

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 2/3rd. APRIL, 1943.St. Nazaire: Lorient: Minelaying.SUMMARY

ST. NAZAIRE : LORIENT. Two small-scale ground-marking attacks were delivered against the U-boat bases of St. Nazaire and Lorient. The former achieved considerable success, but the latter caused no noticeable damage owing to the failure of 2 of the 3 Mosquitoes. 49 aircraft attacked St. Nazaire and 40 Lorient; one aircraft was lost on St. Nazaire.

MINELAYING: 29 aircraft, of a force of 33, laid 144 mines off the west coast of France. One aircraft did not return.

Metorological Forecast.

Estimated position of the warm front at midnight is: $60^{\circ}N.07\frac{1}{2}^{\circ}E.$ - Flamborough London, then southwards to Central France.

Home Bases:- All bases expect to be fit for take-off, though 6 Group may experience drizzle and low cloud at about 1000 feet in some localities. For return, all bases are likely to have broken cloud at about 1,500 feet. Occasional drizzle and patches of cloud at 1,000 ft. or below may be found locally. Visibility will be mainly moderate but some smoke troubles may arise in 1 and 5 Groups for a return. Diversions can be found on the S. coast and in 91 Group if necessary. Germany:- West of $8^{\circ}E.$ over the Northern plain there will be much strato-cumulus cloud and well-broken medium cloud. Further E. convection cloud with good breaks expected. Over central and southern Germany, S. of $51^{\circ}N.$, there will be good clearances in the cloud.

W. coast of France:- Cloudy to N. French coast with cloud to 10,000 ft. at the first part of the route. In the Lorient area the amount of cloud is uncertain but will probably be nil to 5/10ths with tops about 3,000 ft. 10/10ths cloud is possible but is not likely to be more than 1,000 ft. thick. Good visibility. Wind at 20,000 ft.: W.N.W., 40 m.p.h. From Lorient to Biarritz strato-cumulus cloud will be well broken, base at about 2,000 feet. Visibility good.

ST. NAZAIRE & LORIENT.Plan of Attack

Zero hour: St. Nazaire 2215 hours: Lorient 2300 hours.

The attacks on both targets were to be based on the "Oboc" groundmarking technique. Mosquitoes were to drop green T.I's in salvo on the aiming point in each town, and other aircraft of the P.F.F. were to keep each target marked with red T.I's throughout the attack, aiming at the original greens, if visible, otherwise at the centre of the concentration of reds.

To guard against the risk of scattered bombing, consequent on possible inaccuracy of the markers, aircraft of the Main Force were instructed to bomb nothing but markers at St. Nazaire before 2225 hours or at Lorient before 2310 hours.

After the end of the main attack on Lorient, three "Oboc" Mosquitoes were ordered to attack that target each with 3 x 500 lb. M.C. bombs, at 2320, 2330 and 2340 hours.

...../The attacks were to be

The attacks were to be timed as follows:-

	<u>"Obse" Mosquitoes</u> (Green T.I.)	<u>Backers-up</u> (Red T.I.)	<u>Main Force</u>
<u>St. Nazaire</u>	1 at 2215 hours 1 at 2225 hours	7 at 1 min. intervals 2216-2222 1 at 2226 hours	All aircraft 2217-2300
<u>Lorient</u>	1 at 2300 hours 1 at 2310 hours	6 at 1 min. intervals 2301-2306 1 at 2308 hours 1 at 2311 hours	All aircraft 2302-2315 h.

Bomb Loads:-

<u>Backers-up</u>	8 Halifax 4 T.I. red + 8 x 1000 lb.G.P. 8 Lancaster 4 T.I. red + 6 x 1000 lb.G.P. + 4 x 500 lb. G.P.
<u>Main Force</u>	Loads of 1000 lb. G.P. only.

Sorties

	<u>St. Nazaire</u>	<u>Lorient</u>
(a) No. of aircraft despatched.	55	47
(b) " " reporting attack.	49 (89.1%)	40 (85.1%)
(c) " " abortive sorties (technical & navigational defects.....4).....5.....7).....7 (icing.....1).....-		
(d) " " aircraft missing.....	1 (1.8%)	-

Weather Experienced

5. Base:- Variable cloud, mainly small amounts of strato-cumulus at 2,000 ft. Visibility moderate.

Route:- Much strato-cumulus cloud over S. England, well broken over the Channel: tops 6-10,000 ft. Winds at 10-13,000 ft., 320-340°/35-45 m.p.h.

Targets:- Almost cloudless, with visibility moderate to good. Surface wind: N. to N.N.E. /5-10 m.p.h.

Moon not up during the operation.

Enemy Airfields:- Fine.

Night Photographic Statistics

6. St. Nazaire.

No. of prints examined.....	24
(plotted within 3 miles.....)	19
(plotted between 3 and 5 miles.1)	
" " " showing ground detail (plotted outside 5 miles.....)	24
(unplotted.....)	4
No. of prints showing fire tracks only.....	9
No. of a/c reporting attack.....	49
" " " estimated, from the evidence of photographs showing ground detail, to have bombed within 3 miles of the aiming-point.....	39

...../Lorient

While there is no evidence that direct damage has been caused to the submarine pens, the usefulness of St. Nazaire as a harbour for shipping and as a base for submarines has probably been reduced by the havoc caused to the shipyard and dock installations, communications and living facilities of the town. Since the heavy bombing raids started, the port has been forsaken by merchant vessels of large tonnage and is less frequented by smaller vessels. No submarine has been seen in the dry docks since November 1942 and they are berthed only occasionally at the Quai-Priso d'Eau. One suggested explanation of this inactivity is that the Germans have tried to reduce the number of U-boats exposed to attack from the air by using only the shelters for dry-docking, with a consequent reduction in the number of U-boats using the base.

Lorient

Photographic cover of the whole town and dock area, on prints of excellent scale and quality, revealed no fresh damage.

Navigation Aids (Gee)

9. The Southern Chain was operating from 1930 to 0230 hours and the Eastern Chain for the remainder of the time. The Virginia frequency was used throughout. 90% of the Gee-equipped aircraft despatched to St. Nazaire and 64% of those despatched to Lorient reported reception in the target area. Neither the strength nor the type of interference experienced on this route had changed.

Blind Bombing Aids (Oboc)

10. Three Mosquitoes equipped with Oboc were detailed to mark each of the two targets visited.

At Nazaire the first two were successful, attacking at 2213 and 2224 respectively. The third was abortive owing to failure of its special equipment.

At Lorient, only one Mosquito dropped its markers. Inadvertent switching off the pilot's oxygen caused a large error in their release, with the result that they fell into the water and were quickly extinguished. The other two sorties were abortive, owing to failure of special equipment and a defective supercharger respectively.

Three more Mosquitoes successfully attacked Lorient after the Main Force.

Enemy Defences

11. (a) Flak and Searchlights

St. Nazaire Ground defences were fairly active, searchlights forming 2 cones of about 12 beams each. Heavy and light flak co-operated with the searchlights but was only moderate in intensity. 5 aircraft sustained minor damage from heavy flak.

Lorient About 30 searchlights exposed and formed small cones. Flak was slight in intensity and only 2 aircraft sustained minor damage.

(b) Fighters

Enemy wireless traffic gave no evidence of controlled night fighter activity against our bomber forces, although a fighter was heard to land in the Channel Islands. Crews reported one attack, five approaches and three followings. Two of the approaches were in the target area, one by a Ju.88 at St. Nazaire and the other by a single-engine aircraft at Lorient. The attack, on a Lancaster I of 1 Group engaged in the Lorient raid, was made by a F.W.190 over the Ile de Bats while homebound. The pilot of the Lancaster took evasive action and no damage resulted.

...../Casualties.

Statistics

	<u>St. Nazaire</u>	<u>Lorient</u>
No. of a/c missing.....	1	NIL
" " " damaged (a) flak.....	5	2
(b) fighter.....	NIL	NIL
(c) not enemy.....	NIL	1
action		

Only one aircraft was lost in the St. Nazaire-Lorient operations. Several crews reported seeing an aircraft bombed by searchlights and shot down by flak into the Loire estuary, and this is likely to be the missing Lancaster from the St. Nazaire force.

MINELAYING

33 aircraft of 1, 3 and 5 Groups were detailed to lay mines off the west coast of France simultaneously with the raids on Lorient and St. Nazaire. 29 reached their targets, laying a total of 141 mines. One aircraft planted its mine incorrectly off l'Île d'Yeu, and 2 returned early for technical reasons.

Moderate flak, mostly light, was encountered at a few coastal points. None of our returning aircraft sustained damage, but one Lancaster was shot down near l'Île d'Oleron.

APPENDIXTiming of AttackST. NAZAIREPathfinder Force

2 Mosquitoes attacked at: 2213 and 2224
7 backers-up attacked at: 2216, 2217, 2218, 2219(2), 2221 and 2222.

Main Force

All aircraft attacked between 2217 and 2245.

LORIENTPathfinder Force

1 Mosquito attacked at: 2302
6 backers-up attacked at: 2306, 2312, 2325, 2339 and 2355(2).

Main Force

23 aircraft attacked within planned period (2303-2315)
9 aircraft attacked 0-10' late
1 aircraft attacked 47' late

3 Mosquitoes attacked after the Main Force at: 2327, 2340 and 2347.

Bomb LoadsST. NAZAIRE

2 aircraft (Mosquitoes) carried T.I. only.
7 " (backers-up) " T.I. + H.E.
40 " (Main Force) " H.E. only.

LORIENT

1 aircraft (Mosquito) carried T.I. only
6 " (backers-up) " T.I. + H.E.
33 " (Main Force & late) " H.E. only
Mosquitoes

JT/VF
/S. 26342/4/ORS.
14th July, 1943.

Target	Group	Type	Sorties	A/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results	
				prim. area	alt. area	over en. territ.	not over en. territ.		Flak	fighter	not E/A	attacked	not attacked	Tons of Bombs	H.E. Inc.
ST. MARGARET	P.F.P.	8 Mosquito IV	3	2	-	-	1	-	-	-	-	-	-	(P)162.7	4.0
		Halifax 2	3	3	-	-	1	-	-	-	-	-	-	(M) 4.9	-
	Main Force	8 Lanc. I	2	2	-	-	-	-	-	-	-	-	3	P-Primary	M-ising
		Stir. I	1	1	-	-	-	-	-	-	-	-	1		
	1	Lanc. I	3	3	-	-	-	-	-	-	-	-	-	-	-
		Well. III	2	1	-	-	-	-	-	-	-	-	-	-	-
	3	Stir. I	4	3	-	-	-	-	-	-	-	-	-	-	-
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	-	-
	4	Halifax 2	3	3	-	-	-	-	-	-	-	-	-	-	-
		Lanc. I	3	3	-	-	-	-	-	-	-	-	-	-	-
5	Lanc. I	3	3	-	-	-	-	-	-	-	-	-	-	-	
	Lanc. III	3	3	-	-	-	-	-	-	-	-	-	-	-	
6	Halifax 2	4	4	-	-	-	-	-	-	-	-	-	-	-	
	Well. III	4	4	-	-	-	-	-	-	-	-	-	-	-	
ST. MARGARET TOTAL			55	49	-	-	5	1	5	-	-	-	7		
LOUISIENNE	P.F.P.	8 Mosquito IV	6	4	-	-	2	-	-	-	-	-	-	(P)116.8	1.3
		Hal. II 'E'	4	3	-	-	1	-	-	-	-	-	-	-	-
	1	Lanc. I	3	3	-	-	-	-	-	-	-	-	-	P-Primary	
		Lanc. III	2	2	-	-	-	-	-	-	-	-	-		
	3	Well. III	1	1	-	-	-	-	-	-	-	-	-	-	-
		Well. X	1	1	-	-	-	-	-	-	-	-	-	-	-
	4	Stir. I	3	3	-	-	-	-	-	-	-	-	-	-	-
		Stir. III	2	1	-	-	-	-	-	-	-	-	-	-	-
5	Lanc. II	1	1	-	-	-	-	-	-	-	-	-	-	-	
	Hal. II 'E'	4	4	-	-	-	-	-	-	-	-	-	-	-	
6	Lanc. I	2	1	-	-	-	-	-	-	-	-	-	-	-	
	Lanc. III	5	4	-	-	-	-	-	-	-	1AC	-	-	-	
LOUISIENNE TOTAL			47	40	-	-	7	-	2	-	1AC	1	1		
ROBERTS TOTAL			102	89	-	-	12	1	7	-	1AC	1	8		

* 3 of these aircraft attacked after the Main Force

...../Contd.

...../Contd.

Target	Group	Type	Sorties	A/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results	
				prim. area	alt. area	over en. territ.	not over en. territ.		Flak	fighter	not E/A	attacked	not attacked	Tons of Bombs	H.E. Inc.
MINKLAYING															
ST. MARGARET	1	Well. III	1	1	-	-	-	-	-	-	-	-	-	2 mins	
		Well. X	5	5	-	-	-	-	-	-	-	-	-	10 "	
RAYONNE	1	Lanc. I	1	1	-	-	-	-	-	-	-	-	-	20 "	
ST. JEAN DE LUZ	3	Stir. I	1	1	-	-	-	-	-	-	-	-	-	3 "	
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	2 "	
LA PALICE	3	Lanc. II	6	6	-	-	-	-	-	-	-	-	-	35 "	
GIMONDE H.	5	Lanc. I	6	4	-	-	2	-	-	-	-	-	-	22 "	
		Lanc. III	9	7	1	-	-	1	-	-	-	-	-	40+6 "	
MINKLAYING TOTAL			33	29	1	-	2	1	-	-	-	-	-	141 mins	
T O T A L			135	118	1	-	14	2	7	-	1AC	1	8		

