were detailed to lay mines south-east of Bornholm. 6 accomplished their task successfully, 15 mines being laid, but 2 had to jettison their mines, one on account of a technical defect and one to escape from flak ships a few miles west of the target. There were no casualties.

Bomber Command Report on Night Operations 21/22nd October 1942.

MINELAYING

1943

Meteorological Advice Submitted to the Command

1. 0930 hours The estimated midnight positions of fronts are as follows: (1) a warm front from the Orkneys to north Yorkshire to the Isle of Wight to north-west France. (2) an occluded front from 59°N 10°E to the Baltic coast at 15°E, becoming cold from Nurnburg to the Western Alps and warm to 50°N, 16°E. The exact position and nature of the bad weather associated with front (1) are uncertain, but increasing medium and low cloud are to be expected at home bases after dusk, and also over north and north-west France. Over the eastern North Sea, and inland over the plain of north Germany, east of about 7°E, convection cloud is expected with tops above 15,000 feet, and freezing level at 4,000 feet. In the Ruhr, the convection cloud should be very well broken. Only a small amount of cloud is likely in the middle Rhine district, and over east and central France. Wind velocity at 15,000 ft. over east England and the west part of the North Sea will be 60 to 70 m.p.h.

1300 hours. At bases, intermittent light rain is likely from 2100 hours, becoming troublesome by midnight. Broken convection cloud is expected over the North Sea, with freezing level at 4,000 feet, falling to 3,000 feet in the Baltic, towards Stettin. 10/10ths cloud extending to great heights will probably be found over Denmark and the west Baltic, and 8-10/10ths medium cloud, with patches of strato-cumulus below, at Danzig. Large cumulus clouds will prevail over the Frisian Islands.

1600 hours. Light rain is likely to affect bases by 1800 hours, becoming troublesome by 2300. Utsire will probably be in the zone of frontal conditions and will be affected by 10/10ths medium cloud, heavy low cloud and occasional rain. In the Frisian Islands area there will probably be 7-10/10ths cloud at 1,500 feet, and a strong on-shore wind. Those conditions will also prevail in the Dutch-German frontier area where wind velocity at 2,000 feet will be 50-60 m.p.h.

Executive Orders.

2. A small minelaying operation was ordered.

Sorties.

- | | | | |
|----|-----|---|----|
| 3. | (a) | No of aircraft despatched | 14 |
| | (b) | " " " reporting mines laid in primary area | 6 |
| | (c) | " " abortive sorties (recalled owing to weather conditions) | 7 |
| | (d) | " result not known (aircraft crashed on return) | 1 |

Weather Experienced

4. Much cloud prevailed at home bases, with local rain, and visibility was moderate to poor. 8-10/10ths cloud was encountered over the North Sea between 1,000 and 2,000 feet, but this tended to fall below 1,000 feet during rainstorms. Over Denmark and the target area, however, cloud broke to 3-5/10ths and visibility became good. The moon was 95% of full above the horizon.

Results.

5. 7 Wellingtons of 1 Group and 7 Stirlings of 3 Group were detailed for minelaying, the former off Stavanger and the latter off the Frisians. All the Wellingtons were recalled before they reached their target, owing to unfavourable conditions at base, but 6 Stirlings report that they completed their task successfully. 36 mines were laid. The remaining Stirling did not return, but pieces of wreckage and an ordnance map bearing the name of the navigator.....

navigator of this aircraft were picked up off Yarmouth, where the Royal Navy claimed to have shot down a Dornier at 2145 the same night. This aircraft had been seen to cross the coast, but had turned back and was losing height when it fired the wrong colour of the day. In view of the evidence, it appears probable that the aircraft was in distress, and that the captain intended to come down on the sea, rather than risk a forced landing in a built up area.

BC/S 26342/3/ORS.
4th December 1942

BOMBING COMMAND REPORT ON NIGHT OPERATIONS, 22/23rd OCT. 1942.

Genop - Geneva.

Meteorological Advice Submitted to the Command.

1. 0920 hours. The midnight position of fronts is estimated as follows: (1) occluded from 59°N. 16°E. to Denmark, then south-westwards (2) occluded along the Alps (3) occluded from 63°N. 20°W. to 61°N. 12°E., becoming warm to the west coast of Denmark to 50°N. 0°E. and cold to north England and south-west Ireland. At high levels, cloud will break and lift behind the cold front; on the south side of the front there will be much low cloud, with patches below 1,000 feet and occasional rain. Considerable amounts of medium and low cloud will prevail over Germany, with showers near the warm front. Very low cloud with drizzle is expected over Brittany, but cloud should stay above 1,000 feet over the remainder of north France, while further south there will be well broken layer cloud.

1300 hours. The question of bases depends on the position of the cold front, which cannot as yet be reliably estimated. It will probably pass through Yorkshire and Lincolnshire some time before midnight. South of this front there will be low cloud with cirrus based at 1,000 feet, but this should lift and possibly clear north of the front. Low cloud and rain are anticipated over Utsire, the Frisians, and the French coast from Brest to Nantes, but conditions may improve slightly south of St. Police. The Alps will be cloud-covered, but a good clearance is expected to the south, and over northern Italy both high and medium cloud should be well broken. A 50 m.p.h. north-westerly wind will be encountered at 15,000 feet on the route to Italy.

1610 hours. The cold front is expected to reach Lincolnshire by 1900 hours, after which it will move slowly. Conditions at bases after midnight are uncertain, but cloud should not fall below 1,000 feet, except locally. Low cloud is forecast over west Norway, although this may lift to 1,000 feet in the second half of the night. Over the Frisians, cloud will be based at 1,000 feet or lower, but conditions should be suitable for mining south of St. Police. No change is expected on the Genop route, except that wind velocity is unlikely to average more than 50 m.p.h.

Plan of Attack:

2. The target for tonight is GENOP. All available aircraft of 5 Group will go. Zero hour will be at 2112 hours; the period of attack will close at 2127. From zero to zero + 5, the target will be illuminated by 8 Lancasters of the Pathfinders, each dropping a stack of flares, released at 3-second intervals, across the aiming-point (the old city centre). All aircraft attacking in this section shall arrive five minutes before zero hour to allow a safety margin, if necessary waiting at the east between Varese and Genop. Each will carry 3 x 1000 lb. G.P. bombs and 11 x 4 flares. The main force, including three unqualified Pathfinders, will attack between zero + 3 and zero + 15. All aircraft in this section will carry mixed loads of 500 and 4 lb. incendiaries, except 14; 6 of these will take 4 lb. incendiaries only, and each of the remaining 8 one 4,000-lb. H.C. bomb. Aircraft of each squadron will bomb from different heights, to be arranged by station and squadron commanders before take-off.

3. Instructions.

a. The southern chain will operate from 1800 hours. Flares will cover the town for a few minutes while the change from the eastern chain is being effected.

4. Briefed.

a. (also accompanying dispatch)

- Pathfinders: Base - Working - Varese - GENOP - Reading - Vico.
- Main Force: Base - Selsey Hill - 45°N. 01°00'W. - Savona - GENOP - Reading - Vico.

Sorties.

5.	(a)	No. of aircraft despatched.....	112
	(b)	" " " reporting attack on primary area.....	100(89.3)
	(c)	" " " " alternative area.....	1
	(d)	" " abortive sorties (technical defect: 11).....	11
	(e)	" " aircraft missing.....	0

Weather Experienced.

6. At home bases, patches of low cloud prevailed with drizzle. A belt of low cloud and rain moved south during the night, reaching 52° N. by dawn. Cloud lifted and broke meanwhile in the north, visibility becoming good; in the south, it remained moderate to poor. En route to Genoa, north of the Alps, 10/10ths cloud was encountered in layers. Tops were reported as 3,000 feet over south England, and 5-6,000 over France. This broke south of the Alps, and the target was free of cloud, with good visibility. Wind velocity over France at 10-15,000 feet was 40 m.p.h. from 290; there is only one report of wind over Genoa, which states that at 16,000 feet from 350° the velocity was 35 m.p.h., while there seems also to have been north-north-easterly surface wind of 5 m.p.h. The moon was above the horizon and 99% of full.

Weight of Bombs Dropped, (by aircraft reporting attack on primary area).

7.	H.E. 87.9 tons, including (4x4,000 lb.)	Incidaries: 89.2 tons.
	(3x2,000 lb.)	
	(175x1,000 lb.)	

No. of aircraft carrying H.E. + 4 lb. incendiaries.....	78
" " " " H.E. + flares (Pathfinders).....	8
" " " " H.E. only.....	8
" " " " 4 lb. incendiaries only.....	6

100.

Night Photographic Evidence.

8. Photographs taken with bombing (see diagram attached):

(a)	Plotted by ground detail (within 3 miles.....63)	66
	(outside 3 miles..... 3)	
(b)	Unplotted (showing ground detail, probably suburbs of Genoa.....3)	
	(showing ground detail, open country.....2)	
	(with no ground detail, but with fire-tracks that might be plotted.....13)	16

Under very clear conditions, extensive photographic cover of the target was obtained. The evidence suggests that about 90% of the aircraft reporting attack bombed within 3 miles of the centre of Genoa, a notably high figure which has hardly ever been exceeded. The main concentration seems to have been round the main point, the harbour and the eastern part of the town, but a considerable part of the effort fell on the northern suburbs. Sticks of incendiaries were photographed in many places throughout the built-up area of the town, especially east of the harbour, and it is therefore likely that many of the 13 aircraft which obtained photographs showing sticks of incendiaries only (without ground detail) bombed elsewhere in the area under attack.

Narrative of Attack.

9. 8 Lancasters of the Pathfinders and 104 Lancasters of 5 Group set out to bomb Genoa, and all, except 12 of the main force, succeeded in reaching the target. There was no cloud, and the moon was nearly full. The Pathfinders were prompt and accurate, their flares being visible for 60 miles; scanty opposition was experienced, and in these excellent conditions the raid appears to have been of almost unprecedented concentration. One pilot described it as "a miniature Coler". Large fires were reported all over the town, especially in the harbour area, the identification of which was assisted by large white lights which flickered.....intensely

stantly throughout the attack. There was some attempt to form a smoke but this was blown out to sea. The Italian communique admitted considerable but asserted that this was mostly caused to civilian property, and that 2 were shot down. In fact, there is no doubt that industrial buildings were destroyed, and none of our aircraft was lost.