RAID TRACK NOT AVAILABLE

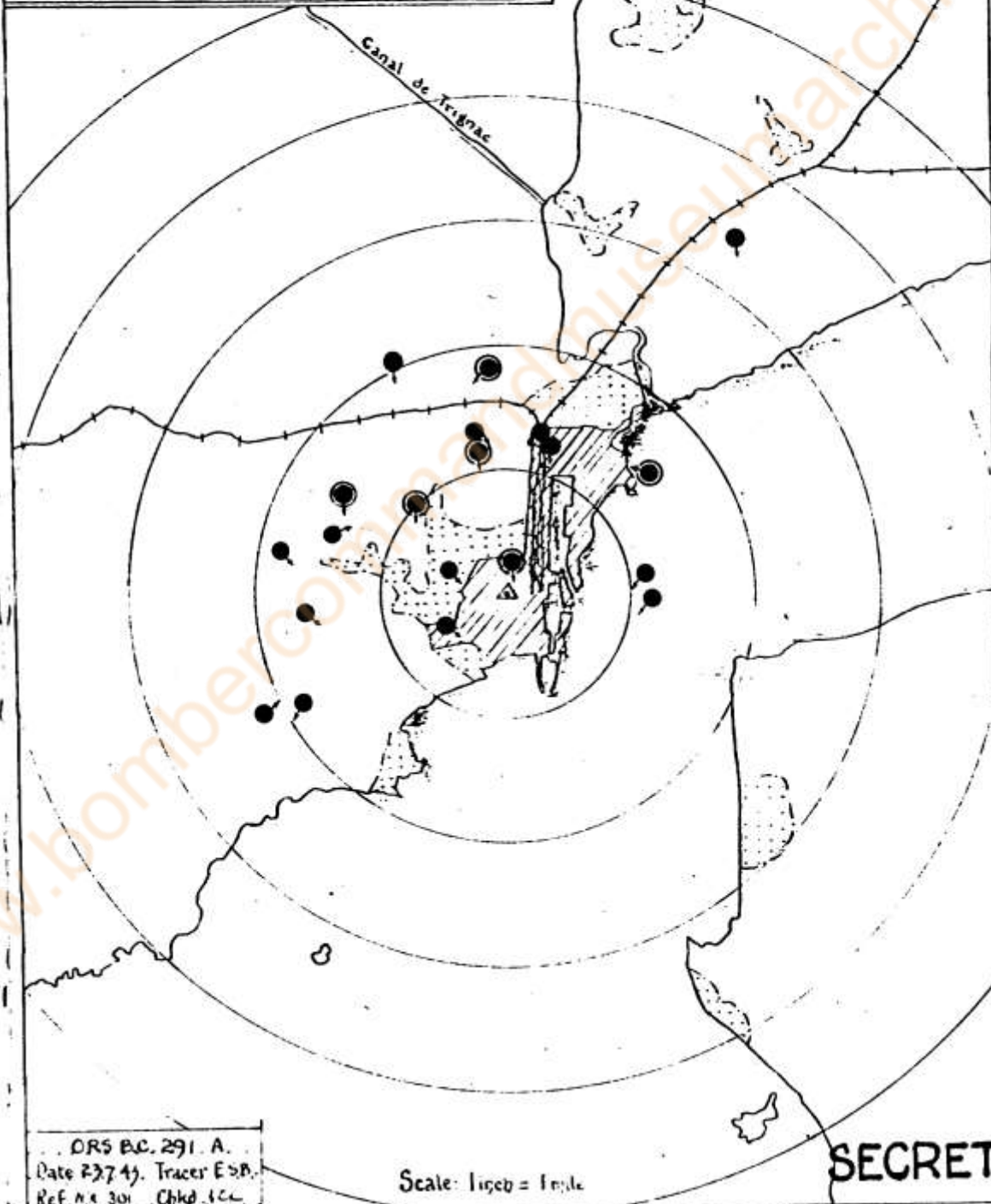
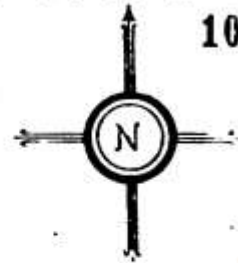
FINAL PLOT OF NIGHT PHOTOGRAPHS

TAKEN 2/3rd APRIL 1943

TARGET S^E NAZAIRE

109

	PFF Marker A/C	Main Force A/C
Plotted by Ground Detail		
<u>PLOTTED</u>	By Ground Detail	By Fires
Within 3 miles	19	-
Outside 3 miles	1	-
<u>UNPLOTTED</u>	4	9
No. of prints (with bombs) examined	34	



DRS B.C. 291. A.
Date 2/3/43. Tracer E.S.B.
Ref. No. 301. Chkd. J.C.C.

Scale: 1 inch = 1 mile

SECRET

FINAL PLOT OF NIGHT PHOTOGRAPHS

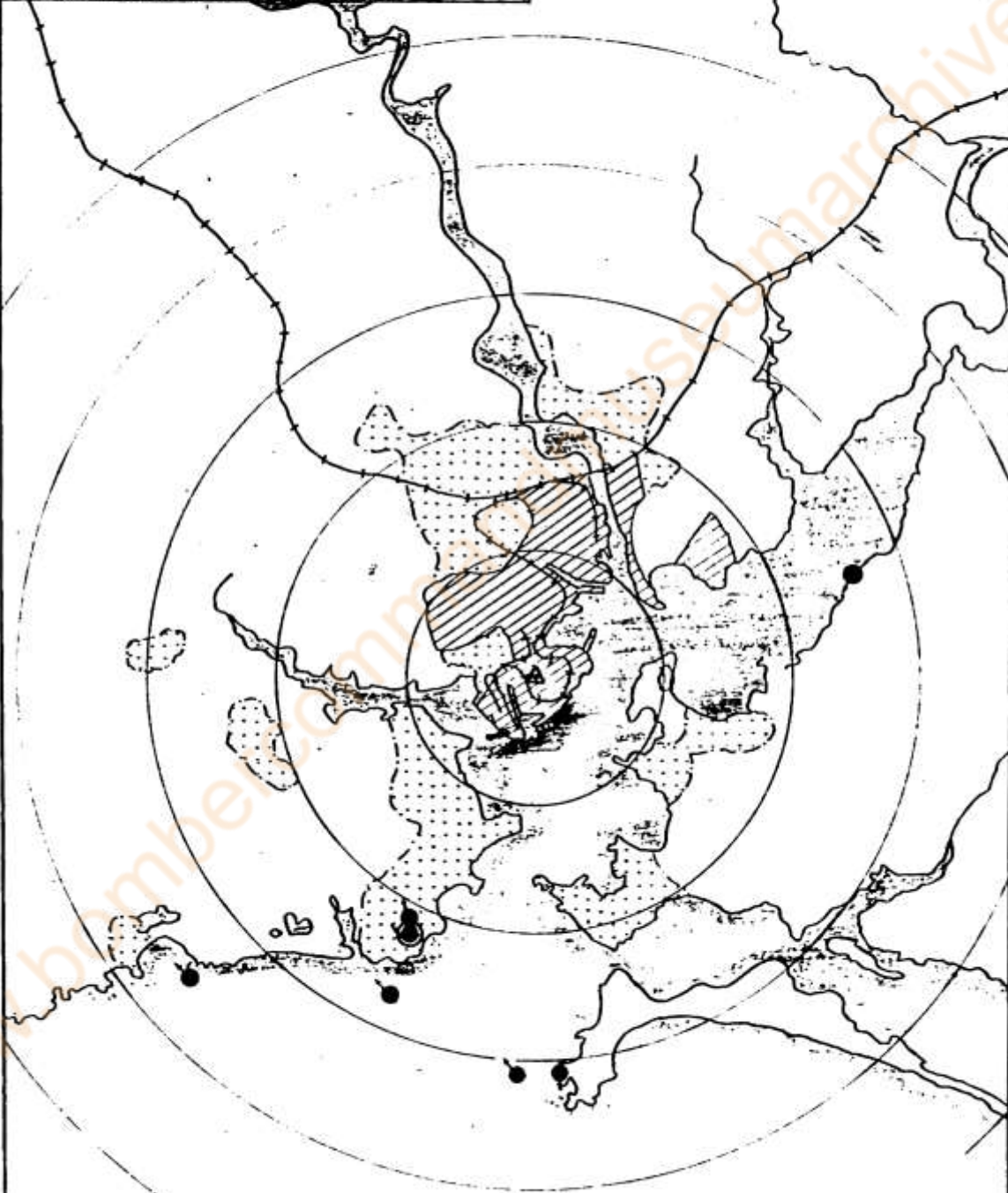
TAKEN 2/3rd APRIL 1943

TARGET LORIENT

SECRET

110

	P.F.F. Marker A/C	Main Force A/C
Plotted by Ground Detail	●	●
PLOTTED	By Ground Detail	By fires
Within 3 miles	4	-
Outside 3 miles	5	-
UNPLOTTED	1	2
No. of prints (with bombtag) examined		16
1 A/C plotted outside the area of this map		



ORS BC 292 A
Date 23793 Tracer ESP
Ref N/A 301 Chw A/C

Scale: 1 inch = 1 mile

BOOMER COMBINED REPORT ON NIGHT OPERATIONS, 3/4th APRIL, 1943.ESSEN: MINELAYING. LEAFLETSSUMMARY

1. Essen 348 heavy aircraft were despatched to Essen. Accurate Oboc marking and good timing by the main force resulted in yet another concentrated and destructive attack. 15 buildings of Krupps were damaged. At least 21 aircraft.

Minelaying 16 aircraft out of a force of 20 laid 32 mines in the Bay of Biscay. 1 aircraft did not return.

Leaflets 9 aircraft dispersed leaflets safely over Nantes and Rhoms.

Metorological Forecast

2. Home Bases:- Visibility troubles will commence towards midnight; visibility should remain about 1 mile until 0100 hours, except in smoky areas where it will probably fall to 1000 yards by midnight; 4 and 6 Groups will retain 1 mile until 0330 hours or later, but few places in other Groups or Training Groups will have 2,000 yards visibility after 0200 hours. 2 Group and the E. of 5 Group will be very risky after 2200 hours: diversions in 4 and 6 Groups; Boscombe Down, Burn and Colerne area and E.Scotland.

Wuhr: 7/10-8/10 thin strato-cumulus cloud at 2,000 feet, with some patches above to about 11,000 ft. icing index low.

W.France:- Fine, small amounts of strato-cumulus, moderate visibility.

Wind at 18,000 feet - 340°/55 n.p.h.: at 28,000 ft. - 340°/65 n.p.h.
at noon.

ESSENPlan of Attack

Zero hour 2145 hours. Period of Attack 2145-2220 hours.

Route Briefed:- All Groups: Beyond - Dorsten - Essen - Hiltern - Rhond.

The primary technique to be adopted by the P.F.F. for marking the target is sky-marking by Oboc Mosquitoes using release point flares; they were also to drop P.I. red if ground marking proved possible.

If ground marking proved feasible, 10 Lancasters of the P.F.F. were to act as back-up by dropping green P.I. at red, if possible, and otherwise at the centre of the concentration of greens.

Tracking flares (green steady) were to be dropped by all Mosquitoes on track 16 miles short of the mining-point (at Dorsten)

...../Release point

Release point flares (red with green stars + 1 white flare to give longer burning), which were to ignite at 15000' were to be dropped by all Mosquitoes as sky markers. All aircraft of the main force were to aim bomb at the centre of the release point flares on an exact heading of 201°M at a speed of 165 m.p.h. I.A.S.

If ground markers were visible, aircraft of the main force were to aim their bombs at T.I. red, if seen, otherwise at the exact centre of the concentration of greens, in preference to aiming at sky-markers.

Crews were warned to gain height before reaching the high icing cloud expected in the frontal zone.

<u>Mosquitoes</u> (Sky or Ground Marking)	<u>Timing</u> <u>Backer-U.</u> (Ground Marking only)	<u>Main Force</u>
1 at 2145	-	
-	2 at 2146	Halifax 2147-2205 hours
-	1 at 2148	
1 at 2150	-	
-	1 at 2151	
-	1 at 2154	
1 at 2155	-	
-	1 at 2156	
-	1 at 2158	
1 at 2200	-	Lancaster 2200-2220
-	1 at 2201	
-	-	
1 at 2205	1 at 2206	
-	-	
1 at 2210	-	
1 at 2215	-	
1 at 2219	-	

Bomb Loads

P.F.F. Mosquitoes - Flares: 3 green + 2 red with green stars + 1 white
T.I.: 1 red (I.S.) + 1 red.

Lancasters- 4 T.I. green + 1 x 4000 lb. H.B. + 4 x 1000 lb. G.P.

Main Force

6 Lancasters of 5 Group - 1 x 8000 lb. H.C.
Remaining Lancasters - 1 x 4000 H.C. + incendiaries
Halifax - 2 x 1000 lb. + incendiaries

Sorties

4.	(a)	Number of aircraft despatched.....	348
	(b)	" reporting attack on primary area.....	235(8)
	(c)	" " alternative area.....	5(1)
	(d)	" abortive sorties (technical or manipulative defects.....	22)
		(recalled.....	2)
		(pilot ill.....	1)
		(reserve a/c not required.....	1)
		(hit by flak.....	1)
	(e)	" aircraft missing.....	21(6)

...../Weather Experienced

Of the six claims made by controlled fighters, 2 from a H.L. Venlo patrol were confirmed by the observations of crews within the Ruhr defence area. A third claim from the same station was not confirmed by observations. Two claims of successes near Arnheim and Eindhoven were confirmed.

Two aircraft crashed on return, but in neither case does enemy action appear to have been responsible.

A Halifax of 158 Squadron flew into trees at Gutfless and crashed, 4 of the crew being killed and 3 injured. -- second homebound Halifax of 51 Squadron crashed at Smith, killing 4 and injuring 3 of the crew. Having overshot, the aircraft was making a further circuit when the starboard inner engine failed.

DETAILS

16.	(a)	No. of aircraft despatched.....	20
	(b)	" " reporting mines laid in primary area....	16
	(c)	" abortive sorties (technical defect.....)	3
	(d)	" aircraft missing.....	1(5.0)

Weather Experienced

17. Cloudless except for patches of 6/10ths strato-cumulus, base 2-3,000', tops 5-6,000'. Visibility moderate. To noon.

Results

18. 20 aircraft were despatched on a mining operation to the west coast of France. 16 reached their target, laying 32 mines. 4 aircraft was lost.

Enemy Defences

19. (a) Flak and Searchlights

A little light and heavy flak was fired from ground defences. Some of the light flak at Lorient was possibly from a ship. At Hennebont light flak co-operated with a small cone of searchlights. No aircraft was hit.

(b) Fighters

Enemy wireless traffic revealed two patrols, which made two unsuccessful pursuits in the Morlaix area and one in the Lorient area. There were no reports of enemy fighters from bomber crews.

Casualties

20.	No. of aircraft missing.....	1	
	" " damaged (a) flak.....	Nil	
		(b) fighter.....	Nil
		(c) no enemy action... 1	1

Nothing is known of the flying Wellington.

REMARKS

21. 9 aircraft of 91 and 92 Groups dispersed low level over Nantes and Rheims. 1 aircraft sustained slight damage from flak. A fighter was observed but an attack developed. All our aircraft returned safely.

...../ AFRELL

APPENDIXTiming of AttackI. Pathfinder Force

8 Mosquitoes attacked at: 2144, 2149, 2150, 2100x, 2203; 2210, 2217
and 2226.

7 backers-up attacked, at: 2155, 2156, 2155(2), 2200, 2204 and
2206.

(x This aircraft dropped flares but no T.I.'s.)

Main ForceSection 1 (Halifaxes)

86 aircraft attacked within planned period (2147-2205)
8 " " from 2205-2215
94 aircraft

Section 2 (Lancaster's)

2 aircraft attacked at 2156
179 " " within planned period (2200-2220)
5 " " from 2230-2230
186 aircraft

Load Loads

I. (of aircraft reporting attack)

Pathfinder Force

8 Mosquitoes carried T.I. + flares
7 backers-up " T.I. + H.E.
15 aircraft

Main Force

162 aircraft carried H.E. + 4 lb. + 30 lb. incendiaries
52 " " H.E. + 30 lb. incendiaries
51 " " H.E. + 4 lb. incendiaries
15 " " H.E. only.
180 aircraft

/VF.

/E. 8092/A/CRS.

th July, 1943.

Target	Group	Type	Sorties	✓/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over on. territ.	not over on. territ.		flak	fighter	not E/C	attached	not attacked	H.E.	Inc.	
RISIN	B	Mosquito	10	8	-	1+1*	-	-	1	-	-	-	-	-	(P) 50.1	45.3
	P.P.P.	Lano. I	10	7	1	-	-	2	1+C	-	-	-	-	-	(A) 9.9	6.9
	B	Lano. I	11	9	-	-	-	-	1	-	-	-	-	-	(M) 30.8	28.9
	1	Lano. I	48	39	1	2	6	-	30+5	-	1+C	2	4	-	-	-
		Lano. III	24	23	-	-	-	-	2	-	-	1	9	-	-	-
	3	Lano. II	9	8	-	-	3	-	-	-	-	-	3	-	-	-
	4	Hall. II*2'	81	70	1	-	3	7	1+C+17	1+C	12+1+C	4	5	-	-	-
	Hall. I *	10	10	-	-	-	-	3	-	-	1	-	-	-	-	
	5	Lano. I	57	53	-	1	3	-	4	-	-	-	2	-	-	
	Lano. III	66	66	2	1	3	4	11	-	-	-	1	4	-	-	
	6	Hall. 12'	22	14	-	1	2	5	2	1+C	25+1+C	1	4	-	-	
											15+2B					
											+3+C					
RISIN TOTAL			368	295	5	7	20	21	5+C+4	2+C	15+2B	10	31	-	-	
MOULBING	1	Hall. III	4	4	-	-	-	-	-	-	-	-	-	-	8 mines	
LOUISV		Hall. "	3	1	-	-	1	1	-	-	-	-	-	-	2 mines	
ST. H. E. IRE	1	Hall. III	3	2	-	-	1	-	-	-	-	-	-	-	4 mines	
		Hall. X	4	4	-	-	-	-	-	-	1+C	-	-	-	8 mines	
ROST	4	Hall. "	6	5	-	-	1	-	-	-	-	-	-	-	10 mines	
ROSLYING TOTAL			20	16	-	-	3	1	-	-	1+C	-	-	-	32 mines	
IRPLETS																
N. J. IRE	91	Whitley	5	5	-	-	-	-	1+C	-	-	-	1	-	-	
RUBIC	92	Hall. III	4	4	-	-	-	-	-	-	-	-	-	-	-	
TOTAL			377	320	5	7	23	22	6+C+46	2+C	15+2B	10	32	-	-	
											+4+C					

* Reserve ✓/C not required.

RAID TRACK NOT AVAILABLE

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SECRET

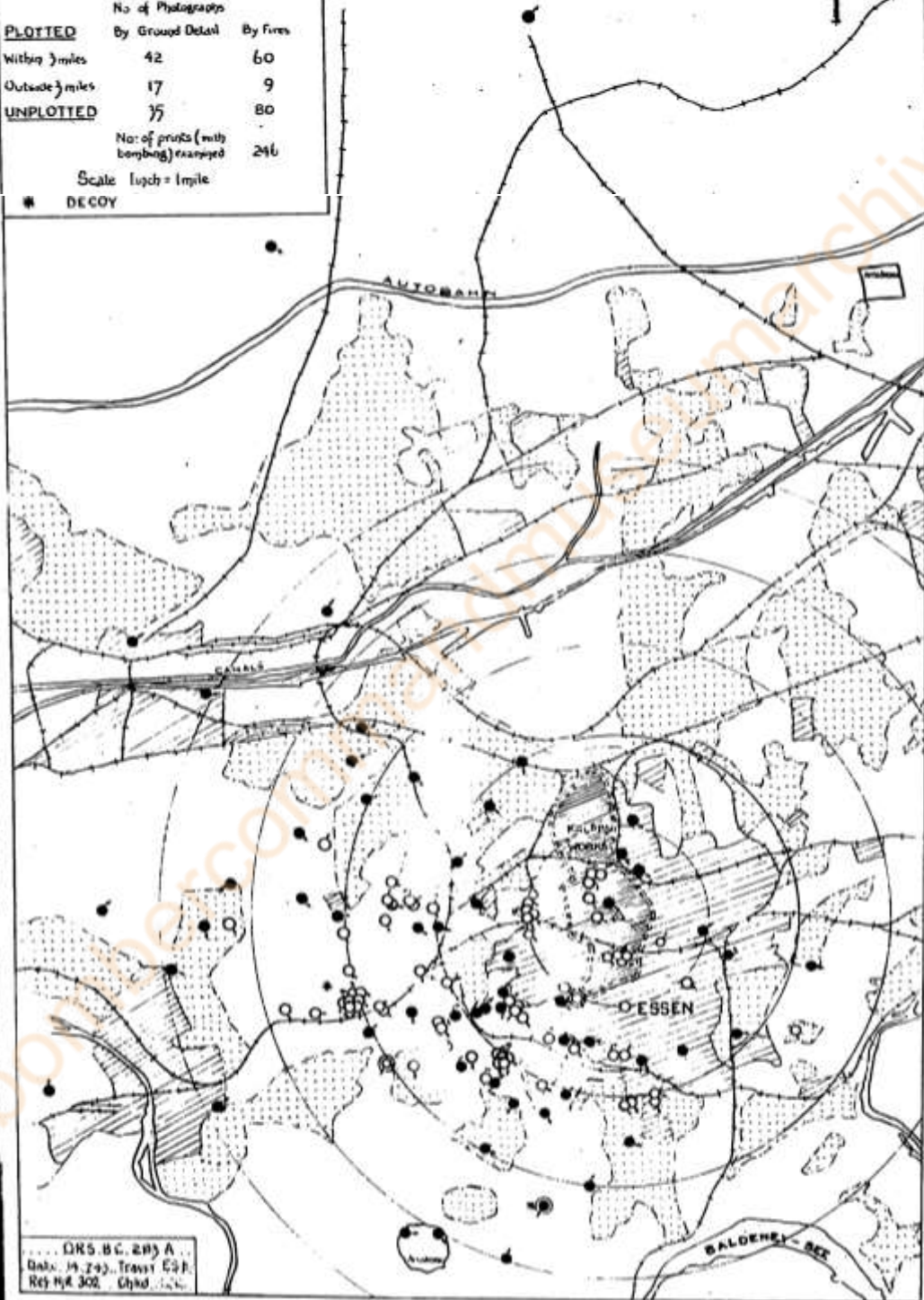
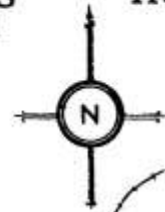
FINAL PLOT OF NIGHT PHOTOGRAPHS

116

TAKEN 3/4th APRIL 1943

TARGET **ESSEN**

Plotted by Ground Detail	PTF Marker	Mapforce A/C
Plotted by fires		
No. of Photographs		
PLOTTED	By Ground Detail	By fires
Within 3 miles	42	60
Outside 3 miles	17	9
UNPLOTTED	75	80
No. of prints (with bombing) exposed		
246		
Scale 1 inch = 1 mile		
* DECOY		



DRS. B.C. 203 A
Date: 19. 2. 43. Travst. E.S.P.
Ref. N/A 302. Chkd. ...

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 4/5th. APRIL, 1943.KIELSUMMARY

1. Kiel A force of 577 heavy and medium bombers set out to make an attack on Kiel, by the aid of ground-markers dropped by Y-type aircraft. Conditions proved unsuitable for this technique since the target was covered by two layers of 10/10th cloud. The confused glow of markers, fires and possibly dummy markers below cloud led to a scattered attack. 507 aircraft reported bombing the primary target but reconnaissance revealed negligible fresh damage to Kiel.

12 bombers (2.1%) failed to return and 1 crashed in the N. Sea., after being attacked by fighters.

Metecorological Forecast

2. Home Bases:- The majority of operational bases should be good for take-off, remaining fit, with little cloud and visibility at least one mile, until 0400 hours or later. Western 4 Group stations and some 5 Group stations should expect trouble from smoke. Airfields in 91 and 92 Groups should be available for diversions, but 2 Group and South Coast airfields will not be reliable owing to the risk of sea fog.

France and Germany (except the-coastal area in the North):- Fine with slight haze.

Coastal area of North Germany and Denmark:- The cloud at the upper level is likely to be very well broken. Low stratus, which will not be more than 1000 ft. thick, might be either 10/10 or nil, with poor visibility.

Route to Kiel:- Broken cloud at 5-6000 ft. with much low stratus and sea-fog. Wind should blow steadily from 260° at a speed increasing from 25-35 m.p.h. at 1000 ft. on the outward journey to 30-40 m.p.h. at the same level on the return.

Plan of Attack

3. Route Briefed:- Mando - 55°11'N. 09°38'E. - Kiel - 54°13'N. 10°10'E -
54°30'N. 06°00'E.

Zero hour 2300 hours. Period of Attack 2300-2345 hours.

The target was to be marked with red T.I's by Y-aircraft and by backers-up with green T.I's. All marker aircraft were also to release steady white flares to ignite at 2000' across the target to counteract the effect of searchlights and to ensure continuity.

En route to the target yellow T.I's were to be dropped as landmarks at Mando (55°15'N. 08°42'E) by Y-aircraft and the backers-up were to aim their yellow T.I's at existing yellows.

At the target Y-aircraft were to release red T.I's in salvo and the first bundle of white flares at the same time, over the aiming point. Their remaining bundles of white flares were to be released at 4-second intervals.

If the backers-up found they could definitely identify the aiming point with the aid of the flares, they were to aim their green T.I's and first bundle of white
...../flares at the aiming point:

flares at the aiming point: but if they were unable to identify the aiming point visually, they were to aim at the exact centre of red T.I's if burning, otherwise at the far edge of the concentration of greens.

Aircraft of the main force were instructed to aim exactly at the centre of the area marked by T.I's, irrespective of their colour, taking care to avoid any obvious "wides" caused by jettisoning or enemy decoys. They were to bomb nothing but markers before 2340, in order to avoid scattered bombing. The importance of concentration en route and correct timing at the target were particularly emphasised. Crews bombing after 2340 hours were warned that no T.I's would then be visible and that they were to identify the aiming point for themselves.

As an aid to navigation on the homeward trip, yellow T.I's were to be dropped by Y aircraft, and the marking maintained by backers-up, at 54°19'N. 08°37'E.

Timing:-

<u>Y aircraft</u>	<u>Backers-up</u>	<u>Main Force</u>
10 Stirling + 6 Halifax at 2300 hours.	2 at 2302 10 at 1 min.intervals 2303-2312 12 at 2 min.intervals 2314-2336	Lancs. of 1 Gr. 2304-2315 hrs All Wells + all aircraft of 3 Group 2310-2330 hours Halifax 2325-2335 hrs. Lancs. of 5 Group 2330-2345 hours.

Loads:-

	<u>T. I's.</u>			<u>White Flares</u>	<u>H.E.</u>
	<u>Yellow</u>	<u>Red</u>	<u>Green</u>		
<u>P. F. P. - Y-aircraft</u>					
Stirling	2	4	-	8 x 3	2 x 8 x 40
Halifax	2	4	-	6 x 4	-
<u>Backers-up</u>					
Stirling	2	-	4	8 x 3	4 x 8 x 40
Halifax	2	-	4	6 x 4	3 x 1000 G.P. (one long delay)
Lancaster	2	-	4	6 x 4	1 x 4000 HC
<u>Main Force</u>					
Lancasters of 1 Group	-	11 x 1000 G.P.	(2 long delay)		
Lancasters of 3 Group	-	1000 lb. bomb	(1/6 long delay)		
Stirlings of 3 Group	-	incendiaries			
Wellington 423's	-	1 x 4000 HC			
Rem. Wellingtons	-	incendiaries			
Halifaxes	-	2 x 1000 G.P. + incendiary	(1/6 of H.E. to be long delay)		
5 Lancasters of 5 Group	-	1 x 8000 HC			
Rem. " " " "	-	1 x 4000 HC and incendiaries			

Experienced crews of 5 Group were each to carry 4 flares, to ignite at 2000'.

Sorties

4.	(a)	No. of aircraft despatched.	577
	(b)	" " " reporting attack on primary area	507(88)
	(c)	" " " " " alternative area	5(0)
	(d)	" " abortive sorties (Technical and manipulative defects.....46) (Sickness of crew.....4) (Attacked by E/A.....1) (Ltc.....2)	53(9)
	(e)	" " aircraft missing	12(2)

...../Weather Experienced.

Weather Experienced

5. Bases:- Pit during the operational period. Mist and fog developed during the night.

Route:- No cloud near the English coast, increasing rapidly to 4-8/10th, tops 5-6,000 ft., over the North Sea. Between 07⁰⁰'E and Denmark cloud increased to 10/10th, tops 7-8000; beneath this was another layer of 10/10th very low stratus, base about 600 ft. Patches of sea fog. Visibility mainly poor.

Kiel:- 10/10th strato-cumulus, tops 7-8,000 ft., with a layer below of 10/10th low stratus, base 600 ft. or lower. Visibility moderate above cloud.

Surface wind: W.S.W., 10-15 m.p.h.

Wind at 15000 ft: 260⁰-280⁰/35-45 m.p.h.

No moon.

Night Photographic Statistics.

5. No successful photographs were returned, owing to 10/10ths. cloud below bombing height.

Narrative of Attack

7. Red T.I's were released through cloud by the "Y" aircraft, which reached the target area within 5 minutes of the specified time. These, together with the green T.I's dropped by the first of the backers-up, were well concentrated, but as the attack developed fires, and possibly dummies also, were confused with the glow of the T.I's below cloud. This caused the attack to disperse rapidly, so that, although it probably started in the right area, the later aircraft may have been many miles from the target when they released their bombs. The scatter was further aggravated by the erratic timing of the backers-up, and the consequent discontinuity of target marking.

Day Reconnaissance

3. Almost the whole town of Kiel is covered on prints on which there are large patches of cloud and shadow. In addition, a wide strip running north to south over the harbour and town is covered on prints of excellent scale and quality. Very little fresh damage can be seen.

Alternative Targets

2. 5 aircraft attacked alternative targets at Haderslev, Nordborg and Skerback in Denmark, Delve in North Germany, and the island of Sylt.

Navigational Aids (Geo)

0. The Eastern and Northern Chains were operating on the Virginia and Utah frequencies respectively. 90% of 215 aircraft fitted with Geo Mark I and 53 of 258 fitted with Geo Mark II had no set difficulties. Average ranges of 260 miles for Mark I and 265 miles for Mark II were obtained. One aircraft with a Mark II set recorded the maximum range of 365 miles. The only fix recorded on the Northern chain was at approximately 400 miles from the master station.

Wind Bombing Aids (H2S)

1. 16 'Y' type aircraft (10 Stirlings and 6 Halifaxes) were detailed to find and mark the target. 2 aircraft returned early owing to engine failure and 2 did not attack, although they reached the target area, owing to unserviceable equipment. 11 aircraft released their red T.I's using H2S, and the remaining bomber attacked on the T.I's already dropped, although the set was unserviceable. The target response was strong and similar to the target map.

...../All the

All the 'Y' aircraft returned undamaged.

Enemy Defences

12. (a) Flak: Searchlights

Over the target fairly intense 'unseen' heavy flak, and occasional barrage fire, were accompanied by a little light flak and searchlights, which were ineffective owing to cloud. Scarecrow flares, which were reported by several crews, may account for several of the many reports of aircraft seen falling in flames in the target area.

Heavy and light flak were experienced at several places on both the outward and homeward journeys, particularly at Mando Island, where yellow T.I's were dropped as route markers.

12 bombers were damaged by flak, and there are several reports of aircraft crashing after being hit.

(b) Fighters

Enemy wireless traffic revealed night fighter activity from the aerodromes at Flensburg, Schleswig, Nordholz, Stade, Ardorf/Wittmundhafen and Vechta. 9 pursuits, one of which was discontinued as the British aircraft was too fast, resulted in claims of 4 aircraft destroyed and 1 possible destroyed. 2 or 3 of these claims are confirmed by observations on returning crews.

Of the 69 interceptions reported, 8 developed into attacks, 2 of which occurred in the target area. There were few interceptions and no attacks before our aircraft reached Kiel, but great activity over the target, and the fighters followed the bombers more than 50 miles out to sea. A single-engined fighter (probably an Me 109) was destroyed by a Wellington X and a Ju. 88 was shot down by a Halifax. A Wellington III, which had already been damaged by flak, was so seriously damaged by an unidentified fighter that it came down in the N. Sea 10 miles from the English coast. 2 of the crew were rescued. Another Halifax, which possibly destroyed the attacking Ju. 88, was seriously damaged.