Annals.

No P.R.U. cover for this operation was carried out a fortnight later, and the damage caused on the following night; but as the latter raid was largely directed to Svoona and Turin, it may be assumed that most of the destruction was on the night under consideration. 77 acres in the target area are shown to have been devastated, almost entirely by fire; there is little evidence of damage. The Ansaldo works and the western part of the docks were untouched, but the eastern docks suffered heavily, and many important industrial buildings were destroyed. These include the Ansaldo fitting-yards, 4 very large docks, the East Railway Station, as well as the Commercial School and the factory of G. Paganini, while the Telegraph and Government Offices, the Institute of Science, the Biological University, the Assize Court and the Dock Station were severely damaged.

Time of Attack

Time of Attack

No. of aircraft attacking early (1").....	1
" " " " within planned period.....	6
" " " " late (1").....	1

8

Time of Attack

No. of aircraft attacking within planned period.....	17
" " " " late (0-10").....	36
" " " " late (10-50").....	39
	92

Defences

Reports reported 15-20 heavy guns sited in and round the town, and approximately 100 light guns in the dock area. The fire from all calibres was extremely intense and no co-ordinated method of gun control appears to have existed. Searchlights, probably 60 or more, were observed.

Photographic evidence of defences showed no searchlights in the target area. Flak was shown to be mainly limited to single gun discharges. Roughly 100 or 61 aircraft plotted within 3 miles of the aiming-point recorded heavy and one-sixth light flak. Only one aircraft (unplotted) showed a 4-gun

Performance

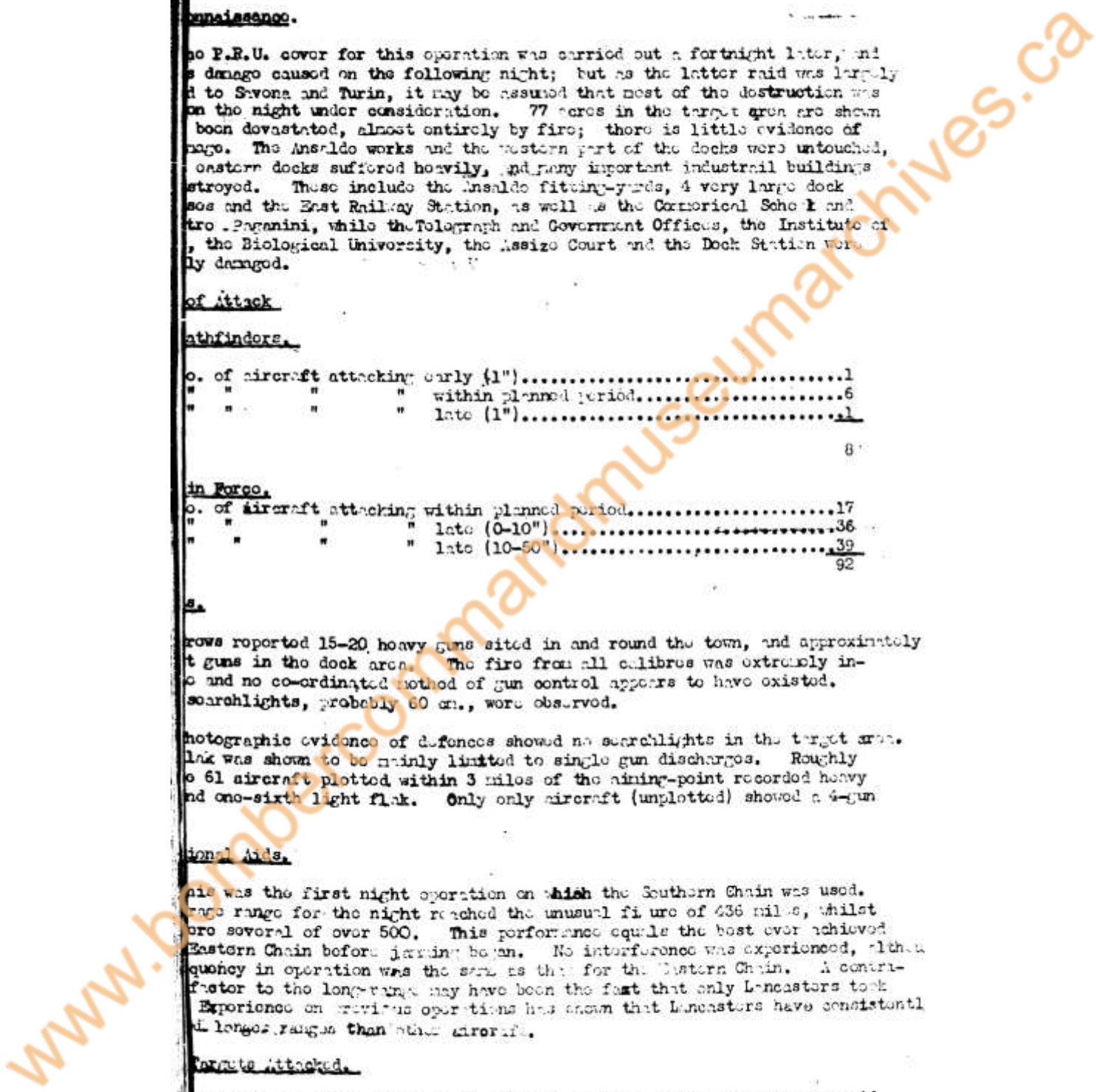
This was the first night operation on which the Southern Chain was used. The range for the night reached the unusual figure of 436 miles, whilst there were several of over 500. This performance equals the best ever achieved on the Eastern Chain before jamming began. No interference was experienced, although the frequency in operation was the same as that for the Eastern Chain. A contributing factor to the long-range may have been the fact that only Lancasters took part. Experience on previous operations has shown that Lancasters have consistently achieved longer ranges than other aircraft.

Targets Attacked

No aircraft, which crossed the Alps too late to participate in the main raid on Turin. The Italian communique admitted that 4 fires were started here, but they claim were promptly brought under control.

Losses

No losses were sustained on this operation, and the only damage resulted



Sorties.

- 5. (a) No. of aircraft despatched.....
- (b) " " " reporting attack on primary area.....
- (c) " " " " alternative area.....
- (d) " " abortive sorties (technical defect: 11).....
- (e) " " aircraft missing.....

Weather Experienced.

6. At home bases, patches of low cloud prevailed with drizzle. A belt cloud and rain moved south during the night, reaching 52° N. by dawn. It lifted and broke meanwhile in the north, visibility becoming good; in the south it remained moderate to poor. En route to Genoa, north of the Alps, low cloud was encountered in layers. Tops were reported as 3,000 feet over England, and 5-6,000 over France. This broke south of the Alps, and the sky was free of cloud, with good visibility. Wind velocity over France at 10,000 feet was 40 m.p.h. from 290; there is only one report of wind over Genoa which states that at 16,000 feet from 350° the velocity was 35 m.p.h., while there is also to have been north-north-easterly surface wind of 5 m.p.h. The moon was 99% of full.

Weight of Bombs Dropped. (by aircraft reporting attack on primary area).

7. H.E. 87.3 tons, including (4x4,000 lb.) Incendiaries: 89.2 tons
 (3x2,000 lb.)
 (175x1,000 lb.)

No. of aircraft carrying:	H.E. + 4 lb. incendiaries.....
" " " "	H.E. + flares (Pathfinders).....
" " " "	H.E. only.....
" " " "	4 lb. incendiaries only.....

Night Photographic Evidence.

- 8. Photographs taken with bombing (see diagram attached:)
- (a) Plotted by ground detail (within 3 miles.....63).....
- (outside 3 miles..... 3)
- (b) Unplotted (showing ground detail, probably suburbs of Genoa.....3)
- (showing ground detail, open country.....2)
- (with no ground detail, but with fire-tracks that might be plotted.....13).....

Under very clear conditions, extensive photographic cover of the town was obtained. The evidence suggests that about 90% of the aircraft reporting attack bombed within 3 miles of the centre of Genoa, a notably high figure which hardly ever been exceeded. The main concentration seems to have been on the eastern part of the town, the harbour and the eastern part of the town, but a considerable part of the effort fell on the northern suburbs. Sticks of incendiaries were photographed in many places throughout the built-up area of the town, especially east of the harbour, and it is therefore likely that many of the 13 aircraft which obtained photographs showing sticks of incendiaries only (without ground detail) bombed elsewhere in the area under attack.

Narrative of Attack.

9. 3 Lancasters of the Pathfinders and 100 Lancasters of 5 Group set out for Genoa, and all, except 12 of the main force, succeeded in reaching the target. There was no cloud, and the moon was nearly full. The Pathfinders were accurate, their flares being visible for 60 miles; heavy opposition was experienced, and in these excellent conditions the raid seems to have been almost unprecedented concentration. One pilot described it as "a Miniatur Colonn". Large fires were reported all over the town, especially in the north, the identification of which was assisted by 2 large white lights which were seen at intervals.....

intermittently throughout the attack. There was some attempt to form a smoke screen, but this was blown out to sea. The Italian communique admitted considerable damage, but asserted that this was mostly caused to civilian property, and that 2 aircraft were shot down. In fact, there is no doubt that industrial buildings suffered heavily, and none of our aircraft was lost.

Day Reconnaissance.

10. The P.R.U. cover for this operation was carried out a fortnight later, and includes damage caused on the following night; but as the latter raid was largely diverted to Savona and Turin, it may be assumed that most of the destruction was caused on the night under consideration. 77 acres in the target area are shown to have been devastated, almost entirely by fire; there is little evidence of H.E. damage. The Ansaldo works and the western part of the docks were untouched, but the eastern docks suffered heavily, and many important industrial buildings were destroyed. These include the Ansaldo fitting-yards, 4 very large dock warehouses and the East Railway Station, as well as the Commercial School and the Teatro Paganini, while the Telegraph and Government Offices, the Institute of Science, the Biological University, the Assize Court and the Dock Station were seriously damaged.

Maining of Attack

11. Pathfinders.

No. of aircraft attacking early (1").....	1
" " " " within planned period.....	6
" " " " late (1").....	1
	8

Main Force.

No. of aircraft attacking within planned period.....	17
" " " " late (0-10').....	36
" " " " late (10-30').....	39
	92

Defences.

12. Crows reported 15-20 heavy guns sited in and round the town, and approximately 50 light guns in the dock area. The fire from all calibres was extremely inaccurate and no co-ordinated method of gun control appears to have existed. Only 6 searchlights, probably 60 cm., were observed.

13. Photographic evidence of defences showed no searchlights in the target area. Heavy flak was shown to be mainly limited to single gun discharges. Roughly half the 61 aircraft plotted within 3 miles of the aiming-point recorded heavy flak, and one-sixth light flak. Only one aircraft (unplotted) showed a 4-gun salvo.

Navigation Aids.

14. This was the first night operation on which the Southern Chain was used. The average range for the night reached the unusual figure of 436 miles, whilst there were several of over 500. This performance equals the best ever achieved in the Eastern Chain before jamming began. No interference was experienced, although the frequency in operation was the same as that for the Eastern Chain. A contributory factor to the long range may have been the fact that only Lancasters took part. Experience on previous operations has shown that Lancasters have consistently obtained longer ranges than other aircraft.

Other Targets Attacked.

15. One aircraft, which crossed the Alps too late to partake in the main raid bombed Turin. The Italian communique admitted that 4 fires were started here, which they claim were promptly brought under control.

Casualties.

16. No losses were sustained on this operation, and the only direct result:

from an aircraft overshooting the aerodrome on landing. The lack of casualties may have been due mainly to the unexpectedness of an attack on an Italian target.

Summary.

17. This operation, the first heavy attack to be carried out against an Italian target, achieved great success under perfect bombing conditions. Serious damage was caused to industrial and public works, and large areas of the town were devastated by fire. There were no losses and no damage was sustained from our own action.

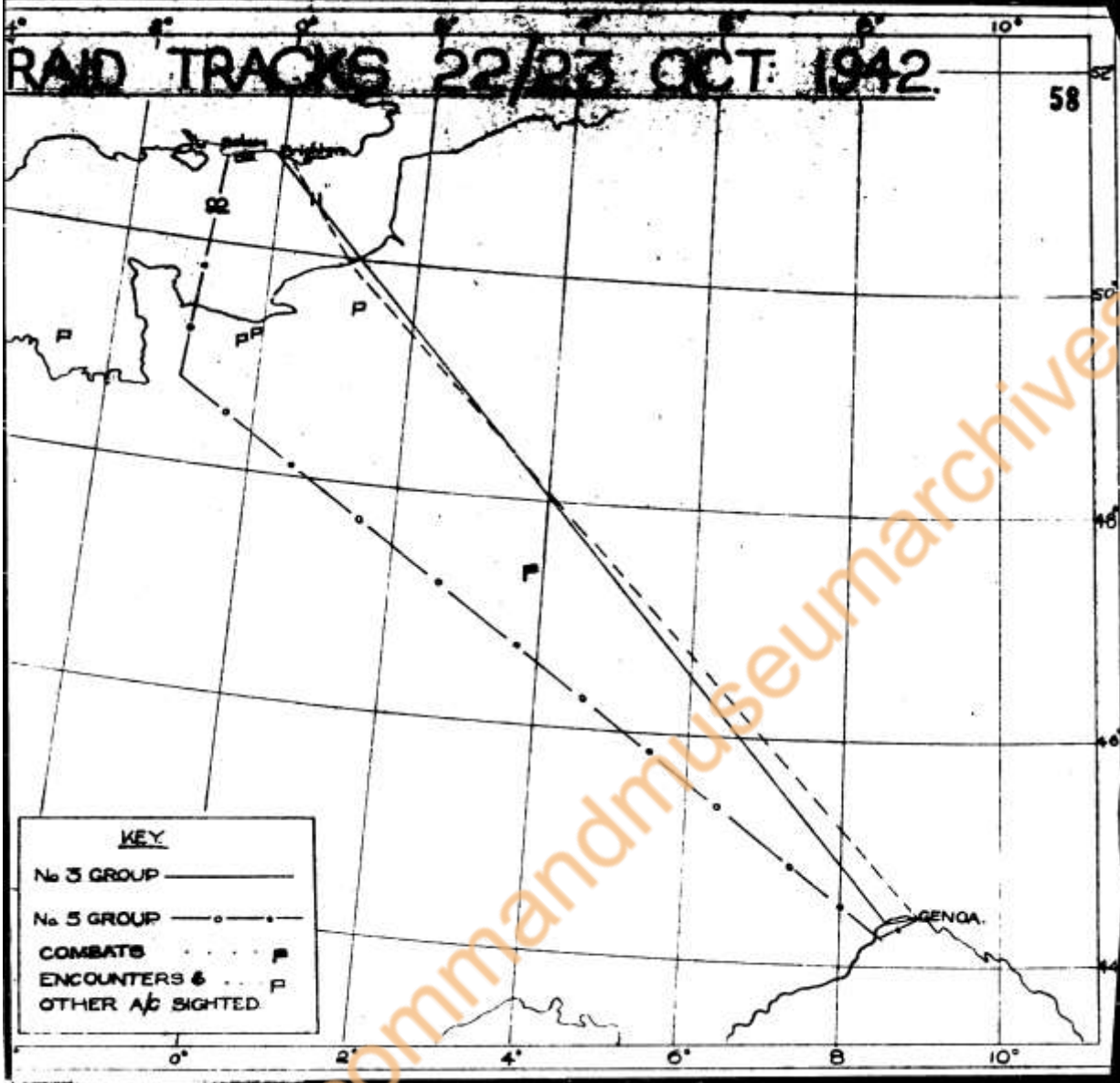
MINELAYING

18. 12 Stirlings of 3 Group were despatched to lay mines in the areas of the Gironde estuary, Bayonne, and St. Jean de Luz. 11 of these accomplished their task successfully and 38 mines were laid, including 20 in the first named area. The remaining aircraft was attacked by a fighter shortly after its rear turret had been reported unserviceable, and jettisoned its bombs for safety. Otherwise the operation was without incident.

BC/S.26342/6/ORS.

4th January 1943.

Target	Group	Type	Squadron	Aircraft reported attack on		Over enemy territory	Squadron	Not over enemy territory	Missing	Mines laid in primary area	Casualties/ damage by			Interception	
				primary area	alternative area						Fleet	Fighter	Not Primary action	Attacked	Not attacked
GENOA	R.F.P. I.R.P. (w/t) 6	Lancaster	8	8	-	-	-	-	-	-	-	-	-	-	-
		Lancaster	3	3	-	-	-	-	-	-	-	-	-	-	-
		Lancaster	101	89	1	5	6	-	-	-	-	1E.	-	2	
BOBING TOTAL			112	100	1	5	6	-	-	-	-	1E.	-	2	
<u>MINELAYING</u>															
St. Jean de Luz	3	Stirling	2	2	-	-	-	-	6	-	-	-	-	-	-
Gironde Estuary	3	Stirling	6	5	-	-	-	-	20	-	-	-	-	-	1
Bayonne	3	Stirling	4	4	-	-	-	-	12	-	-	-	-	-	-
MINELAYING TOTAL			12	11	-	-	1	-	38	-	-	-	-	-	-
TOTAL			124	111	1	5	7	-	38	-	-	1E.	-	3	



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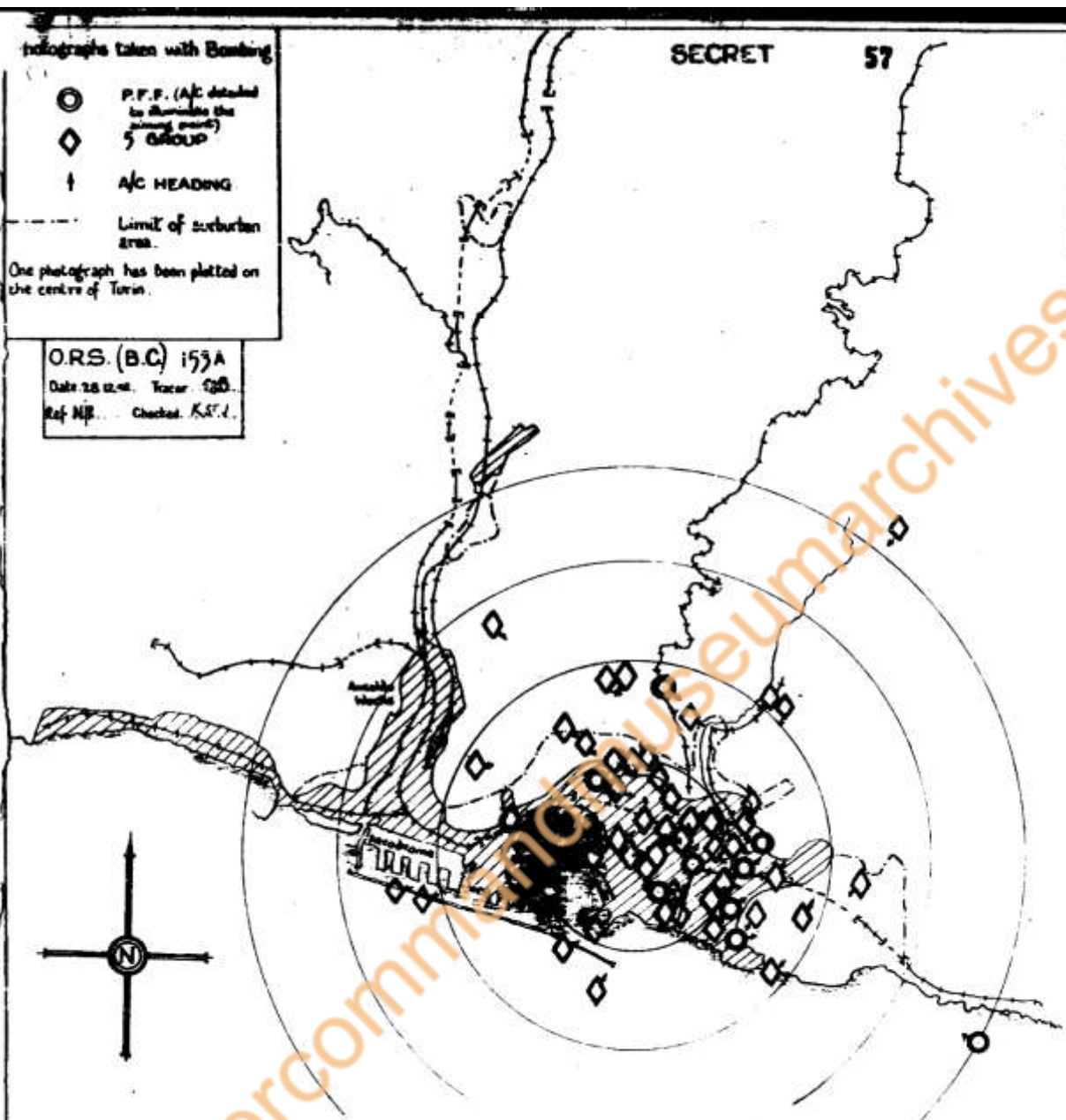
Photographs taken with Bombing