Casualties

13.	No. of aircraft missing.....	12(2.1)
	" damaged by (a) flak.....	12
	(b) fighters.....	2
	(c) incendiaries.....	1
	(d) not enemy action.....	8
		23(4.0)

A Lancaster of 5 Group sent an S.O.S. from a position in the middle of the North Sea, but nothing was heard from any of the 11 other missing aircraft.

It is unlikely that more than one bomber was lost on the outward journey, when a fire in the sky followed by an explosion was seen N.E. of Kiel without evidence of the cause. Observations in the target area suggest that 3 aircraft were shot down over Kiel, one having been hit by heavy flak. A further confirmed loss to flak occurred in the Schleswig area.

5 enemy fighter claims to success were overheard, 3 of which can be related to observed losses to fighters which occurred in the Kiel-Rendsturg area. Other losses to fighters were seen in the St. Peter and Kiel Canal areas; in the latter case it is possible that both combatants were destroyed.

The nights losses were therefore caused by:-

night fighters (6 or 7 aircraft), heavy flak (2 aircraft) and unknown causes (4 or 3 aircraft).

APPENDIXI. Timing of Attack(a) Pathfinder Force

12 'Y' aircraft attacked at the following times:- Z - $1\frac{1}{2}$, Z - $\frac{1}{2}$ (2a/o)
Z; Z + 1 (4 a/c); Z + 3 (2 a/o); Z + 4; Z + 5; (Z was 2300 hours)

20 backers-up attacked at:- 2304; 2306(5); 2307; 2308(2); 2311;
2312; 2314(2); 2317(2); 2320; 2321; 2322; 2323; 2328.

(b) Main Force

(i) Lancasters of 1 Group:	Within planned period(2303-2312).....	40
	Less than 10 minutes late.....	14
	11-20 minutes late... ..	3
	Total	57

(ii) Wellingtons + all 3 Group	Less than 10 minutes early.....	18
	Within planned period (2310-2330).....	194
	Less than 10 minutes late.....	2
	Total	214

(iii) Halifaxes (except 8 Group)	11-20 minutes early.....	4
	Less than 10 minutes early.....	44
	Within planned period(2325-2335).....	41
	Less than 10 minutes late.....	1
	11-20 minutes late... ..	1
	Total	91

(iv) Lancasters of 5 Group	11-20 minutes early.....	5
	Less than 10 minutes early.....	41
	Within planned period (2330-2345).....	59
	Less than 10 minutes late.....	3
	Total	108

(v) All 8 Group: 2305; 2308; 2309; 2313; 2331.....	Total	5
--	-------	---

II. Bomb Loads(a) Pathfinders

(i) 'Y' aircraft	Flares + T.I. + H.E. + 4 lb. incendiaries....	9
	Flares + T.I. + 4 lb. incendiaries.....	3
(ii) "Backers-up"	Flares + T.I. + H.E.....	17
	T.I. + H.E.....	3
	Total	32

(b) Main Force

H.E. only.....	96
H.E. + 4lb. incendiaries.....	53
H.E. + 30 lb. incendiaries.....	50
H.E. + 4 lb. + 30 lb. incendiaries.....	99
4 lb. + 30 lb. incendiaries.....	177
	475

FMO/VF.
EC/S. 26342/5/ORS.
4th July, 1943.

References

- (i) C.F.L.O. Report No. 153
- (ii) B.M.P. Report No. 299
- (iii) Negative Damage Reports Nos. 133 and 142.

4/5th April, 1943

KIEL

Target	Group	Type	Sorties	A/C reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results			
				prim-ary	alt. area	over en-territ.	not over en. territ.		flak	fighter	not E/g	att-acked	not attacked	H.L.	Ino.		
KIEL	8	Lano. I	15	13	-	-	-	2	-	-	-	-	2	-	(P) 65.3	661.2	
		Stir. I	12	11	-	-	1	-	-	-	-	1	1	-	(A) 1.6	6.1	
		Hal. II 'Z'	11	8	-	-	2	1	-	-	-	-	-	-	(M) 15.6	18.6	
	8	Lano. I	2	2	-	-	-	-	-	-	-	1	-	-	-	-	-
		Stir. I	2	1	-	-	-	1	-	-	-	-	-	-	-	-	-
	Main Force	Hal. 'Z'	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hal. 'Z'	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	Lano. I	41	33	-	-	1	6	1	1	-	-	-	-	6	-	-
		Lano. III	26	24	-	-	1	1	-	-	-	-	1	7	-	-	-
		Well. III	12	9	1	-	-	2	-	1	-	1B	-	3	-	-	-
		Well. X	15	12	-	-	-	3	-	-	-	-	-	1	-	-	-
	3	Lano. II	7	7	-	-	-	-	-	1A	-	-	-	2	-	-	-
		Stir. I	38	32	-	-	-	4	2	-	-	-	1	6	-	-	-
		Stir. III	38	33	-	-	-	5	-	-	-	-	-	3	-	-	-
	4	Hal. 'S'	71	65	-	-	-	4	2	1	1B	1A	2	3	-	-	-
		Hal. 1A	9	9	-	-	-	-	-	-	-	-	-	3	-	-	-
		Well. X	36	30	-	-	-	6	-	-	-	1A	-	4	-	-	-
	5	Lano. I	59	56	-	-	-	2	1	1	-	2	-	1	-	-	-
		Lano. III	53	52	-	-	-	-	1	-	-	-	-	5	-	-	-
	6	Hal. 'Z'	23	17	1	-	-	3	2	-	-	-	1	7	-	-	-
Well. Z		76	66	2	-	-	8	-	1A+3	-	1A	1	3	-	-	-	
Well. III		29	25	1	-	-	2	1	1B	-	1A	1	3	-	-	-	
KIEL TOTAL			577	507	5	4	49	12	2A +10	1B +1B	1B+ 4A +4	8	61				

* Also hit by flak

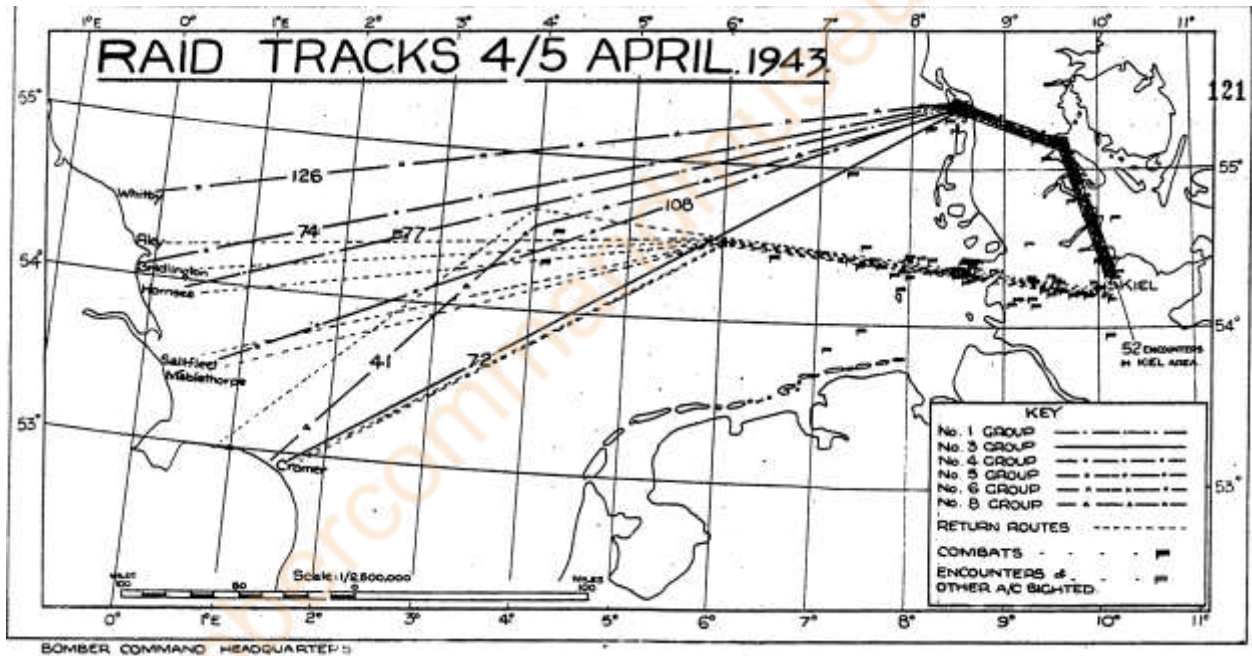


PHOTO PLOTS NOT AVAILABLE

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 6/7th APRIL, 1943.MEMORANDUMSUMMARY

1. 47 aircraft of all Groups were detailed on a mining operation off the west coast of France. 38 reached their targets, laying 103 mines. 2 aircraft did not return.

Meteorological Forecast

2. Home Bases:- Little or no cloud. Visibility good all night, with very local smoke troubles. Early showers, surface winds decreasing.

Germany:- Ruhr: convection cloud with breaks, main tops 10-12,000 ft, extending in places to 15,000 ft. or above. Possibly 10/10ths. N.W.: much convection cloud with tops to 20,000 feet, base 1,500 feet, and 600-1,000 feet in showers. N.E. Baltic: broken cloud, base above 1,000 feet.

W. France:- Little cloud, some strato-cumulus S. of 46°N. Visibility good everywhere.

Winds at 20,000 feet: at 06⁰⁰ G: 330°/70-80 m.p.h.
 at 03⁰⁰ E: 330°/50-60 m.p.h.
 at 03⁰⁰ W: 360°/50-60 m.p.h.

Sorties

3. (a) No. of aircraft despatched.....47
 (b) " reporting mines laid in primary area.....38
 (c) " abortive sorties (technical & manipulative defects.....3)
 (weather.....3); 7
 (navigational error.....1)
 (d) " aircraft missing... .. 2(4,3,)

Weather Experienced

4. Clouds over mining areas varied from 4/5-10ths at 3,000 feet to 6-7/10ths at 6,000 feet. Haze was experienced in most places. All crews reported bad weather on the return journey. The moon was 18³/₄ of full, setting about an hour before most aircraft laid their mines.

Enemy Defences

5. (a) Flak and Searchlights

Ground defences were in action at a number of points on the Atlantic Coast. Searchlights exposed in cones of up to a dozen beams and co-operated with both light and heavy flak, which was only moderate in intensity and not very accurate. Two aircraft received minor damage from flak.

- (b) Fighters

Enemy wireless traffic revealed the presence of two patrols of controlled night fighters in the Brest and St. Brieux areas. Only one unsuccessful pursuit was overheard.

..../Crews reported

Crews reported three encounters, all while outbound. A surprise attack in the Ile de Re area was assisted by searchlight co-operation, but the fighter's fire was very inaccurate and no damage resulted to the Halifax. In the two other encounters, the bombers took successful evasive action and no combats developed.

Casualties

5. No. of aircraft missing.....2
 " damaged (a) flak.....2
 (b) fighter.....NIL
 (c) not enemy action..NIL).....2

There is no evidence to account for either of the bombers lost.

RAF/VF.
 BC/S. 26342/4/ORS.
 16th July, 1943.

6/7th April, 1943. INTERLUDE

Target	Group	Type	Sertice	W/C reporting attack on		Evasive tactics		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over on. territ.	not over on. territ.		flak	fighter	not S/L	att-acked	not attacked	
MT. SAINTE	1	Well. III	3	2	-	-	-	1	-	-	-	-	-	4 mines
LEPONT		Well. X	3	3	-	-	-	-	-	-	-	-	-	6 mines
ST. MAL. TRE	1	Well. III	4	3	-	-	1	-	-	-	-	-	-	6 mines
		Well. X	2	1	-	-	1	-	-	-	-	-	-	2 mines
CHERBOURG	3	Str. I	5	4	-	-	1	-	1	-	-	-	-	16 mines
REVER		Str. III	7	7	-	-	-	-	-	-	-	-	4	23 mines
ROST	4	Well. X	6	5	-	-	1	-	-	-	-	-	-	10 mines
REVER	5	Lano. III	3	3	-	-	-	-	-	-	-	-	-	12 mines
ST. JEAN DE LAZ	5	Lano. III	2	-	-	-	2	-	-	-	-	-	-	-
LA. SAINTE	6	Halifax 'B'	10	8	-	-	1	1	1	-	-	1	1	16 mines
CHERBOURG														
REVER	8	Str. I	2	2	-	-	-	-	-	-	-	-	-	8 mines
INTERLUDE	TOTAL		47	38	-	-	7	2	2	-	-	1	2	103 mines

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 15/9th APRIL, 1943.Duisburg: Minelaying. (F. France).SUMMARY

1. Duisburg 391 aircraft set out to attack Duisburg. Bad weather was experienced en route and at the target, where 10/10 cloud prevented the main force from identifying the markers dropped by the P.F.F. Crews were mostly of the opinion that the raid was unsuccessful and no photographic evidence is available to modify this opinion.

19 aircraft failed to return.

Minelaying 21 out of the 27 aircraft despatched laid 63 mines off the west coast of France. One aircraft did not return from this operation.

Metecorological Forecast

2. Estimated midnight position of fronts: (1) warm front 59°N 12°E - 53°N 50°E - S.E. England - W. Channel: (2) cold front 59°N 12°E - Wash - N.W. Ireland.

Home bases:- All operational groups fit. Cloud 8-10/10 at 1500 ft. or below, falling locally to 1000 ft. Visibility moderate to good.

North Sea Coast of Germany:- Much medium and strato-cumulus cloud, becoming increasingly broken inland.

Ruhr:- Medium cloud, well broken; some breaks in strato-cumulus.

Western France:- Small amounts of strato-cumulus above 2,000 ft., increasing in S.W., base 1-2000 ft. Visibility good.

Route:- Well spaced layers of cloud, base 2,000 ft., total 8/10-10/10, tops below 10,000 ft.

Target:- Possibility of breaks in strato-cumulus to about 7/10.

Winds:-

	<u>Outwards</u>	<u>Homewards</u>
10,000 ft.	330/50	330/60
18,000 ft.	330/80	330/90
28,000 ft.	340/100	330/100

Plan of Attack

3. Zero Hour 2315 hrs. - Period of Attack 2315 - 2350

Briefed:- Egnon - 5200' 0640E - Duisburg - 5020' N 0330°E - Bayeux.

The operation was planned on the basis of ground marking with green T.I's (one long burning and one normal each), and also of skymarking with release point flares (green with red stars and one white steady flare) - igniting at 15,000' by Obco Mosquitoes, backed up by other P.F.F. aircraft keeping the aiming point marked with red T.I's. These aircraft were to aim their red T.I's at green, if seen, otherwise at the centre of the concentration of reds. If the red T.I's were not visible, the backers-up were to act as main force aircraft. Main force aircraft were to aim at green T.I's if possible,

...../but

but otherwise at the estimated centre of the area covered by all the red T.I's seen. If groundmarking proved unsatisfactory owing to cloud at the target, and the ground markers could not be seen, main force aircraft were to aim at the release point flares, on an exact heading of 195°K, with bomb sight settings true height and air speed and zero wind: speed of attack 165 m.p.h. I.A.S.

Only markers were to be bombed by the main force before 2325 hours: if none were visible on arrival before that time, the aircraft were to turn right and circuit to the west.

Preliminary warning flares (red steady) were also to be released by all Mosquitoes at 51°45'N 06°43'E.