- P.F.P. (A/C detailed to illuminate the aiming point)
- ◇ 5 GROUP
- ↑ A/C HEADING

Limit of suburban area.

One photograph has been plotted on the centre of Turin.

ORS. (B.C.) 153A
 Date 28 Oct. Tracer 120
 Ref NIP Checked K.S.I.



FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 22/23rd OCTOBER 1942 TARGET GENOA
 Scale: 1 inch = 1 mile

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 23/24th OCTOBER, 1942. 5/2.

Genoa - minelaying.

8 FEB 1943

Meteorological Advice Submitted to the Command.

1. 0920 hours. It is estimated that at midnight there will be an occluded front from $61^{\circ}\text{N.}16^{\circ}\text{E.}$ to $57^{\circ}\text{N.}15^{\circ}\text{E.}$, becoming warm to $50^{\circ}\text{N.}15^{\circ}\text{E.}$ to the eastern Alps, and cold to Copenhagen to Hamburg to East Anglia to the western Channel, with a wave off the coast of Norfolk. At home bases, low cloud will be accompanied by rain along the front and to the south, and although behind the front cloud will be well broken, visibility will be moderate generally, and locally poor. The same conditions will prevail over north and central Germany. There will be much cloud over the Alps, but well broken layer cloud over the Plain of Lombardy. Cloud will be low over the north coast of France and down the Bay of Biscay to La Pallice; further south, and everywhere inland, there will be broken layer cloud.

1300 hours. Bases will experience local difficulties for taking off in daylight, but should be fit for return. There will be much layer cloud on the route to Italy, breaking to small amounts of medium cloud south of the Alps. Cloud will be below 1,000 feet over the west coast of France north of Nantes, but will lift and disperse to the south.

1615 hours. Low cloud and drizzle will cause take-off difficulties, except in the north of 4 Group. Bases south of a line from Yarmouth to Bristol will experience 10/10ths cloud below 1000 feet, with showers or drizzle for return at 0200-0400 hours, but conditions should be better northwards. The following wind velocities are forecast for the Genoa route: from base to 49°N. , 65-70 m.p.h. from 270° : from 49°N. to 47°N. , 50 m.p.h. from 290° : from 47°N. to 45°N. , 25 m.p.h. from 310° : from 45°N. to Genoa, 40 m.p.h. from 04° . At 15,000 feet there will be an average increase of 5 m.p.h.

Plan of Attack.

2. The target for tonight is GENOA. All heavy aircraft of 3 and 4 Groups with rested crews available will go, together with Pathfinders. Zero hour will be at 2200 hours and the period of attack will end at 2230 hours. The target will be illuminated at zero hour by 9 Stirlings of the Pathfinders, and again by 9 Halifaxes* at zero + 10, each aircraft dropping 2 short sticks of flares (at 3-second intervals) across the aiming-point. No coloured flares or markers will be used. Pathfinders and all aircraft of 3 Group will concentrate on the old city centre, while Halifaxes of 4 Group will attack the railway fork about half a mile north of the aerodrome from above 10,000 feet. Bomb loads will be as follows:-

Pathfinders: all except 4 aircraft.....flares + H.E.
4 aircraft.....4 lb. incendiaries only.

Main Force: two-thirds.....incendiaries only (mixed).
one-third.....H.E. only.

*In fact, no Halifaxes were included in the Pathfinder Force, which consisted of 13 Stirlings.

Navigation Instructions.

3. At 1800 hours the Southern Chain will replace the Eastern Chain. On return, pilots are advised to keep low after crossing the Alps, in order to escape the strong upper winds which have been forecast; this will also minimise the danger from enemy fighters if no cloud cover is available. From this point of view the Sarno estuary should particularly be avoided.

Route Briefed.

4. All Groups: Base - Bradwell Bay - Dungeness - La Troport - Vrazzo - GENOA - same return.

Sorties.

5. (a) No. of aircraft despatched.....122.
(b) " " reporting attack on primary area..... 95 (77.9%)
(c) " " " " alternative area..... 10
(d) " abortive sorties:
(technical defect.....12)

/(flak...

Timing of Attack.

11. Pathfinders (zero hour : 2200)

No. of aircraft reporting to have attacked 5-20" late.....	2
" " " " " " " " 20-35" late.....	5
	<u>7</u>

Main Force (planned period of attack : 2203-2230)

No. of aircraft reporting to have attacked 11-0" early.....	2
" " " " " " " " within planned period 63(71.5%)	
" " " " " " " " 0-10" late.....	20
" " " " " " " " more than 10" late..	3
	<u>88</u>

Defences.

12. No fresh information was obtained concerning the defences of Genoa. Heavy A.A. fire was encountered from Savona, Turin, Alessandria and Nosta, and light A.A. fire from Savona and Rapallo. None of the 11 aircraft plotted at Savona recorded heavy flak, however, while only one showed searchlights and light flak. The Swiss are reported to have indulged in a little anti-aircraft practice at Lausanne, Geneva, Montreux and Mouchy, and the unoccupied French at Lyons and Macon.

Navigational Aids.

15. The average range was 425 miles, a figure almost equal to that of the previous night when only aircraft of 5 Group took part. Phenomenal maximum ranges were achieved and propagation conditions must have been exceptional. No interference was experienced save a slight multiplication of pulses around Paris. The reason for this is unknown.

Other Targets Attacked.

14. 5 aircraft unable to identify Genoa report having bombed Savona, which most other crews appear to have mistaken for the target. Very considerable fires were seen here. 4 aircraft claim to have bombed Turin, where several fires were started, while another is believed to have attacked Asti.

Summary.

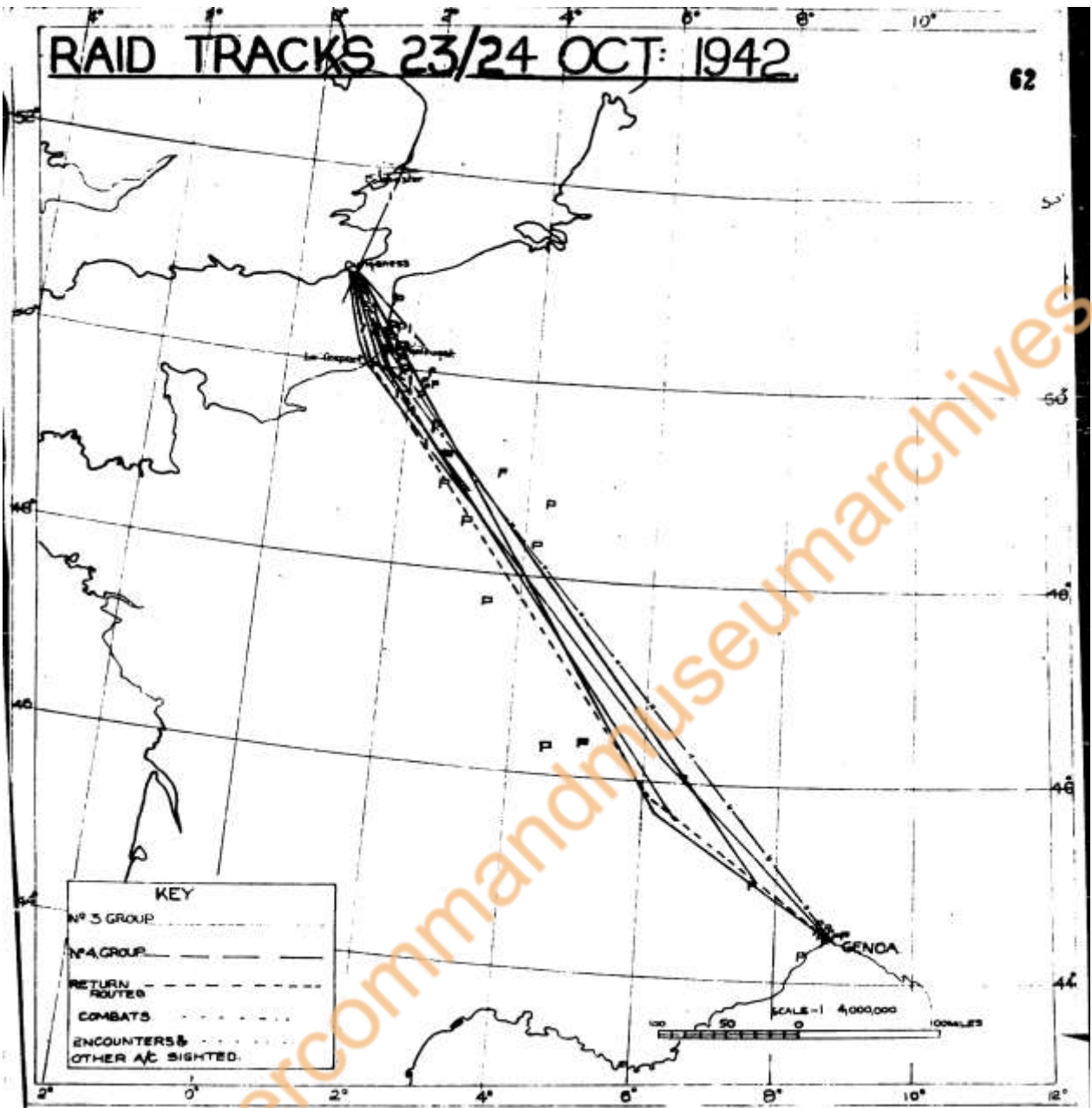
15. Heavy cloud in the Genoa area made it impossible for many aircraft to find the aiming point, and an appreciable part of the weight of the attack fell on the neighbouring part of Savona, which suffered considerable though scattered damage. Some destruction was also caused at Genoa and Turin. 3 aircraft (2,5,6) failed to return.

MINELAYING.

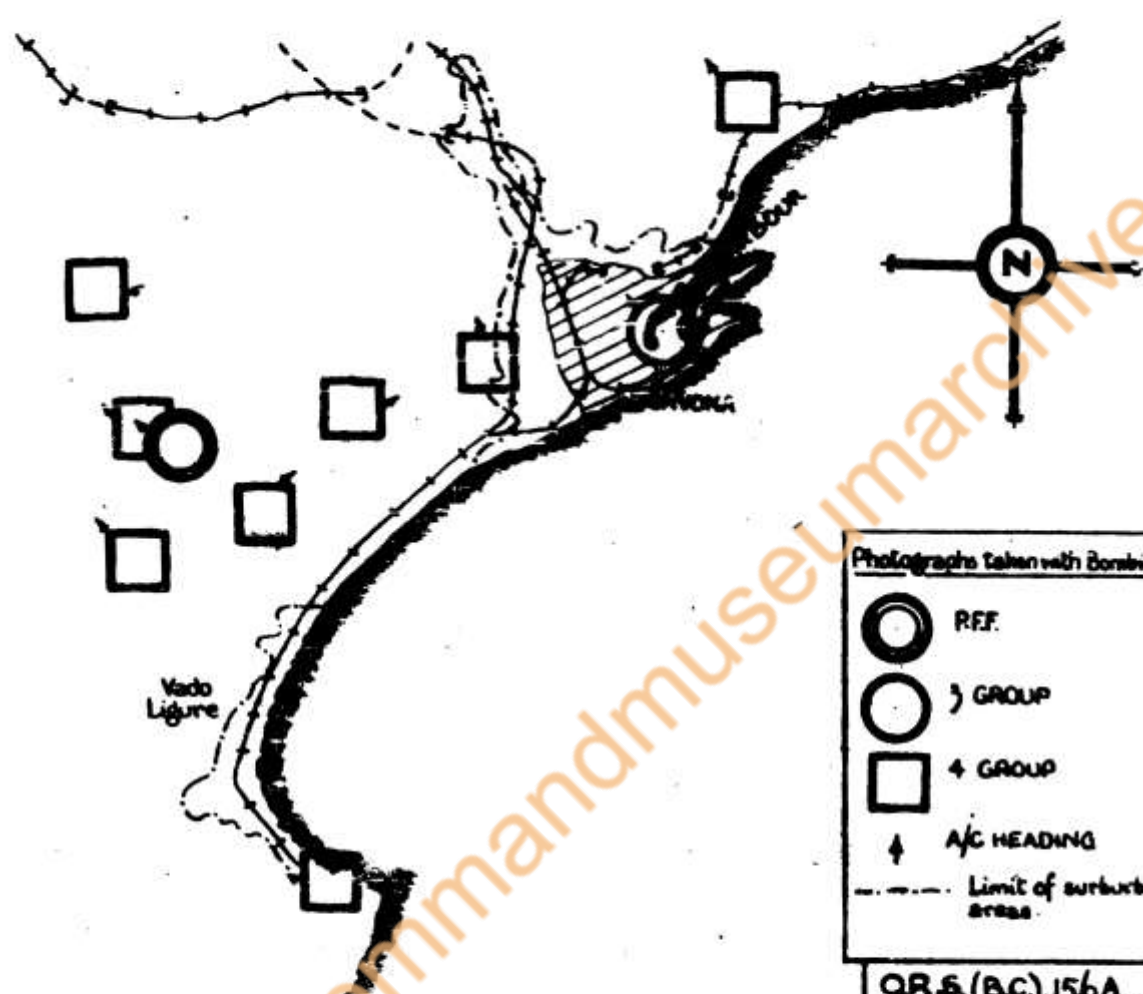
16. 17 Wellingtons of 1 Group were detailed for minelaying, 10 off La Pallice and 7 off Stavanger. 8 aircraft report having reached the former and 6 the latter area, laying 16 and 12 mines respectively. One aircraft failed to return from Stavanger. It was reported to have been shot down by light flak or machine-gun fire off Haugesund.

33/S.26342/4/ORS.
4th January, 1943.
MLM/VP.

RAID TRACKS 23/24 OCT: 1942



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FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 23/24th OCTOBER 1942. TARGET GENOA
 CONCENTRATION SAVONA

Scale: 1inch = 1mile.

Photographs Taken with Bombing

- REF.
- 3 GROUP
- 4 GROUP
- ↑ A/C HEADING
- Limit of suburban areas

QR.5 (B.C.) 156A...
 Date 5.1.43. Tracer... E.S.B.
 Ref. 101 n/e. Chkd. K.S.F.J.

www.bombercommandmuseumarchives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 24/25th OCTOBER, 1942.

(MILAN - Mine-laying - Leaflets.)

63

Meteorological Advice Submitted to the Command.

1. 0920 hours. It is estimated that at midnight there will be a cold front from 55°N. 22½°E. to 54°N. 18°E., becoming warm to a wave tip at 55°N. 14½°E., then cold to 50°N. 7½°E. to 45°N. 5°W. At home bases visibility will be good, with variable cloud. Over north France and north Germany, behind the cold front, there will be broken convection cloud with good visibility; possibly showers over north west France. South of this front there will be much cloud at various levels, becoming broken layer cloud over south Germany and south France. Over the plain of Lombardy, there will be little cloud.

1250 hours. Weather at bases will be good, apart from isolated showers. In the cold front over France solid cloud is expected up to 15,000 feet, with icing difficulties above 7,000 feet and strong upper winds. The following winds are forecast for the Milan route:

(a) at 10,000 feet. Base to Alps, 60 m.p.h. from 270°, increasing near the front to 80 m.p.h. South of Alps, 30 m.p.h. from 260°.

(b) at 15,000 feet. Base to Alps, 70 m.p.h. from 260°, increasing near the front to 100 m.p.h. South of Alps, 35 m.p.h. from 260°.

Along the west coast of France, north of Nantes, there will be well broken convection cloud, based at 1,500 feet; south of Nantes, much low cloud is expected.

1545 hours. Small amounts of cloud are likely at Milan, and these may clear; but local smoke haze is expected. Along the west coast of France, the cold front should have advanced sufficiently to give breaks at La Pallice and northwards.

Plan of Attack.

2. The target for to-night is MILAN, already raided this afternoon by 5 Group. All available long-range aircraft will go. Zero hour will be at 2215 hours. The period of attack will end at 2235 hours. The Pathfinders will operate from zero to zero + 10 mins., and the Main Force, comprising aircraft from 1, 3 and 4 Groups, together with 9 Pathfinders under training, from zero + 2 to zero + 20 minutes.

3. Fires started this afternoon should facilitate the location of the target, which is to be marked by straightforward illumination of the aiming-point (the city centre). When this has been positively identified, 9 Stirlings will, at zero hour, straddle it with two short sticks (3 flares each (3 seconds between each flare)). 6 Halifaxes will do likewise at zero + 10. These aircraft will also mark the final turning point, the southern tip of Lake Maggiore, with bundles of 2 white and 1 green flares, so that a timed run may thence be made to the target. Their loads will be completed with G.P. bombs of 1,000, 500 or 250 lb. calibre. The bomb loads of the Main Force will be as follows:-

- 1 Group (all aircraft) H.E. & 4lb. incendiaries.
- 3 Group (two-thirds) 30 lb. and/or 4lb. incendiaries
- (one-third) H.E. only
- 4 Group (all aircraft) H.E., 4lb. and 30lb. incendiaries

4. In view of the forecast of very strong winds at high altitudes, crews are advised to fly the first half of the outward journey and the second half of the return journey below 3000 ft., climbing only to clear the Alps. The Somo estuary is to be avoided. Special reconnaissance of the target will be made by one aircraft from each of the following squadrons: 103, 142 and 300.

See Instructions

5. Navigators should exercise care when using the Southern Chain in the "ambiguous" areas, i.e. with "B" readings in south-east England and "C" readings in East Anglia. They should take consecutive readings, and note whether the "B" or "C" readings are increasing or decreasing in value. Gee fixes may be expected up to 500 miles from Daventry.

Route Briefed.

6. The following route was briefed to all Groups (see also accompanying diagram):-

base - Bradwell Bay - Dungeness - Le Treport - 45° 56'N. 08° 30' E. - 45° 44'N. 08° 35'E. (southern tip of Lake Maggiore) - MILAN - Le Treport - Dungeness - Bradwell Bay - base.

.../Sorties.

Sorties.

7.	(a)	No. of aircraft despatched.....	71
	(b)	" " " reporting attack on primary area.....	39
	(c)	" " " " " alternative area.....	4
	(d)	" " abortive sorties:-	
		(technical defect.....)	13
		(unable to identify target.....)	1
		(icing.....)	7
		(attacked by fighters.....)	1
	(e)	" " aircraft missing.....	22
			6

Weather Experienced.