Timing:-

<u>Mosquitoes</u> (Ground & Skymarking)	<u>Backers-up</u> (Groundmarking only)	<u>Main Force</u>
1 at 2315	5 from 2316 to 2319	All a/c of 3 Group + All Wellingtons 2316-2335
1 at 2320	3 from 2321 to 2324	
1 at 2325	3 from 2326 to 2329	
1 at 2330	3 from 2331 to 2334	Halifax 2330-2340
1 at 2335	3 from 2335 to 2338	Lancaster 2335-2350
1 at 2340	3 from 2341 to 2344	
1 at 2345	1 at 2346	
1 at 2350		

2 Mosquitoes reserves

Sorties

4.	(a)	No. of aircraft despatched.....	391
	(b)	" reporting attack on primary area.....	283(72.4%)
	(c)	" " alternative area.....	19 ^x (4.9%)
	(d)	" abortive sorties (technical or navigational defects.....	30)
		(icing.....	31)
		(weather.....	5)
		(illness.....	2)
		(not known-crashed.....	2)
		(late take-off.....	1)
	(e)	" aircraft missing.....	19(4.9%)

x includes 1 a/c which also attacked primary.

Weather Experienced

5. Home Bases:- Much layer cloud. Base generally 1,500-2,500 ft. Light local rain. Visibility moderate.

Route:- 9-10/10 layer cloud, tops 6,000 ft. over Western North Sea, rising gradually to 12-15,000 ft. over Dutch coast to 18-20,000 ft. over Continent. Light clear ice in cloud tops.

Winds:- 330°/50-60 m.p.h. across North Sea, becoming 340°/80 m.p.h. towards targets.

Target:- 10/10 layer cloud, tops 13-20,000 ft. contrails at 20,000 ft. and above. Wind: 340°/80 m.p.h.Narrative of attack

Narrative of Attack

6. Of the 10 Mosquitoes detailed, one crashed at take-off and two did not attack owing to Oboe failures. 6 of the remainder dropped tracking flares and all 7 dropped release point flares and green T.I.'s between 2313 and 2348.

One of the 22 backers-up was missing, 5 returned early and 15 bombed with the main force and brought back their red T.I.'s. One aircraft bombed at 2317 hours and dropped red T.I.'s as well as H.E. The crews reported that they aimed at the centre of 3 release point flares which were seen in the bomb sight.

Crews of the main force considered the operation a failure, very few of them saw anything of the P.F.P.'s activities in any results of their own or other bombing. The majority bombed on E.T.A. from the last Gee fix (usually from the Dutch coast) but some saw red tracking flares and did a timed run from that position. A few saw white flares indistinctly and even release point flares or the glow of what were presumed to be green T.I.'s. In general, however, it seems to have been impossible to distinguish between the reflections produced by flares, searchlights, fires, and gun flashes. The white flares were apparently the most distinctive of the various markers used, and the most optimistic reports came from crews who claimed to have seen them fairly distinctly.

Photographic Evidence

7. No night photographs showing ground detail were returned. Daylight reconnaissance was flown after the attack on the following night and details of the damage observed will be included in the report of that raid.

Navigational Aids (Gee)

3. The target frequency 'Zanesville' was used for the first time on this raid. Increased ranges were obtained, but the experiment was not a complete success owing to general inexperience of the new technique. The Eastern chain operated on the Virginia frequency throughout and on the target frequency from 2230-2350 hrs. 62 aircraft with Gee Mk.I and 146 with Mk.II sets returned useful information. 93% of the former and 82% of the latter had no set difficulties, obtaining average ranges of 220 and 230 miles respectively. 7% of 44 Squadron using a Mk.II set received Gee over the target i.e. at a range of 340 miles. The signals on the target frequency were not as strong as on the Virginia frequency, the signal being weakest. There was no evidence in navigators' reports of interference on the target frequency.

Blind Bombing Aids (Oboe)

9. 10 Mosquitoes were despatched to release ground and sky markers over the target. 4 aircraft and one reserve were controlled by Walner and Trimmingham I and 4 and one reserve by Stingate and Trimmingham II. Release signals were to be given at 5 minute intervals, the control stations operating alternately, and Trimmingham I giving the first signal at 2315 hours. One Stingate aircraft crashed immediately after take-off and 2 Walner sorties were abortive owing to failure of the Oboe equipment. The bomb release mechanism on one of these aircraft also failed. The remaining 7 aircraft, 6 of which released warning flares at the correct point, dropped both sky and ground markers at Essen. The timing was somewhat erratic, Trimmingham I varying from 1 minute early to 3 minutes late and Trimmingham II from nil to 4 minutes early, but the target was marked continuously during the period of the attack.

Enemy Defences

10. (a) Flak and Searchlights:

Conditions of 10/10 cloud, very thick and with tops at up to 22,000 feet, were unfavourable for searchlight and few were seen in action. Heavy flak .../was reported

was reported as moderate to intense, most of it accurately predicted but with possibly some barrage fire. 9.7% of sorties were damaged, about half of them over the target area.

(b) Fighters:

Enemy wireless traffic provided evidence of only small scale activity by controlled fighters. Nothing was heard either of attempts to intercept or of claims to success. Crews reported 2 encounters over the North Sea and several in the Amsterdam/Apeldoorn area on the outward journey and five in the target area. On the return, encounters were mostly in the area of Abbeville/Arras. In all only two attacks and 21 other encounters were reported.

Casualties

11.	No. of aircraft missing.....	19
	" damaged (a) flak.....	38
	(b) fighter.....	Nil
	(c) not enemy action.....	3

Cloud conditions much reduced the chance of aircraft in difficulties being seen from others and there is no definite evidence of the cause of any of the 19 casualties. Two homebound aircraft were seen to fall in flames near Arras and Abbeville, at times when fighters were reported to be active in the area.

Two other aircraft were seen in flames, one off the Dutch coast while outbound and one over the target area.

Losses must be considered rather high in view of the apparently restricted scale of fighter activity. Severe icing conditions were encountered by many aircraft and these may have increased losses either directly or by forcing aircraft to meet defences at low level.

MINELAYING

Sorties

12.	(a) No. of aircraft despatched.....	27
	(b) " reporting mines laid in primary area.....	21
	(c) " abortive sorties (weather).....	5
	(d) " aircraft missing.....	1(3.7%)

Weather Experienced

13. Small amounts of layer cloud. Moderate to good visibility.

Results

14. 27 Lancasters, Stirlings and Wellingtons were despatched to lay mines off the West coast of France. 21 of these reached their target areas and laid 63 mines.

Enemy Defences

15. (a) Flak and Searchlights

Slight opposition from light and heavy flak assisted by searchlights was encountered.

(b) Fighters

Enemy wireless traffic disclosed the activity of patrols in the
.../St. Brieuc

St. Brieuc and Lorient areas. Four pursuits were heard, but there were no claims of success.

Casualties

16. No. of aircraft missing.....1(3.7.)
 " " damaged { (a) flak.....1 }
 (b) fighters.....Nil }.....1
 (c) not enemy action...Nil }

From reports of returned crews it appears likely that the missing Wellington was shot down in flames by light flak from about 1,000 feet near the Ile de Groix.

APPENDIX (DUISBURG)

Timing of Attack

I. Pathfinder Force:

7 Mosquitoes dropped their flares at 2314, 2319, 2327, 2335, 2337, 2346 and 2348 respectively.

16 backsc-up attacked at 2316, 2317(2), 2318, 2319, 2326(3), 2327, 2329, 2330, 2333(2), 2334, 2339, 2346 & 2351 respectively.

Main Force:

Section 1

3 aircraft attacked 6-0 mins. early
 78 " " within the planned period (2316-35)
 13 " " 0-11 mins. late

Section 2

7 aircraft attacked 5-0 mins. early
 31 " " within the planned period (2330-40)

Section 3

19 aircraft attacked 10-1 mins. early
 90 " " within the planned period (2335-50)
 3 " " 0-12 mins. late
 1 " " 27 mins. late

5 Main Force aircraft of 8 Group attacked at 2318, 2322(2), 2326 and 2329.

Load Loads

II. (of aircraft reporting attack on primary).

Pathfinder Force

7 carried T.I's + flares
 16 " T.I's + H.E.
 23 aircraft

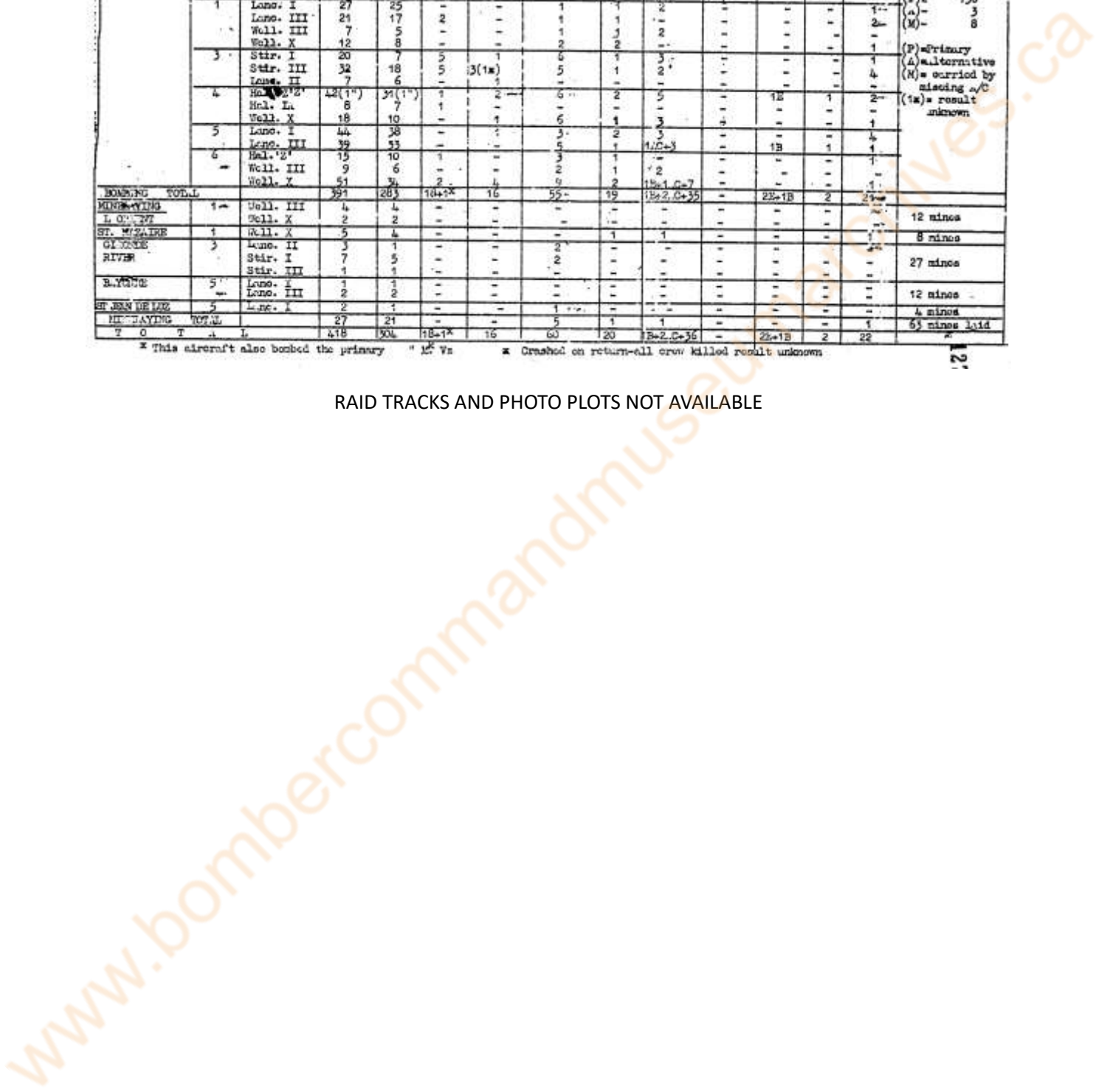
159 aircraft carried H.E. + 4lb. + 30 lb. I.B.
 39 " " H.E. + 4lb. I.B.
 30 " " H.E. + 30 lb. I.B.
 17 " " H.E. only
 15 " " 4 lb. + 30 lb. I.B.
 260 aircraft

MT/VF.
 EC/S. 26342/2/ORS.
 11th July, 1943.

Location	Aircraft	Bomb Type	No.	stack on		over en- territ.	not over en. territ.	Flak	lighter	not E/A	att- acked	not attached	Tons of Bombs		
				prim. area	alt. area								H.E.	Inc.	
LUISSBURG	B P.P.Z.	Hsq. IV	10	7	-	2	1	-	-	1E	-	-	(P) 40.8	390.0	
		Stir. I	2	2	-	-	-	-	1	-	-	-	(A) 23.1	30.9	
		Hal. II'Z'	7	4	-	-	3	-	-	-	-	-	(M) 29.0	19.8	
	B Main Porco	Lano. I	12	10	1+X	-	1	-	-	-	-	2	-	(M) 1.3	2.4
		Stir. I	1	-	-	-	-	-	1	-	-	-	-	-	-
		Stir. III	1	1	-	-	-	-	1	-	-	-	-	-	-
	1	Hal. II'Z'	1	-	-	-	1	-	-	-	-	-	-	-	-
		Lano. I	5	4	-	-	-	-	1	-	-	-	-	-	-
		Lano. I	27	25	-	-	1	1	2	-	-	-	1	-	-
		Lano. III	21	17	2	-	1	1	-	-	-	-	2	-	-
	-	Wall. III	7	5	-	-	1	1	2	-	-	-	-	-	-
		Wall. X	12	8	-	-	2	2	-	-	-	-	-	-	-
	3	Stir. I	20	7	5	-	1	1	3	-	-	-	-	-	-
		Stir. III	32	18	5	3(1*)	5	1	2	-	-	-	-	-	-
		Lano. II	7	6	-	-	1	1	2	-	-	-	-	-	-
	4	Hal. II'Z'	12(1*)	11(1*)	1	2	5	2	5	-	1E	1	2	-	-
		Hal. Ia	8	7	1	-	-	-	-	-	-	-	-	-	-
		Wall. X	18	10	-	-	6	1	3	-	-	-	-	-	-
	5	Lano. I	44	38	-	-	3	2	3	-	-	-	-	-	-
		Lano. III	39	33	-	-	5	1	1/2-3	-	-	-	-	-	-
6	Hal. II'Z'	15	10	1	-	3	1	2	-	1B	1	1	-	-	
	Wall. III	9	6	-	-	2	1	2	-	-	-	-	-	-	
	Wall. X	51	31	2	4	9	2	15+1 G-7	-	-	-	-	-	-	
BOMBING TOTAL			391	283	18+2*	16	55	19	1E+2 G-7	-	2E+1B	2	2*	-	
MIRSAVING	1	Wall. III	4	4	-	-	-	-	-	-	-	-	-	12 mines	
L. O. P. I	2	Wall. X	2	2	-	-	-	-	-	-	-	-	-	-	
ST. MARIE	1	Wall. X	5	4	-	-	-	1	1	-	-	-	-	8 mines	
CLONDE	3	Lano. II	3	1	-	-	2	-	-	-	-	-	-	-	
RIVER	7	Stir. I	7	5	-	-	2	-	-	-	-	-	-	27 mines	
	1	Stir. III	1	1	-	-	-	-	-	-	-	-	-	-	
B. YARD	5	Lano. I	1	1	-	-	-	-	-	-	-	-	-	-	
	2	Lano. III	2	2	-	-	-	-	-	-	-	-	-	12 mines	
ST. JEAN DE LEE	5	Lano. I	2	1	-	-	1	-	-	-	-	-	-	4 mines	
MIRSAVING TOTAL			27	21	-	-	5	1	1	-	-	-	-	1	
TOTAL	70	418	304	18+2*	16	60	20	1E+2 G-7	-	2E+1B	2	2*	-	53 mines laid	

* This aircraft also bombed the primary "M" Vn * Crashed on return-all crew killed result unknown

RAID TRACKS AND PHOTO PLOTS NOT AVAILABLE



BOMBER COMMAND REPORT ON NIGHT OPERATIONS, -9/10th APRIL, 1943.DUISBURG: LeafletsSUMMARY

1. Duisburg Duisburg was the target for a force of 104 Lancasters, led by 5 "Oboe" Mosquitoes, which included two reserve aircraft. In view of the cloud conditions expected a combination of sky and ground marking was to be adopted. Cloud was found to obscure the target completely and the timing of the Mosquitoes was erratic; but, nevertheless, 88 Lancasters reported attack. The majority bombed on the sky-markers or on the green T.I., dropped by the first Mosquito, which glowed through cloud.