8. Over the target there was 9-10/10ths. layer cloud, base 5,000 feet and top 12,000 feet. Beneath this, visibility was good. The moon was above the horizon and 99% of full. En route, 5-8/10ths. convection was encountered over the Channel up to 11,000 feet. This cleared inland, but from 49°N. to 48°N. frontal conditions prevailed with solid cloud and rain. Over the Alps, cloud extended upwards to 17,000 feet. Frontal conditions again prevailed between 47°N. and 48°N. on the return journey. At bases, rainfall intermittently before dusk, when extensive clearances inland resulted in clear visibility.

Weight of Bombs Dropped.

(by aircraft reporting attack on primary target)

9. H.E.: 28.6 tons.

Incoendiaries: 21.1 tons.

No. of aircraft carrying H.E. only.....	2.
No. of aircraft carrying H.E. + 4lb. incendiaries.....	10
No. of aircraft carrying H.E. + 30 lb. incendiaries.....	6
No. of aircraft carrying H.E. + (4+ 30) lb incendiaries.....	4
No. of aircraft carrying 4 lb. incendiaries only.....	4
No. of aircraft carrying 30 lb. incendiaries only.....	4
No. of aircraft carrying H.E. + flares.....	9

39

Night Photographs.

10. Only two aircraft returned photographs taken with bombing which show ground detail, in both cases open country. Others confirmed the crews' reports of persistent cloud.

Narrative of Attack.

11. Milan was almost completely covered with cloud, and most aircraft bombed the glow of fires presumably started in the afternoon. Through small gaps in the clouds, white flares were seen, mostly to the west of the city, and several large fires were burning in the north-west and north-east. Crews who descended below the cloud found visibility good, and, in the face of inaccurate defensive fire, were able to bomb with deliberation. Fires were reported near the main railway station and a large factory, believed to be an oil refinery; these, however, may have been caused in the afternoon.

Day Reconnaissance.

12. Damage, mainly by fire, (resulting from both day and night raids) was seen to have been scattered across the whole town. There are no areas of devastation, but few incidents are completely isolated; most relate to sticks of incendiaries seen burning on photographs taken during the day raid. The most significant of the buildings damaged is the Stazione Genova (railway station) in the south-west of the town, which suffered considerably. A number of small sheds of factory types have been destroyed, including sections of the G.E.C. Electrical Engineering Works, Municipal Tramways, Caproni Aircraft Company, a steel foundry and a wagon works. Ground sources tell also of serious rail dislocation at Lembrate, affecting traffic to Bologna, Genoa and Venice. It is probable, however, that the greater part of the damage was caused in the day raid; the effects of the two attacks are, of course, indistinguishable. A surprising feature, in view of the high number of 30 lb. incendiaries dropped in the afternoon, is the immunity that seems generally to have been enjoyed by residential property, which suffered relatively small damage.

Defences.

13. Crews who claim to have bombed the target reported 14 heavy guns, a number which confirms the impression gained during the afternoon attack. No estimates of light guns or searchlights were obtained, but the latter at least were few and ineffective. Photographic evidence is lacking. The Swiss are again reported to have fired at Lausanne and Bern.

.../Timing of Attack.

Timing of Attack.14. Pathfinders.

No. of aircraft attacking early (8").....	1
" " " " within planned period.....	2
" " " " late.....	11
	<u>14</u>

Main Force.

No. of aircraft attacking within planned period.....	9
" " " " late (0-10").....	9
" " " " more than 10" late.....	7
	<u>25</u>

Navigational Aids.

15. Conditions for propagation were expected to be unfavourable, as much of the route lay along a front, and the results obtained were little better than for the Eastern Chain when severely jammed. The average range was 330 miles, but only 11 a/c out of 33 obtained ranges of over 250 miles, and none reached 400 miles. No jamming was reported.

Casualties.

17. (a) No. of aircraft missing.....	6 (8.5%)
(b) No. of aircraft damaged:-	
flak.....	0
fighter.....	1(1.4%)
not enemy action....	1(1.4%)
	2(2.8%)
(c) No. of interceptions:-	
attacks.....	1(1.4%)
approaches and followings.....	5(7.0%)
	6(8.5%)

The percentage of missing aircraft is unusually high for a target in Italy. This is the more remarkable since only one aircraft was damaged by enemy action. Wireless Intelligence indicates that approximately 13 sorties were made by controlled night fighters, but some of these were over Holland. Our own observations show that one aircraft was shot down at Cherbourg and one in the Dijon area, possibly by fighter. One of the missing aircraft sent an S.O.S., reporting petrol shortage after being attacked by a fighter, and was last heard over the North Sea. Another was possibly lost to controlled fighters in the Rheims area. Three casualties may therefore be attributed to night fighters. The causes of the remaining three losses on Milan are not known.

Summary.

18. The small force taking part in this operation added to the damage already caused in the afternoon. Negligible opposition was provided by the enemy's defences, but thick cloud over the target prevented the attack from being as successful as that on Genoa 48 hours earlier.

MINELAYING.

19. 25 Wellingtons of 1 Group were detailed to lay mines in the areas of Stavanger, La Pallice, St. Nazaire and Lorient. 18 report completing their task successfully and 36 mines were laid. Two aircraft failed to return from La Pallice, but there is no evidence to suggest the cause of loss.

LEAFLETS.

20. 11 Wellington 10's, manned by freshman crews, were detailed to drop leaflets over Paris, Lille, and the Lens Bethune coalfield. The operation was successfully completed without incident.

EC/S.26342/3/O.R.S.

14th December, 1942.

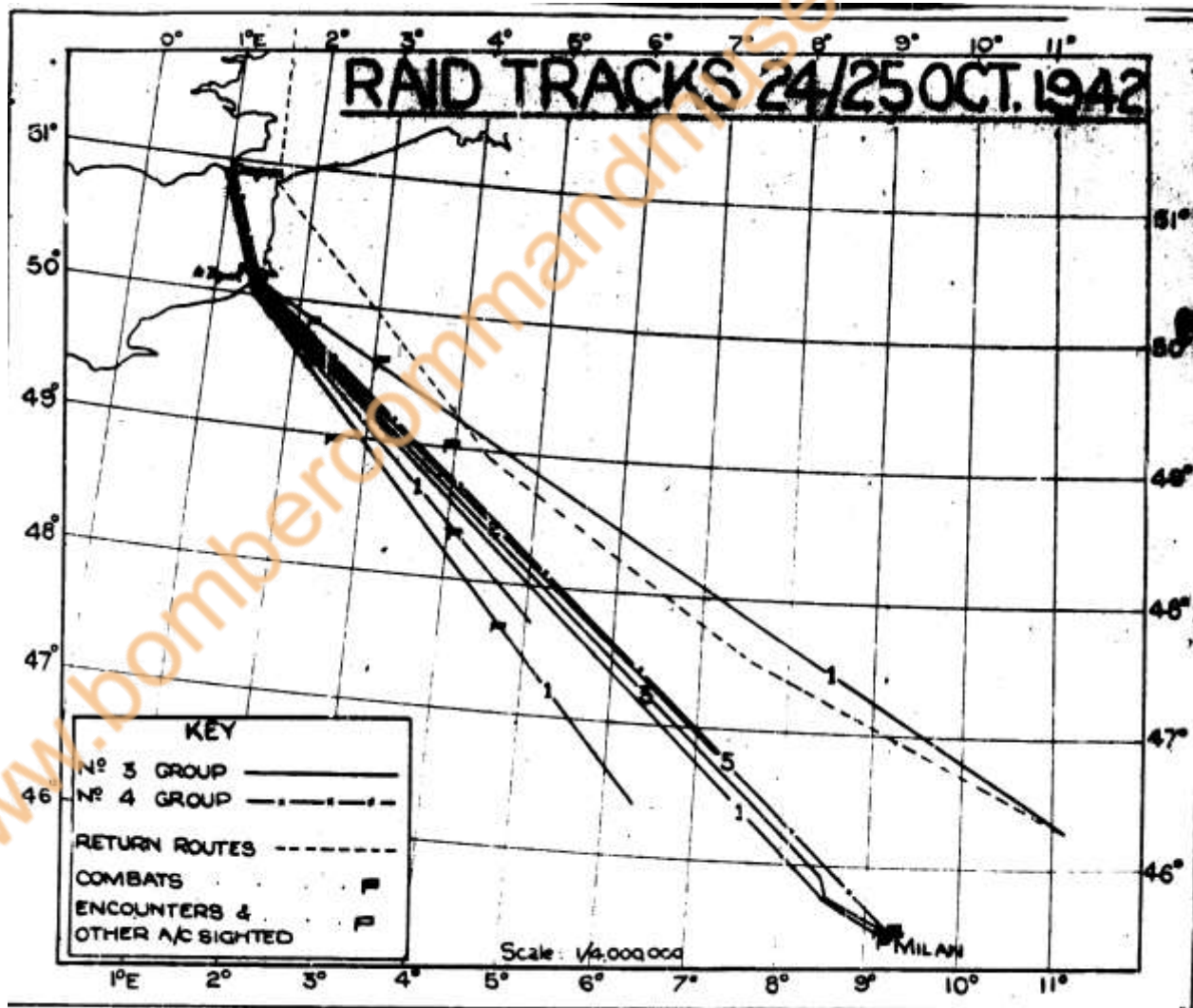
MLM/VP.

Target	Group	Type	Sorties	Aircraft claiming to attack on		Abortive sorties		Missing	Mines laid in primary area	Damage		Interceptions		
				primary area	alternative area	over enemy territory	NOT over enemy territory			Flak	Fighter	not E/A	Attacked	Not attacked
MILAN	P.F.F.	Stirling	8	5	1	-	2	-	-	-	-	-	-	
	P.F.F.	Halifax	5	4	-	1	-	-	-	-	-	-	1	
	1	Well.III	7	4	1	1	-	1	-	-	-	-	1	
	1	Well.IV	5*	4	1	-	-	-	-	-	-	-	-	
	1	Halifax	10	5	-	1	2	2	-	1AC	-	1	1	
	3	Well.III	11	1	1	2	4	3	-	-	-	-	-	
	3	Stirling	15*	7	-	4	4	-	-	-	1E	-	1	
	3	Halifax	5*	5	-	-	-	-	-	-	-	-	-	
4	Halifax	5	4	-	1	-	-	-	-	-	-	-		
FORMER TOTAL			71	39	4	10	12	6	-	-	1AC	1E	1	5
STAVANGER	1	Well.III	6	6	-	-	-	-	12	-	-	-	-	
St. NAZARE	1	Well.III	2	4	1	1	1	2	8	1	-	-	-	
St. NAZARE	1	Well.IV	5*	3	-	1	1	-	6	1	1	-	-	
LORENTZ	1	Well.IV	5*	5	-	-	-	-	10	-	-	-	-	
STAVANGER	1	Well.IV	25	16	1	2	2	2	36	2	1	-	-	

* 2 Stirlings and 5 Halifaxes of the Pathfinders under training attacked with the Main Force, and are included in the figures for 3 Group.