Night photographs obtained show only cloud, but day reconnaissance photographs, which include the results of a raid on the previous night, show scattered damage in the town.

3 aircraft (7.3%) failed to return. Night fighters were the cause of 6 of these losses and of damage to one other aircraft which crashed on return, becoming a total loss.

One He. 109 and possibly one other enemy aircraft were destroyed.

Metereological Forecast .

2. The estimated midnight position of fronts was: (1) warm from 59°N 5°E - Lincolnshire - Isle of Wight - Tours, becoming cold to Lyons, then occluded to Milan and Vienna (2) cold from 59°N 5°E - Central Scotland.

Home bases:- There should be strato-cumulus cloud, with a few breaks, base above 1500 ft, except locally near the warm front and in 91 Group. The tops of the cloud should be approximately 6000 ft, but probably up to 8/10,000 ft. in Lincolnshire near the warm front. Visibility should be moderate except in 1 and 5 Groups, where it will fall to 1,000 yards locally, owing to smoke.

Germany: Over North and Central Germany there should be much strato-cumulus, with a few breaks, especially in the Ruhr area, but probably 10/10 over Duisburg. Medium cloud should be well broken.

North West France: Much strato-cumulus, with base above 1000 ft.
Winds en route and at the target: At 18000 ft - 330°, 50 n.p.h. At 28000 ft. - 320°, 55-60 n.p.h.

Plan of attack

3. Zero hour 2300 - Period of attack 23.0-23.13

This operation was planned to use the Oboe sky-marking technique by 3 Mosquitoes at 5 minute intervals between 2300 and 2310 hours, but, in view of the possibility of cloud breaks at the target, the Mosquitoes were also to drop green T.I.'s exactly on the aiming point. Two additional Mosquitoes were detailed as reserves.

The main force was to consist of experienced Lancaster crews of Nos. 1 and 5
...../Groups

Groups, all loaded with 1 x 4000 lb. H.C. + incendiaries. These aircraft were to fly as high as possible, attack from not less than 20,000' and aim their bombs at the ground markers if possible, but otherwise at the release point flares on an exact heading of 192°M at I.S. 165 n.p.h. with bombsight settings of true height and air speed and zero wind.

Preliminary warning flares (red steady) were to be dropped by the Mosquitoes at 51°39'N. 06°45'E, 3 minutes before the release point. Release point flares were to be red with green stars + 1 white flare to give longer burning time.

In view of the small size of the main force and the short period of attack, very careful attention was to be paid to timing instructions.

Timing of attack:-

<u>Mosquitoes</u>	<u>Main Force</u>
1 at 2300 hours	
1 at 2305 hours	1 Group 2301 - 2304 hours
1 at 2310 hours	50% of 5 Group 2306 - 2309 hours
	50% of 5 Group 2310 - 2313 hours

Route: P.P.F.: Zandvoert - Duisburg - Overflakel.

Main Force: Egnond - 52°00'N 06°40'E - Duisburg - Noordwijk

Sorties

4.	(a)	No. of aircraft despatched.....	109
	(b)	" reporting attack on primary area.....	91(83.5)
	(c)	" abortive sorties (technical and manipulative defects).....	10(9.2)
	(d)	" aircraft missing.....	8(7.3)

Weather Experienced

5. Bases: Variable amounts of layer cloud mainly 8-10/10ths, base above 2000 ft. Visibility moderate.

Route:- Variable amounts of layer cloud, tops 5-6,000 feet. Wind 310° - 320°, 35-45 n.p.h.

Duisburg: 10/10ths layer cloud, tops 6-8000 ft. (estimated). variable amounts of cirrus cloud above 25000 ft. Winds at 15-20,000 ft, 320°, 50-60 n.p.h.

Moon 37% illuminated.

Night Photographic Statistics

6. No successful photographs were taken owing to 10/10 cloud over the target area.

Narrative of Attack

7. In view of the lack of photographic evidence, no detailed analysis of tactical success of this raid has been made.

The first release point flares and green T.I's were dropped 4 minutes late, and the others after intervals of 11 and 13 minutes respectively. Most of the main force, which arrived at the target on time, bombed on the first flares or on the glow of green T.I's seen through cloud, while a few bombed the glow of fires. A better concentration was apparently achieved than on 6/...../previous night

3.

previous night, when the same target was attacked, and main force crews report that the P.F.F., though late, appeared to be accurate. It therefore seems probable that most of the damage seen on the daylight reconnaissance photographs was caused by this raid.

Day Reconnaissance

3. Photographs taken following the attacks of 8/9th and 9/10th April cover the whole of the town and suburbs, excepting a small area north and south of the Parallel Hafen, and the north-eastern outskirts.

A number of fresh incidents of damage by fire and H.E. are seen scattered over the town and in districts to the North and East. In 3 branches of the Vereinigte Stahlwerke A.G. which were producing munitions, 10 buildings, including rolling mills and workshops, were destroyed or damaged by H.E. Serious damage was also caused to 2 factories, one making light electrical apparatus and the other bicycles. An engine round house and one bay of a locomotive repair shop were partially gutted and a large shed in the goods station at Hochfeld was half destroyed. A large building in the tramway depot, which was under repair, was further damaged in these raids. 3 public buildings were severely damaged by fire or H.E., and 2 barrack buildings sustained slight damage. In addition about 25 houses were destroyed and a further 30 partially demolished or seriously burnt, while several others were damaged.

Alternative Targets

9. No alternative target was attacked.

Navigation Aids (Gee)

10. The Eastern Chain operated on the Virginia frequency throughout, and on the target frequency, Zanesville, from 2230-2330 hrs. Only aircraft fitted with Gee Mark II were despatched, 81 returning useful information. 52 of these had no set difficulties, and obtained an average range of 290 miles. 20 aircraft received Gee in the target area. The signals were all strong, and the factor which prevented complete success was not enemy jamming, but mainly bad tuning of sets.

Blind Bombing Aids (Oboe)

11. 5 Mosquitoes of 109 Sq. equipped with Oboe were despatched. Aircraft 'H' and reserve aircraft 'F' were to be controlled by Springate and Trimmingham II, while 'U' and 'R', with 'Q' as reserve were to be controlled by Walmer and Trimmingham I. In error, 'H', which should have attacked at 2300 hours, used the wrong frequency, and was controlled by Walmer and Trimmingham I, thus causing 'U' to be ignored. 'H' receiving the signal intended for 'U', released T.I's and flares at 2304 hrs. Apparently the ground station believed 'H' to have failed and the reserve aircraft 'F' was brought in by giving the release signal at 2317 hr, both T.I's and flares being dropped.

'R' returned early owing to a technical defect, and was replaced by 'Q', which received the signal to attack at 2315 hr. Flares were released, but 2 green T.I's were brought back owing to a mechanical failure.

Warning flares were released at the correct point on route by 'H', 'R' and 'Q', but 'U' which received no signals, dropped the flares early in error.

Enemy Defences

12. (a) Flak: Searchlights

Intense barrage fire, with some accurate predictor-controlled heavy flak was experienced over the target area. Searchlight activity was restricted by cloud. 5 Lancasters were damaged.

(b) Fighters

Intercepted wireless traffic indicated that controlled night fighters were first active South of the Zuyder Zee, shortly after the bombers crossed the enemy coast

coast. 10 patrols were located. These made 5 pursuits before the target was reached, one in the target area, and 6 on the homeward track. One patrol claimed 2 victories in the area North of Amsterdam, while a third claim was made by a night fighter in the Hague area. The latter fighter appeared to make contact immediately afterwards with a second bomber, but the wireless traffic ceased abruptly 5 minutes later. This may possibly have been the fighter which was destroyed in the same area by one of the Lancasters.

Considerable fighter activity was reported during the whole time the bombers were over enemy territory, but only 15 aircraft reported interceptions. 5 attacks developed, during which 4 bombers were damaged, one being a total loss. One Me. 109 was destroyed and one Ju. 88 damaged.

Casualties

13.	No. of aircraft missing.....	8(8.8)
	" " damaged (a) flak.....	5(5.5)
	(b) fighter.....	4(4.4)
	(c) non E/A.....	0
		}....9(9.9)

The observations of returning crews indicate that most of the losses occurred on route. A Lancaster was seen in combat with an enemy aircraft near Hertogenbosch, and both aircraft crashed in flames. 2 aircraft were seen to be shot down by fighters near Utrecht and Noordwijk, in both of which areas pursuits are known to have taken place at the time of the observations. In addition, 3 claims were made by controlled fighters, 2 North of Amsterdam and one near The Hague. One aircraft was seen to be shot down by flak near Eindhoven and another near Nijmegen. It therefore appears probable that 6 of the missing aircraft were shot down by fighters, and 2 by flak.

LEAFLETS

14. 5 Wellingtons of 91 Group successfully scattered leaflets over the Orleans area, returning undamaged, although one Wellington was attacked by an enemy aircraft and some heavy flak was experienced.

APPENDIX

I. Timing of Attack

- (a) Pathfinder Force
3 Mosquitoes attacked at 2304, 2315, 2317.
- (b) Main Force
No. of aircraft which bombed before 1st flares were released(2304)
 " between 2304 and 2309.....
 " " 2309 and 2314.....
 " " 2314 and 2319.....

* 7 of these aircraft bombed on flares or T.I. and probably recorded the bombing-time incorrectly.

II. Bomb Loads Carried

- (a) Pathfinder Force
Flares + T.I.....
- (b) Main Force
H.E. + 4 lb. incendiaries.....
H.E. + 30 lb. incendiaries.....
H.E. + 4 lb. + 30 lb. incendiaries.....

EHO/VF.
EC/S. 26342/5/CRS.
4th July, 1943.

Target	Group	Type	Sortie	No. sorties attack on		No. sorties over		Number	flak	fighter	not E/A	attacked	not attacked	Tons of Bombs	
				prim. area	alt. area	on. territ.	on. territ.							H-E	Inc.
DUISBURG	B	Mosquito	5	3	-	1	1	-	-	-	-	-	-	(P) 153.5 (M) 16.3	145.9 7.4
	1	Lanc. I	19	15	-	1	2	1	-	-	-	-	3		
		Lanc. III	15	13	-	-	-	2	-	1E	-	2	5		
	5	Lanc. I	37	33	-	-	2	2	1	1A+1	-	2	1		
		Lanc. III	33	27	-	-	3	3	L	1A	-	1	1		
DUISBURG	TOTAL		109	91	-	2	8	8	5	1E+2A +1	-	5	10		
LE FLERS															
ORLEANS	91	Well. Id	5	5	-	-	-	-	-	-	-	1	-		
T O T A L			114	96	-	2	8	8	5	1E+2A +1	-	6	10		

RAID TRACKS AND PHOTO PLOTS NOT AVAILABLE

www.bombercommandmuseumarchives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 10/11th APRIL, 1943.FRANKFURT: Mine-laying: LeafletsSUMMARY

FRANKFURT A strong force of 502 medium and heavy bombers set out to attack Frankfurt. 437 (87.0%) aircraft reported attack, but 10/10 cloud obscured the target and the ground markers dropped by Y-type aircraft. Bombing was consequently very scattered, and there is no photographic evidence to show where the weight of the attack fell. 19 aircraft failed to return, 3 more crashed on return and one came down in the sea.

MINE-LAYING 7 Stirlings laid a total of 42 mines off the Frisians Islands, without incident.

LEAFLETS Leaflets were scattered in the Lyon area by 4 Wellingtons of 92 Group. No opposition was met.

eteorological Forecast

Estimated midnight position of fronts: (1) warm from 59°N 25°E - 41°N 15°E. - (2) Cold from 59°N 25°E - North Denmark - 57°N 2½°E then warm North Scotland.

Home Bases: Operational bases are expected to be fit all night, with cloud above 3000 ft. and visibility at least 1-3 miles, towards dawn. 95 Group expects trouble with smoke over eastern stations and 91 Group may have patches of cloud at about 1000 ft. Otherwise the training groups will be fit.

Germany: There will be strato-cumulus over most of Germany, with breaks and probably some good clearances inland.

France: Good breaks in the strato-cumulus will occur over Northern France with little or no cloud in the South.

Italy: Much cloud is expected over the Alps, but probably little cloud over Northern Italy.

Kiel and route: 7-10/10 strato-cumulus, base 1,000-1,500 ft, will break to 600 ft. over the Eastern North Sea, with tops 8-10,000 ft. There will be medium cloud above for the second half of the route, base about 12,000 ft. icing index will be high in cloud.

Frankfurt and route: Mainly 10/10 cloud, base 3000 ft, tops 6/7000 ft. There is possibility of breaks en route, and 5-10/10 cloud in the target area, though this cannot be forecast with any confidence. Visibility moderate at Frankfurt.

Winds: At 18,000 ft. 300°/30 m.p.h. over sea. 290°/25 m.p.h. for land.

...../Plan of Attack

Plan of Attack

3. Zero hour 0230 Period of Attack 0230 - 0305 hrs.

Briefed route:- 5000 N 0132E - Copenhagen - Frankfurt - 5015N 0640E - 5000N 0132E.

The target was to be marked by Y aircraft at zero hour with red T.I's backed up by other P.P.F. aircraft using greens at the centre of all T.I's irrespective of colour throughout the attack. Aircraft of the main force were to aim at the estimated centre of the area covered by all T.I's seen, irrespective of colour.

En route to the target, Y aircraft were to drop green steady flares and yellow ground markers at $49^{\circ}19'N$ $06^{\circ}38'E$; the backers up were to drop yellow ground markers only at this point. Preliminary warning flares (green steady) and yellow ground markers were to be dropped by Y aircraft 15 miles short of the target on track ($49^{\circ}56'N$ $08^{\circ}50'E$) and the backers up were again to maintain the marking by using yellow ground markers at the previous yellows. As a guide to navigation on the route home, similar marking was to be carried out at $50^{\circ}12'N$ $07^{\circ}38'E$.

If Y aircraft were unable to see their own preliminary warning ground markers 15 miles short of the target, the skymarking technique was to be used.