+ These 15 =/o were not fitted with Gee.

...../LEAPETS.



Bomber Command Report on Night Operations - 26/27th December, 1942.

MINELAYINGMeteorological Advice Submitted to the Command.

1. 0925 Hours. The midnight position of fronts is estimated as follows: (1) occluded from $57\frac{1}{2}^{\circ}\text{N}.01^{\circ}\text{E.}$ to $55\frac{1}{2}^{\circ}\text{N}.18^{\circ}\text{E.}$ becoming warm to $53^{\circ}\text{N}.23^{\circ}\text{E.}$ and cold to $51^{\circ}\text{N}.15^{\circ}\text{E.}$ to the Alps. (2) occluded from $48^{\circ}\text{N}.05^{\circ}\text{W.}$ to south-east England to Paris to south-west France. It should, however, be emphasized that these estimations are tentative, especially the second. At home bases there will be much cloud with occasional rain. Over Germany, variable amounts of medium and low cloud are expected east of 7°E. and west of the cold front, while much medium cloud with occasional rain is expected as a result of the second front. Over central and west France, to the west of the same front, there will be considerable amounts of convection cloud with a few breaks.

1300 hours. The centre of low pressure will move east to east-north-east, and will lie north-east of Yarmouth late in the evening. In 2, 3, 5 and 93 Groups, and in the eastern half of 1 and 4 Groups, an improvement is expected between dusk and midnight, but there may be a return of low cloud from over the North Sea. In the Heligoland area and on the route to the Frisians, cloud will be 10/10ths, based at 600 feet, with continuous rain and strong, variable winds. 8/10ths convection cloud, based between 1,500 and 2,000 feet, will prevail over north-east Denmark and the west coast of France, but the southern half of the Bay of Biscay may be affected by a new depression from Portugal. It is difficult to estimate when cloud will clear and rain fall at bases and over east Denmark, and some revision of plans may become necessary later.

1600 hours. The depression at bases will move east-north-east, and then north-east, reaching Yarmouth about midnight. Rain will cease at dusk in 91 and 92 Groups, and at about midnight in 2, 3 and 5 Groups and in the east of 93 Group. 4 Group, the west of 1 Group and possibly even 93 Group may be free from rain. Fog patches will develop in the Midlands and in 4 Group. Over the Frisians, cloud should lift and break progressively from the west between 0300 and 0500 hours.

Executive Orders.

2. In view of the weather, a small minelaying operation was ordered in the following areas: Frisian Islands, Brest, St. Jean de Luz, Gironde estuary and Bayonne.

Sorties.

3.	(a)	No. of sorties despatched.....	24
	(b)	" " " reporting mines laid in primary area.....	21
	(c)	" " abortive sorties: (technical defect..... 2) (unable to identify target. 1).....	3
	(d)	" " sorties missing.....	0

Weather Experienced.

4. Weather at bases was fine. Over the North Sea, cloud increased to 10/10ths, based at 1,000 - 1,500 feet. Visibility over the Frisians was moderate. In the northern half of the Bay of Biscay, cloud varied from 5/10ths to 9/10th increasing during showers to 10/10ths, and based at 1,500 feet. Further south cloud was rather thicker and lower, and contained icing. Visibility was moderate. The moon was 92% of full and above the horizon.

Results.

5. 21 of the 24 aircraft despatched report that they reached the primary areas, where 59 mines were laid, including 28 in the Gironde estuary. Three aircraft failed to accomplish their mission, two owing to technical defects and one to the weather. All the aircraft returned safely.

BC/S.33342/3/CIS.
5th December, 1942.

Winds: by 181, 9.4 26/27th October 1943.

Target	Group	Type	Bombes	Aircraft returned since laid in primary area	Active		since laid in primary area	Damaged (by flak)	Interceptions
					over enemy targets	not over enemy targets			
MITSUBISHI	3	Wols. III	6	5	-	1	10	1	-
BRUNN	3	Wols. III	6	5	-	-	12	-	-
ST. JEAN de LAU	3	Stirling	2	-	1	1	-	-	-
GEORGE TOWN	3	Stirling	7	7	-	-	28	-	-
BRUNN	3	Stirling	3	3	-	-	9	-	-
TOTAL			24	21	1	2	59	1	-

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No.

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Bomber Command Report on Night Operations 27/28th October 1942

MINELAYING and LEAFLETS

TIME

Metereological Advice Submitted to the Command.

0930 hours. The midnight position of fronts is anticipated as follows: (1) cold front from 60°N. 19°E. to Denmark to Prague to the Alps (2) cold front from 60°N. 12½°E. to 55°N. 14°E. to tip of wave at 53°N. 10°E. to Mannheim to the eastern Alps. At home bases there will be variable amounts of cloud with local showers; visibility will be moderate to good. High convection cloud, with freezing level at 3,000 feet, will prevail over the North Sea. Well broken medium cloud and broken convection cloud are expected over the North Sea coast of Germany, and broken medium cloud between the coast and front (2). There will be broken layer cloud between the two frontal belts over Germany; such cloud with occasional rain over the Alps and the Lombardy Plain; medium cloud with breaks over East France; well broken convection cloud and patches of medium cloud over West France and a good deal of convection cloud over north-west France. Variable conditions make it difficult to estimate the frontal position over western Germany with any accuracy.

1250 hours. Conditions at bases should be good, except for thundery rain and local visibility troubles in industrial areas. Similar conditions are expected over west France except in the far south. A belt of slow moving medium cloud with low cloud and persistent rain or drizzle, which is now extending across central France to the Netherlands, may not be clear of Paris and the Dutch-German border by to-night. Severe convection will be encountered over the North Sea; mining may be possible in the Frisians, but they also are threatened by the front. Cloud in the Kattegat should be above 1,500 feet.

1615 hours. The Kattegat and the Frisians should be fit for mining, with cloud base not below 1,500 feet. Showers are expected off the west coast of France, but cloud should stay above 1,000 feet. The rain belt through central France persists, and prospects of improvement at bases are very poor. Conditions are still uncertain in the Ashon area, but there is a chance of finding only medium cloud and broken strato-cumulus above 2,000 feet.

Executive Orders.

2. In view of the weather, operations were confined to minelaying and leaflets.

Sorties

3. (a) No. of aircraft despatched.....35
 (b) No. of aircraft reporting mines laid in primary area.....30
 (c) No. of abortive sorties:-
 (technical defect.....3)
 (unable to identify target.....3)..... 6
 (d) No. of aircraft missing..... 0

Weather Experienced.

4. Convection cloud, with hail and static in showers, was encountered over the North Sea; this was generally based at 2,000 feet, but lifted to 5,000 feet across Denmark. There was 10/10ths. cloud off the Frisians, base 2,000 feet, and 8-10/10ths. in the Denmark Straits, based at 5,000 feet. Visibility in these areas was moderate. Off the French coast, convection cloud varied from 3-7/10ths., increasing to 8-9/10ths. in showers, and based generally at 2-3,000 feet. Much static was met in shower clouds over the Bay of Biscay, with isolated thunderstorms. At home bases, fog and mist developed locally by midnight, becoming general in East Anglia and Yorkshire by 0300 hours, and elsewhere by 0400 - 0500 hours, except in the extreme south. The moon was 86% of full, and above the horizon.

Results.

5. 36 aircraft from the Pathfinders, 1,3 and 5 Groups were despatched to lay

mines in the following areas: Bayonne, Gironde estuary, St. Jean de Luz, St. Nazaire, Lorient, Frisiah Islands, and the Kattegat. 30 report reaching their primary targets and 90 mines were laid. One Lancaster of 5 Group was attacked and damaged by an aircraft believed to be a Dornier 17 off the Skaw; otherwise, the operation was without incident. All the aircraft returned safely.

LEAFLETS.

6. 4 inexperienced crews from 92 Group were detailed to drop leaflets in the Nantes area, and completed their operation without incident.

BC/S. 26342/5/ORS.
6th December 1942.

(Lancaster and Liberator flights 27/28/42 - October 1942.)

Target	Group	Type	Sorties	A/C reporting mines laid in		Abortive sorties		Missing	Mines laid in primary area	Casualties			Interceptions	
				primary area	alternative area	over enemy coasts	not over enemy coasts			flak	fighter	not enemy action	att-acked	not att-acked.
MINES														
Frison		Stirling	4	3	-	-	1	-	10	-	-	-	-	-
Lorient	1	Hall III	2*	1	-	-	-	-	2	-	-	-	-	-
Lorient	1	Hall III	6	5	-	-	-	-	10	-	-	-	-	-
Lorient	1	Hall IV	7	6	-	-	1	-	12	-	-	-	-	-
St. Nazaire	1	Hall IV	4	4	-	-	-	-	12	-	-	-	-	-
St. Jean de Luz	3	Stirling	4	4	-	-	-	-	20	-	-	-	-	-
Gironde estuary	3	Stirling	6	5	-	-	1	-	5	2	-	-	-	-
Bayonne	3	Stirling	2	2	-	-	-	-	5	2	-	-	-	-
Kattegat	5	Stirling	7	5	-	-	1	1	18	-	1	-	1	-
		TOTAL	36	30	-	-	2	4	90	2	1	-	1	-
LEAFLETS														
Nantes	92	Hall III	4	4	-	-	-	-	-	-	-	-	-	-

* These 2 A/C were not fitted with Goo.