Timing for groundmarking

Markers	Main Force
18 (Y) at 0230 hours.	-
1 " 0231 "	-
2 " 0232 "	Stirlings & Wellingtons 0232-0255
16 at 1 min. intervals 0233-0248	Halifax 0240-0305
1 at 0250 & 0251	-
2 " 0253 & 0254	Lancasters 0255-0310
2 " 0256 & 0257	-
2 " 0259 & 0300	-
2 " 0302 & 0303	-

Bomb Loads

	T.I.			Flares			H.E.
	Yellow	Red	Green	Green	Red/Green	White	
P.P.F. Y aircraft	3	4	-	3 x 3	1 x 2	1	-
11 Stirlings							
7 Halifaxes	3	4	-	3 x 4	1 x 5	1	1x1000 G.P.
Backers-Up							
2 Stirlings	3	-	4	-	-	-	5x1000 "
10 Halifaxes	3	-	4	-	-	-	5 x 1000 "
17 Lancasters	3	-	4	-	-	-	1x1000 HC + 4x1000

Main force to carry mixed H.E. and incendiary loads except Wellington 423's (1 x 4000 H.C.) and 1 Lancaster of 5 Group (1 x 8000 H.C.)

Sorties

1.	(a)	No. of aircraft despatched.....	502
	(b)	" " reporting attack on primary area.....	437(87.0%)
	(c)	" " " alternative area.....	7(1.4)
	(d)	" abortive sorties (technical defects and manipulative errors.....	35)
		(sickness of crew.....	3)
		(crashed (on way out).....	1)....39(7.8)
	(e)	" missing.....	19(3.8)

Weather Experienced

5. Route and Target. 10/10 layer cloud, tops about 9000 ft.
Winds at 18000 ft. - 300°/25-30 n.p.h. One report of light rime in cloud.
Moon slightly less than half-full, setting at approximately 0300 hours.

Narrative of Attack

6. The target was obscured by 10/10 cloud, but all the Y type aircraft reporting attack used red T.I's and brought back their sky-markers. A fairly good concentration of red T.I's which were visible through the cloud appears to have been achieved by the earlier Y type aircraft and the backers-up maintained a continuous marking. The green T.I's were not, however, in sufficient numbers to be effective below cloud, nor were they accurately placed. The earlier main force aircraft based on red T.I's but as the attack progressed an ever-increasing area of cloud was illuminated from below by T.I's, fires and searchlights. Thus many of the later aircraft, unable to find a concentration of T.I's, bombed on timed runs from the turning point flares or from Gee fixes. Some aircraft reported attacking on sky-markers, which may have been dropped by the 2 Y type aircraft which failed to return. Reports from Y type aircraft indicate that the attack spread for many miles round the position of the initial group of red T.I's, reaching as far back along the line of approach as the last turning point flares, which some aircraft appear to have bombed in error. There is no photographic evidence to show where the attack fell.

Photographic Evidence

7. Photographs taken with bombing show only cloud detail, and no P.R.W. cover of Frankfurt has been obtained since the attack.

Alternative Targets

8. 7 aircraft attacked alternative targets, in the areas of Abbeville, Bayeux, Amiens, Castellana (S.W. of Coblentz) Rhein-Elm (S.W. of Frankfurt) and a flak concentration near the target. In addition, 3 aircraft which also attacked the target, released part of their loads near Albert, St. Quentin and Bohain.

Navigational Aids (Gee)

9. The Western Chain operated on the Virginia frequency throughout and on the target frequency from 0200-0300 hours. 12 aircraft fitted with Mk.I and 240 with Gee Mk.II returned useful information. 84 of the former and 87 of the latter had no set difficulties, average ranges of 175 miles and 250 miles respectively being obtained. One aircraft using a Mk.II set, received Gee over the target, a range of 450 miles. The B signal was the weakest. The jamming on Stud 5 (the target frequency) was similar, but weaker than, the jamming on Stud 3 - this apparently being due to a local breakthrough.

.../Blind Bombing Aids

Blind Bombing raids (H2S)

10. 17 Y-type aircraft (11 Stirlings and 6 Halifaxes) were despatched to find and mark the target. One Stirling and one Halifax failed to return. A Halifax which reported unserviceable equipment and engine failure just before reaching Frankfurt, attacked an alternative target with H.E. only. In addition, one Stirling and 2 Halifaxes returned without attacking owing to the failure of H2S, and another Stirling sortie was abortive owing to engine failure. Of the remaining 10 aircraft, none of which had any set difficulties, 7 released red P.T.'s in the target area within 2 minutes of the specified time, and 3 were 10-14 minutes late. The target response was identified at ranges of 15-20 miles.

Enemy Defences

11. (a) Flak and Searchlights

Searchlights were mainly used for illuminating the cloud-base over the target. There were several reports that they were active as track-indicators, especially over France where red flares were apparently used for the same purpose. Scarecrow flares were also reported. Heavy flak of varied intensity was widespread, but the proportion of aircraft damaged by flak (3.6%) is low for this target.

(b) Fighters

8 controlled night fighter patrols, revealed by enemy wireless traffic, was overheard to make 6 pursuits and 2 claims, but no unsuccessful attacks were heard.

Considerable night fighter activity was reported by crews, who gave details of 15 attacks and 70 other encounters, one fifth of the total being over the target area and the remainder equally divided between the outbound and homebound journeys. Activity was particularly high in the Abbeville and Civet-Trier area. All the attacks made on the return routes were in these areas.

A single engine aircraft was seen to fall in flames after a combat with a 4 engine aircraft over the target area, and a P.W. 190 was seen to crash near Peronne.

Casualties

12.	No. of aircraft missing.....	19
	" " Damaged (a) flak.....	18
	" " (b) fighter.....	Nil
	" " (c) not in action... 3)	3
		21

Of the 19 losses, 9 may possibly be attributed to fighters and one to heavy flak.

Reports of aircraft probably shot down by fighters account for four outbound aircraft at Trier, Hesidres, Mainz and Sarnstadt, one over the target area and the homebound at Rochefort and in the Trier/Coblenz area. The two controlled night fighters heard claiming successes were operating in the Strasbourg/Frankfurt area and in S.W. Holland respectively. Wireless messages were received from two missing bombers. A Wellington of 4 Group sent an S.O.S. from 7 miles N. of Jersey and a Lancaster of 5 Group was heard 50 miles E. of Skegness. There were no survivors from either aircraft.

Collisions were reported by a Stirling, with an enemy aircraft, and by a Wellington with an unknown aircraft. It is possible that both reports refer to the same incident.

A Wellington crashed near Hastings, after failure of the port engine, killing 4 of the crew. Another Wellington, abandoned owing to shortage of .../petrol

petrol, crashed in Warwickshire. The pilot was picked up by A.S.R. 2 miles off Tenby, while the rest of the crew made safe descents over land. A Stirling which had been damaged by flak became a total loss after making a forced landing in the sea 3 miles South of Shoreham, due to petrol shortage. 7 of the crew were picked up by a Walrus.

MINELAYING

13. 42 mines were successfully laid off the Frisian Islands by 7 Stirlings. There was no fighter activity, and red tracer from Ameland and from a ship in that area was ineffective.

LEAFLETS

14. 4 Wellingtons dropped leaflets over Lyons, all returning undamaged.

APPENDIX

Timing of Attack

(a) Pathfinder Force

- (i) 10 Y aircraft dropped T.I. and H.B. at the following times:-
0228, 0230(2), 0230½(2), 0231(2), 0240, 0242, 0244.
1 Y aircraft dropped H.B. at 0255.
- (ii) 25 Beavers-up attacked at:- 0233(2), 0234(3), 0237(2),
0240(3), 0242(2), 0243, 0246, 0248, 0250, 0251, 0257(2) 0258,
0259, 0301(2), 0308, 0311.

(b) Main Force

(i) Stirlings and Wellingtons (0232-0355)

Aircraft attacking 1-5 minutes early.....	1
" within prescribed period.....	154
" 1-5 minutes late.....	18
" 6-10 "	9
" 11-20 "	7
	<u>189</u>

(ii) Halifaxes (0240-0305)

Aircraft attacking within prescribed period.....	93
" 1- 5 minutes late.....	7
" 6-10 "	3
	<u>103</u>

(iii) Lancasters (0255-0310)

Aircraft attacking 11-20 minutes early.....	1
" 6-10 "	8
" 1-5 "	12
" within prescribed period.....	79
" 1-5 minutes late.....	5
" 6-10 minutes late.....	3
" 11-20 "	1
	<u>109</u>

...../Bomb Loads Carried

II. Bomb Loads Carried by Aircraft Reporting Attack

(a) Pathfinder Force

T.I. + flares + H.E. 11
 T.I. + H.E. 25
36

(b) Main Force

H.E. + 30 lb. inc. + 4 lb. inc. 155
 H.E. + 30 lb. inc. 32
 H.E. + 4 lb. inc. 26
 H.E. only. 41
 30 lb. inc. + 4 lb. inc. 147
401

ENO/VF.
 IC/S. 26342/4/ORS.
 19th July, 1943.

Target	Group	Type	Bortics	A/C reporting attack on		Abortive bortics		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attacked	not attacked	H.E.	Inc.	
BRISBANE	P.P.F.	Stir. I	13	9	-	2	1	1	2	-	-	-	-	(P) 479.0	546.2	
		Lano. I	15	13	-	2	-	-	-	-	-	-	2	(A) 7.2	5.3	
		Lano. III	1	1	-	-	-	-	-	-	-	-	-	-	(M) 15.4	19.2
		Hal. 'E'	16	13	1	1	-	1	-	-	-	-	3	-	-	
	Main Force	1	Stir. III	3	1	-	-	1	1	-	-	-	-	-	-	-
			Hal. 'E'	2	2	-	-	-	-	-	-	-	-	-	-	-
		2	Lano. I	25	24	-	1	-	1	1	-	-	3	14	(P) 1	124
			Lano. III	24	19	1	-	-	1	-	-	-	-	5	(A)	2
			Well. III	9	5	-	1	-	3	-	-	-	1	3	(M)	4
			Well. J	19	18	-	1	-	-	2	-	-	1	6	-	-
	3	Stir. I	29	24	2*	1	4	-	-	-	-	1	2	-	-	
		Stir. III	53	46	3	-	2	2	1E+1	-	1E	2	8	-	-	
Lano. II		8	7	-	-	-	1	-	-	-	-	3	-	-		
4	Hal. 'E'	64	61	3*	-	1	2	1	-	-	-	-	-	-		
	Hal. 'L'	18	17	-	-	1	-	-	-	-	-	-	-	-		
	Well. J	32	27	-	-	3	2	3	-	-	-	-	-	-		
5	Lano. I	36	33	-	-	2	1	-	-	-	-	-	-	7		
	Lano. III	30	26	1	-	1	2	1	-	-	-	-	-	3		
6	Hal. 'E'	24	23	-	1	-	-	-	3	-	-	3	7	-		
	Well. III	12	11	1	-	-	-	-	-	-	-	-	-	-		
	Well. J	72	57	-	5	8	2	1, C+2	-	2E	4	1	-	-		
BOBING TOTAL		502	437	7+3*	10	29	19	1E+1, C+2 +16	-	3E	15	70	-	-		
MURRAY BRIDGES	3	Stir. I	4	4	-	-	-	-	-	-	-	-	-	24 mines		
		Stir. III	3	3	-	-	-	-	-	-	-	-	-	18 mines		
MURRAY BRIDGES TOTAL		7	7	-	-	-	-	-	-	-	-	-	42 mines			
MURRAY BRIDGES LINES	92	Well. III	4	4	-	-	-	-	-	-	-	-	-	-		
TOTAL			513	448	7+3*	10	29	1E+1, C+2 +16	-	3E	15	70	-	-		

* also attacked the primary target.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 11/12th APRIL, 1943.MINELAYINGSUMMARY

46 aircraft of all Groups were detailed on a mining operation off the Frisians, the Dutch coast and the west coast of France. 41 reached their targets, laying 130 mines. 2 aircraft were lost.

Meteorological Forecast

Home Bases:- Broken layer cloud, 6-8/10ths at 2,000 feet by dusk, with medium cloud above; 9/10ths at 1,500 feet by 0200, falling locally to 1,000 feet, with patches at 800 feet in S. Slight rain in 4 and 6 Groups. Visibility worries.

(Cold front at midnight from S.W. Norway to Sylt to Brest, almost stationary over N. France, moving eastwards over Denmark and N. Germany.)

Central and S. Germany: Much strato-cumulus, tops about 9,000 feet. S. of 50°N., there will also be varying amounts of medium cloud carried ahead of the cold front.

Frisians and Bight: Much medium and low cloud, 7-10/10ths., base 1,500-2,000 feet. Showers. Small risk of low stratus or sea fog.

N. Baltic and Skagerrak:- Low cloud and rain, breaking with good visibility E. of 15°E.

N. France:- Risk of low patches of cloud N. of 47½°N., but further S. over cloud at 1,500 feet or above, becoming well broken S. of 45°N. 10/10ths very low cloud on first part of route.

Winds at 1,000 feet: bases - Channel, 290°/30-35 m.p.h.

50°N - Bordeaux, 320°/20 m.p.h.

S. of Bordeaux, N'ly

at 10,000 feet: to Frisians, 300° 35 m.p.h.

Statistics

(a)	No. of aircraft despatched.....	46
(b)	" reporting mines laid in primary area.....	41
(c)	" abortive sorties (technical defect.....2) (weather.....1).....	3
(d)	" aircraft missing.....	2(1, 1)

Weather Experienced

Home Bases:- Fit all night, with layer cloud above 1,500 feet and moderate visibility. Much very low cloud over W. seaboard, with drizzle falling over S. and S. Midlands.

...../N. France

W. France:- 10/10ths, base 1,500 feet, tops 5-6,000 feet, as far as 47°N., with broken medium and high cloud above. Clear from 47°N. Moderate to good visibility. Wind over Channel at 10-15,000 feet: 300°/40 m.p.h. Wind over W. France at 2,000 ft. 330°/25-30 m.p.h.

Frisians and North Sea:- 9-10/10ths cloud, base 2,000 feet, tops 6,000 feet. Rain over North Sea. Moderate visibility. Wind at 2-6,000 ft.: 290°/30 m.p.h.

Moon above the horizon and 50% of full.

Enemy Defences

5. (a) Flak and Searchlights

Ground defences were active, light and heavy flak co-operating with searchlights in small concentrations at numerous points, especially on the French Atlantic coast.

(b) Fighters

Enemy wireless traffic disclosed the activity of a patrol in the Lorient area undertaking a pursuit without result, and two possible unsuccessful attacks at 0117 and 0122 hours in the same area. No claims were heard. There was also an unlocated patrol which undertook an unsuccessful pursuit.

Crews reported two attacks, one by a Ju. 88 at La Roche sur Yon., the other by two F.W. 190's off Barfleurl. Both attacks were against the same aircraft while homebound, minor damage being caused in the second attack. An approach west of the Gironde estuary was driven-off by a homebound Stirling III, which made no claim.

Casualties

6.	No. of aircraft missing.....	2
	" damaged { flak.....Nil	
	{ fighter..... 1	1
	{ (non-enemy action....Nil)	

One aircraft was seen shot down by light flak at Oubro Point. There is no information about the aircraft lost in operations off the Dutch coast. The aircraft which returned from this area had encountered no enemy opposition. 11 out of the 21 aircraft had laid their mines on Gee fixes, and would not therefore have passed over ground defences. A thick sea fog in the southern part of the area may have given some screening to the operation.

MLM/VF.

BC/S. 26342/4/ORS.

16th July, 1943.

11/12th April, 1943.