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Bomber Command Report on Night Operations, 28/29th October, 1942.

METEL. ONE

Meteorological Advice Submitted to the Command.

1. 0920 hours It is estimated that at midnight there will be a front from 60°N 12½°E to 54°N 5°E, then southwards to the Alps. Broken medium cloud is anticipated at home bases, with patches of fog. Over Germany, east of the front, there will be medium cloud, but this will be well broken, especially in the north. On the front itself there will be much cloud at all levels, with local thunderstorms and rain; icing index will be high above freezing level at 3-4,000 feet. To the west of the front and over central and south France, more medium cloud is expected with some broken low cloud. Broken layer cloud will prevail over north-west France, and much cloud with occasional rain is anticipated over the Alps and the Plain of Lombardy.

1300 hours Fog will be widespread at bases west of 0° but east of that line cloud base should be above 1,000 feet, except possibly in 2 Group. Visibility will generally be moderate, but late in the night conditions may improve in 1, 4 and 5 Groups, making a daylight landing a possibility. Scotland should be able to provide diversion areas. Continuous rain and icing above 5,000 feet will be experienced over the North Sea when crossing the warm front at 5°E. 10/10ths medium cloud is expected over the Dutch-German frontier, where no improvement is likely till late in the night, but west Norway and north-west France should be fit for raining.

1605 hours Rain has begun to fall in East Anglia and is expected to affect all bases east of 1°W. Cloud base will lower to 1,000 feet or less in this area; 1 Group will be affected by 2400 hours and Yorkshire later. West of 1°W, fog will thicken towards dusk. Scotland and south-west England will provide diversion areas. Over the North Sea, icing is now expected to be less severe in the warm front.

Executive Orders.

2. In view of the weather, operations were confined to minelaying in the areas of Stavanger and St. Nazaire.

Sorties.

3.	(a) No. of aircraft despatched (Wellingtons of 1 Group)	9
	(b) " " " reporting mines laid in primary area	5
	(c) " " abortive sorties (weather)	3
	(d) " " aircraft missing	1

Weather Experienced.

4. At bases, extensive fog prevailed for most of the night in the midlands and south. In the east there was much cloud, but this was generally based above 1,500 feet. Rain ceased soon after midnight in north East Anglia and Lincolnshire. Fog was experienced in the south-west. Over the North Sea convection cloud was broken, but it is thickened to 10/10ths near the Norwegian coast, where it was based at 2,000 feet except in showers. Visibility was good but hampered by haze. Off St. Nazaire, convection cloud was based above 2,000 feet, and here too visibility was reported to be good. The moon was below the Horizon.

Results

5. 6 aircraft were despatched to St. Nazaire and 3 to Stavanger. 3 aircraft report reaching the former target area, and 2 the latter, laying 6 and 4 mines respectively. One aircraft failed to return from St. Nazaire, but there is no information as to the cause of loss. The weather prevented the remaining 3 aircraft from completing their task.

Bomber Command Report on Night Operations, 30/31st October, 1944.

MINELAYING

Meteorological Advice Submitted to the Command

1. 0920 hours. The midnight position of fronts is estimated as follows: (1) occluded from 56°N. 01°E to 60°N 00°E to 60°N.14°E. (2) occluded from 48°N 07½°W to south-west England to East Anglia, becoming warm to the Baltic and cold to Holland, then southwards at approximately 06°E with a wave in the extreme south of France. At home bases north of front (2) visibility will be poor, with much low cloud, showers and local mist or fog; south of the front, cloud will be broken, but fog will develop during the night. Over Germany, layer cloud with a few breaks is expected west of 10°E, well broken medium cloud with haze between 10° and 15°E, and small amounts of cloud east of 15°E. Broken layer and convection cloud will prevail over northern and central France, with fog developing at night, while along the west coast convection cloud will be well broken, and visibility should be moderate to good.

1240 hours All Groups except 3 expect low cloud, rain and poor visibility at dusk. An improvement during the night is possible in 1, 4 and 5 Groups, but the time of this cannot be estimated at present. Bases in 3 Group should be fit at dusk, but fog will probably develop soon after, followed by rain and low cloud in the latter half of the night. Convection cloud will be broken over north-west France, but showers and possibly thunderstorms must be expected. Over the Frisians and the Western Baltic there will be broken low cloud between 1,500 and 2,000 feet, but this may fall below 1,000 feet in the area of Bornholm.

1540 hours All bases expect intermittent light rain in the first half of the night, with much low cloud below 1,000 feet and moderate to poor visibility. In the Vale of York, however, and in the northern half of 1 Group, cloud should stay above 1,000 feet all night. More continuous rain is expected to spread from the south into south-east England and East Anglia towards dawn. North England and Scotland should be able to provide diversion areas.

Executive Orders.

2. In view of the weather, operations were confined to minelaying on a small scale.

Sorties.

3.	(a)	No. of aircraft despatched (Well.111 of 1 Group).....	4
	(b)	" " " reporting mines laid in primary area.....	3
	(c)	" " abortive sorties (unable to identify target).....	1
	(d)	" " aircraft missing	0

Weather Experienced.

4. At bases, thick low cloud, accompanied by fog and occasional drizzle prevailed south of Lincoln. Conditions improved in north Lincoln and Yorkshire, where cloud was broken and above 1,000 feet, and visibility was good. This weather spread slowly south, and affected all operational Groups by 0600 hours. Over the North Sea, there was a good deal of upper cloud and 4-6/10ths low cloud, with tops at 2,000 feet. This increased to 10/10ths based at 1,000 feet over the Frisians, where visibility was from 1,000 to 2,000 yards. The moon was below the horizon.

Results.

5. 3 of the 4 aircraft despatched to the Frisians succeeded in reaching the primary area despite adverse weather conditions, and laid 6 mines. The remaining aircraft was unable to pin-point and abandoned its mission. No opposition was encountered, and all the aircraft returned safely.

BC/S 26342/3/ORS
6th December 1942.

NIGHT REPORT NO 187
 16 JAN 1943
 Bomber Command
 1st October/1st November 1942
 MINE LAYING

Bomber Command Report on Night Operations, 1st October/1st November 1942

MINE LAYING

Meteorological Advice Submitted to the Command.

1. 0925 hours. Bases should be clear apart from local visibility troubles and showers on the east coast. The estimated frontal positions at midnight are as follows: (1) occluded from 57°N 3°E to Borkum, then south-westwards along the coast (2) cold from 57°N 3°E to south of Oslo to Stettin to 50 miles west of Mannheim and thence cold to Turin. A depression is developing at the tip of the wave west of Mannheim, giving much thick medium cloud to 15-20,000 feet, with rain; icing index will be moderate to high above 6,000 feet. Medium and broken low cloud will prevail over north Germany behind the cold front and over north France. Over west France, broken low cloud will stay above 1,000 feet. Variable amounts of medium cloud are expected in the Munich area, and small amounts at Breslau and Vilsen.

1300 hours. All eastern bases should be fit, but further inland visibility will fall to one mile by dawn in areas unaffected by smoke pollution. Districts affected by smoke, together with 91, 92 and 93 Groups, expect fog soon after midnight. Bad weather is likely on the Munich route, with thick cloud and rain belts, and high icing index, while heavy cloud is probable over Munich itself. Moreover, winds of 100 mph. at 15,000 feet have been reported from Marseilles. Thundery rain is likely over the west coast of France, with cloud based at 1,000 feet. Over Heligoland Bight and the western Baltic, there will be 10/10ths cloud, based at 600 feet.

1630 hours. 4-8/10ths medium cloud is likely over Munich at 10-12,000 feet. The Bay of Biscay should be fit for minelaying, with only thundery showers.

2030 hours. 250 to 300 miles of solid cloud will be encountered on the Munich route. All the bases in 4 Group will be fit till 0600 hours, when visibility troubles will be experienced in the south. The following are suggested as diversion areas; St. Eval, Chivonor, Marston, Bradwell Bay, Exeter, Tangmore and Horne.

Executive Orders.

2. In view of the weather, operations were confined to minelaying in the Bay of Biscay.

Sorties.

3.	(a) No. of aircraft despatched	22
	(b) " " " reporting mines laid in primary area	17
	(c) " " abortive sorties (technical defects... 1) (weather..... 3)	4
	(d) " " aircraft missing	1

Weather Experienced.

4. Mist and fog patches developed after dusk in the London area, Essex, west Suffolk and locally in Lincolnshire. Otherwise, visibility was moderate. Rain over south-west England spread north-east to Lincolnshire during the night, with cloud locally below 1,000 feet. In the Channel there was 10/10ths cloud based from 700 to 1,000 feet, with rain; visibility was poor. Over the Bay of Biscay, 8/10ths convection cloud was based between 900 and 1,500 feet; this increased during showers to 10/10ths with tops rising from 6,000 to 10,000 feet. A severe thunderstorm was reported in the Loire area. Light ice was encountered in precipitation, but none in cloud. Visibility was moderate. The moon was above the horizon and 52% of full.

Results.

Results.

5. 22 aircraft were despatched to lay mines off Lorient, St. Nazaire, La Pallice and the Gironde estuary. 17 reported reaching their targets, and 36 mines were laid, including 18 off La Pallice. Some opposition was encountered from heavy and light flak and from machine-guns, but only one aircraft was hit. One aircraft failed to return from La Pallice, but there is no information to indicate the cause of loss.

BC/S.26342/5/CRS
6th December, 1942

Mine-laying (Night 31st October/1st November 1942)

Target	Group	Type	Sortie	A/C reporting mines laid in primary area	Abortive; not over primary coast.	Missing	Mines laid in primary area	Damage by flak	Interceptions.
LORIENT	1	Well.111	2	1	1	-	2	-	-
	1	Well.1V	*3	2	-	1	4	-	-
ST. NAZAIRE	1	Well.1V	*6	4	2	-	8	-	-
LA PALLICE	3	Well.111	9	9	-	-	18	1	-
GIRONDE ESTUARY	3	Stirling	2	1	1	-	4	-	-
TOTAL			22	17	4	1	36	1	-

* These 9 A/C were not fitted with Gos.