HONGKONG

Target	Group	Type	Sorties	No reporting attack on		Sorties sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attacked	not attacked	
LA PALMSE	1	Well. III	3	3	-	-	-	-	-	-	-	-	-	6 mins
			Well. X	3	3	-	-	-	-	-	-	-	-	1
GRANDE RIVIERE	3	Star. I	4	3	-	-	-	1	-	1	-	2	-	11 mins
		Star. III	2	2	-	-	-	-	-	-	-	-	-	8 mins
		Lanc. II	6	6	-	-	-	-	-	-	-	-	-	36 mins
PARADES	4	Well. X	12	10	-	-	2	-	-	-	-	-	20 mins	
BANGSE	5	Lanc. I	3	3	-	-	-	-	-	-	-	-	-	15 mins
		Lanc. III	1	1	-	-	-	-	-	-	-	-	-	5 mins
ST. JEAN DE LUZ	5	Lanc. I	2	1	-	-	1	-	-	-	-	-	-	5 mins
S. MONT	6	Well. I	10	8	-	-	-	1	-	-	-	-	-	18 mins
TOTAL			46	41	-	-	3	2	-	1	-	2	2	130 mins

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 13/14th APRIL, 1943.SPEZIA: N.W. GERMANY: LEAFLETS.SUMMARYSPEZIA (Bombing and Minelaying)

1. In spite of an effective smoke screen a fairly accurate attack on the town and docks of Spezia was carried out by a force of 211 heavy bombers, 191 of which reported attack. Daylight reconnaissance reveals damage mainly in the dock area, and many fires in the surrounding forest. 2 aircraft (0.9%) are missing, 2 came down in the sea and one crashed on landing. 3 Lancasters landed safely in Africa, returning later.

8 of 10 Lancasters despatched to lay mines off Spezia completed their task, laying a total of 32 mines. All the aircraft returned undamaged.

N.W. Germany

2. Wilhelmshaven, Bremen and Hamburg were each attacked by 2 Mosquitoes of 2 Group, all returning without damage.

Leaflets

3. 18 Wellingtons of 92 and 93 Groups were despatched to drop leaflets in France. 16 aircraft completed the mission successfully, one coming down in the sea on the return.

Meteorological Forecast

1. Estimated midnight position of front: 60°N 14°E - 55°N 00°E - S.W. England.

Home Bases: - Operational groups will be fit for take-off, with well-broken cloud and moderate or good visibility. Fog is expected over South and central England, probably forming about midnight near the E. coast of Lincolnshire and East Anglia. Inland fog will form more slowly, and higher level stations may remain free from fog all night. Visibility will be more than 1,500 yards for at least 25% of 5 and 1 Group bases, and at 2 of 8 Group bases more than 2000 yards, until the time of return. Diversions will be available in 6 and 3 Groups and in Training Groups.

N.W. France: Much cloud, with occasional rain.

S.W. France: Broken convection cloud.

E. France: Broken layer cloud.

N. Germany: Small amounts of cloud, moderate visibility

Central Germany: Small amounts of cloud, slight haze.

S. Germany: Much cloud with occasional rain near the Eastern Alps, broken layer cloud further North. Peaks of Western Alps are expected to be clear of cloud.

N. Italy: - Well broken cloud at medium levels.

Route to Italy: Generally only small amounts of layer cloud.

Spezia: Probably no cloud; visibility moderate to good.

Winds at 18,000 ft: South coast to central France - 230°/25 n.p.h.

Central France to Marseilles - 220°/25 n.p.h. Light variable in N. Italy.

.../Plan of Attack

Plan of Attack

5. Zero hour 0130 hours. Period of Attack 0130-0147 hours

Briefed Route: Cabourg - W. of Lac du Bourget - 44°12'N 08°25'E - Spezia - 44°12'N 08°25'E - W. of Lac du Bourget - Cabourg.

The aiming point was to be illuminated by the P.F.F. using white flares so that all main force aircraft would be able to identify it.

As an aid to navigation en route to the target, the three Y Halifax aircraft were to drop 2 green steady flares and 2 white steady flares over Lac du Bourget (45°44'N 05°52'E) and, on positive identification, the backers up were to do the same. At the same point on the return trip, each P.F.F. aircraft was to drop one green steady flare.

At zero hour, 3 Y aircraft and 3 Lancasters of the P.F.F. were to lay sticks of white flares, at 4 sec. intervals, across the aiming point from S.W. to N.E.: 12 Lancasters, as backers up, were to lay sticks of flares similarly, at 1 min. intervals, between 0131 and 0142 hours followed at 0144 hours by another Lancaster of the P.F.F.

The main force, consisting of Lancasters, was to attack between 0133 and 0147 hours.

Three Lancasters of 5 Group were each to carry loads consisting of 1 x 100 H.C. + incendiaries, 19 of 5 Group were to carry only 1000 G.P. bombs and the remaining aircraft of the main force were to carry loads made up of 1000-lb. G.P. bombs and incendiaries.

If the ships lying to the south of the aiming point in the dock area could be seen they were to be attacked with H.E., and the incendiaries reserved for the dock area.

The Eastern and Southern Gee Chains were to be available all night.

Bomb Loads P.F.F.

All flares to ignite at 2000'.

3 Y Halifax 1 (2 flares green + 2 flares white) + 6 (4 flares white) + 1 flare green + 3 x 1000G.P.
 16 Lancasters 1 (2 flares green + 2 flares white) + 5 (4 flares white) + 1 flare green + 3 x 2000 H.P.

Sorties

6.	(a)	No. of aircraft despatched.....	211
	(b)	" reporting attack on primary area.....	191 (90.6%)
	(c)	" " alternative area.....	6 (2.8%)
	(d)	" abortive sorties - technical and manipulative defects.....	11
		weather.....	1
	(e)	" aircraft missing.....	12 (5.7%)
			2 (0.9%)

* including 16 aircraft which attacked battleships in harbour.

Further Experienced

7. Route: Small amounts of cloud over France, 3-5/10ths, tops 8000 ft. over the alps on the outward journey, 8-10/10ths on the return. From the alps to the target 8-10/10ths layer cloud, tops 8-10,000 ft., breaking to nil towards the target. Winds at 15,000 ft: Bascs to alps - 260°/30 n.p.h.
 South of alps - 060°/20 n.p.h.
/On the

On the return winds veered over N. France to 300 /35 n.p.h.

Target: Little or no cloud; moderate visibility. Smoke over the target area. Wind at 15,000 ft: 050°/20 n.p.h. Surface wind: light easterly.

Moon: Half full: above horizon during operations.

Night Photographic Statistics

3.	Total photographs with bombing showing ground detail.....	103
	Plotted by ground detail within 3 miles.....	86
	" " between 3 and 5 miles.....	6
	" " outside 5 miles.....	111
	Total photographs with bombing showing fire tracks.....	52
	Plotted by fire tracks within 3 miles.....	26
	" " between 3 and 5 miles.....	2
	" " outside 5 miles.....	111
	Total photographs with bombing examined.....	161
	No. of aircraft reporting attack (excluding those which attacked battleships).....	175
	" " estimated, from the photographic evidence, to have bombed within 3 miles of the aiming point.....	140

Narrative of Attack

The first P.P.F. flares, which were released by a Y-type Halifax 3 minutes late, were accurately placed and followed after 2 minutes by the second Y type Halifax. The backers-up were also late, but a continuous illumination of the target was maintained between 0136 and 0145, 5 aircraft attacking at fairly long intervals after this time. The main force attacked visually in spite of the smoke screen, or on the flares, many searching for the battleships in the harbour for a considerable time before bombing the docks or town. 16 aircraft attacked the ships with H.E., but there is no evidence of damage. Night photographs show a fairly well located attack, few of the plotted photographs being more than 3 miles from the aiming point, and many being within one mile. Spezia, however, is a very small target, so that some of the attack fell in the surrounding forests or in the sea. The evidence of the photographs taken with bombing is confirmed by the daylight reconnaissance, which shows damage to the town, mainly in the dock area, and many forest fires.

Daylight Reconnaissance

Reconnaissance photographs taken on the day following the attack cover the whole of the town and docks. The attack appears to have been concentrated round the docks and that part of the town immediately North and West of the docks, spreading out into open country West of the docks. The largest incident is the almost complete destruction of the Storehouses at Massin No. 1, where about 5 acres are gutted. The boat shed and foundry in the dockyards were damaged, and many unidentified buildings in this area were also seriously affected. Damage forward of the after-funnel of the heavy cruiser Gorizia probably occurred before the raid. Both the infantry and artillery barracks were severely damaged by both H.E. and fire, and industrial buildings, which is scattered over the town, included sheds near the gasworks and the main railway station. In addition about 30 blocks and 20 houses, in the area near the docks, were damaged, several being gutted or demolished.

About 40 forest fires, all within 3 miles of the dock, are seen burning.

Alternative Targets

6 aircraft attacked alternative targets at Savona(2), Genoa, Prericy (E. of Nevers), 20 miles S. of Le-Crausot and an unidentified searchlight post Northern Italy. / Navigational aids

Navigation Aids (Gee)

12. The Eastern and Southern Chains operated on the Virginia and Carolina frequencies respectively. Only aircraft fitted with Mk. II Gee were despatched. 144 of these returned useful information, and 124 had no set difficulties, obtaining an average range of 245 miles. One aircraft received Gee over the target, at a range of 730 miles, which is greater than any Gee range previously obtained. Another aircraft received Gee at a range of 603 miles. The signal was the weakest. Jamming was heavy at the French coast and for 60 miles inland.

Blind Bombing Aids (H2S)

13. The 3 Y type Halifaxes, which were despatched to find and illuminate the target, experienced no difficulties with their special equipment. The first aircraft dropped flares and bombs on the target using H2S, checked by visual observations, the photograph taken with bombing being plotted within one mile of the aiming point. The second aircraft found the target using H2S, but attacked visually, the photograph being plotted 2½ miles from the aiming point. The remaining Halifax, which reached the target 15 minutes before zero hour, lost sight of the Gulf of Spezia while waiting and did not find it again. Both flares and bombs were released over a small flak concentration believed to be in the target area, 9 minutes after zero hour. This aircraft also accidentally released a green turning point flare in the target area.

Enemy Defences14. (a) Flak and Searchlights

Ground defences were inaccurate and spasmodic and offered only slight opposition. Smoke screen covered the dock area fairly effectively.

(b) Fighters

There was apparently no controlled night fighter activity in connection with the Spezia raid, but crews report 4 encounters with fighter including one attack over the target area.

Casualties

15. No. of aircraft missing.....2
 " damaged (a) flak.....9
 (b) fighter.....1 }13
 (c) not enemy action...3 }

One outbound bomber was shot down by a fighter north of Nevers. The second was shot down in the Chartres/Orleans area, possibly by light flak.

Two aircraft came down in the sea due to shortage of petrol. Both crews were rescued. The crew of a Lancaster were killed when it crashed at Holme while trying to land with one port engine feathered.

MINE LAYING

16. 10 Lancasters of 5 Group were despatched to lay mines off Spezia, to prevent the battleships in the harbour from escaping from the bombing raid. 8 aircraft laid a total of 32 mines in the allotted area, the first mines being laid 6 minutes after the raid started. The two remaining sorties were abortive owing to technical defect. No enemy aircraft was encountered, and all the Lancasters returned undamaged.

...../N.W. Germany

N.7. GERMANY

17. Wilhelmshaven and Bremen were each attacked from high level by 2 Mosquitoes. Both towns were clearly seen and the bombs are believed to have fallen in the target area; 10/10 cloud covered Hamburg, which was bombed on E.T.A. by 2 Mosquitoes flying at 18/19000 ft. Flak was active in each of the three target areas; but all the aircraft returned undamaged. 5 controlled night fighter patrols were started by the Mosquitoes, but only 2 pursuits were heard, both being unsuccessful.

LEAFLETS

18. 3 of the 4 Wellingtons of 92 Group which were despatched to drop leaflets on Rouen completed the task successfully, while the fourth released its load N.E. of Le Havre before turning back owing to a technical defect. One enemy aircraft was encountered, but no attack developed. All the aircraft returned undamaged.

19. 14 Wellingtons of 93 Group set out to scatter leaflets in the Lille area. One of these returned only owing to a technical defect, and the remainder completed the task. On the return one Wellington came down in the sea near the English coast, the crew being rescued. Flak experienced over the target area and en route failed to damage any of the aircraft. There were several reports of searchlight activity and 3 enemy aircraft were encountered.

APPENDIXI. Timing of the Attack(a) Pathfinder Force

- (i) 3 Y aircraft attacked at 0133, 0135, and 0139 hours.
 (ii) 16 backers-up attacked at 0136, 0137, 0139, 0140, 0141, 0142, 0143, 0144(2), 0145(2), 0150, 0153, 0156(2), 0200.

(b) Main Force

	1 Gp.	5 Gp.	8 Gp.
Attacked within prescribed period	26	16(2x)	-
" 1-10 minutes late	24	52(10x)	3
" 11-20 "	12	23(3x)	-
" 21-30 "	4	5	-
" 31-40 "	1	3	-
" 41-50 "	-	2	-
" time unknown	-	1(1x)	-
	<u>67</u>	<u>102(16x)</u>	<u>3</u>

x Attacked battleships - included in totals.

N.B. Much time was spent searching for the battleships before making an attack.

II. Bomb Loads(a) Pathfinder Force

Flares and H.E.19

(b) Main Force

H.E. + 30 lb. inc. + 4 lb. inc.67

H.E. + 30 lb. inc.45

H.E. + 4 lb. inc.39

H.E. only21

172

CD/VP.
 C/S. 26342/2/ORS.
 1st July, 1943.

13/14th April, 1943-

SPZEL: WILSON, SH. VEN: HJMBURG: BOMBERS: MINDEL, YING: LE, PLETS

Target	Group	Type	Sorties	W/C reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results	
				prim. area	alt. area	over on territ.	not over territ.		Flak	fighter	Not E/A	attacked	not attacked	H.E.	Inc.
SPZEL	8	Lans. I	16	16	-	-	-	-	-	-	-	-	1	(P) 388.8	97.3
		Hul. 2	3	3	-	-	-	-	-	-	-	-	-	(A) 11.7	4.2
	8 Main Force	Lans. I	3	3	-	-	-	-	-	-	-	-	2	(H) 6.5	1.1
		Lans. I	53	49	-	2	2	1E+1	-	-	-	-	2	Heavy Bombs	
		Lans. III	22	18	2	1	1	-	1.0	1E	1	4		3000	4000
	5	Lans. I	57	53	-	3	1	-	2	-	-	-	-	(P) -	1
Lans. III		57	49	4	2	2	-	5	-	1E	-	4			
SPZEL TOTAL			211	191	6	6	6	2	1E+8	1.0	2E+1.0	1	13		
BOMBERS	2	Mosquito	2	2	-	-	-	-	-	-	-	-	-		
HJMBURG	2	Mosquito	2	2	-	-	-	-	-	-	-	-	-		
WILSON, SH. VEN	2	Mosquito	2	2	-	-	-	-	-	-	-	-	-		
BOMBERS TOTAL			217	197	6	6	6	2	1E+8	1.0	2E+1.0	1	13		
MINDEL, YING	5	Lans. I	2	2	-	-	-	-	-	-	-	-	-	8 mines	
		Lans. III	8	6	-	2	-	-	-	-	-	-	-	24 mines	
MINDEL, YING TOTAL			10	8	-	2	-	-	-	-	-	-	-	32 "	
LE, PLETS	92	Well. III	4	3	1	-	-	-	-	-	-	-	1		
LILLE	93	Well. Io	5	5	-	-	-	-	-	-	-	-	-		
		Well. III	7	6	-	1	-	-	-	-	1E	-	-		
		Well. X	2	2	-	-	-	-	-	-	-	-	-	1	
LILLE TOTAL			18	16	1	1	-	-	-	-	1E	-	2		
TOTAL			245	221	7	6	9	2	1E+8	1.0	3E+1.0	1	15		

RAID TRACK NOT AVAILABLE

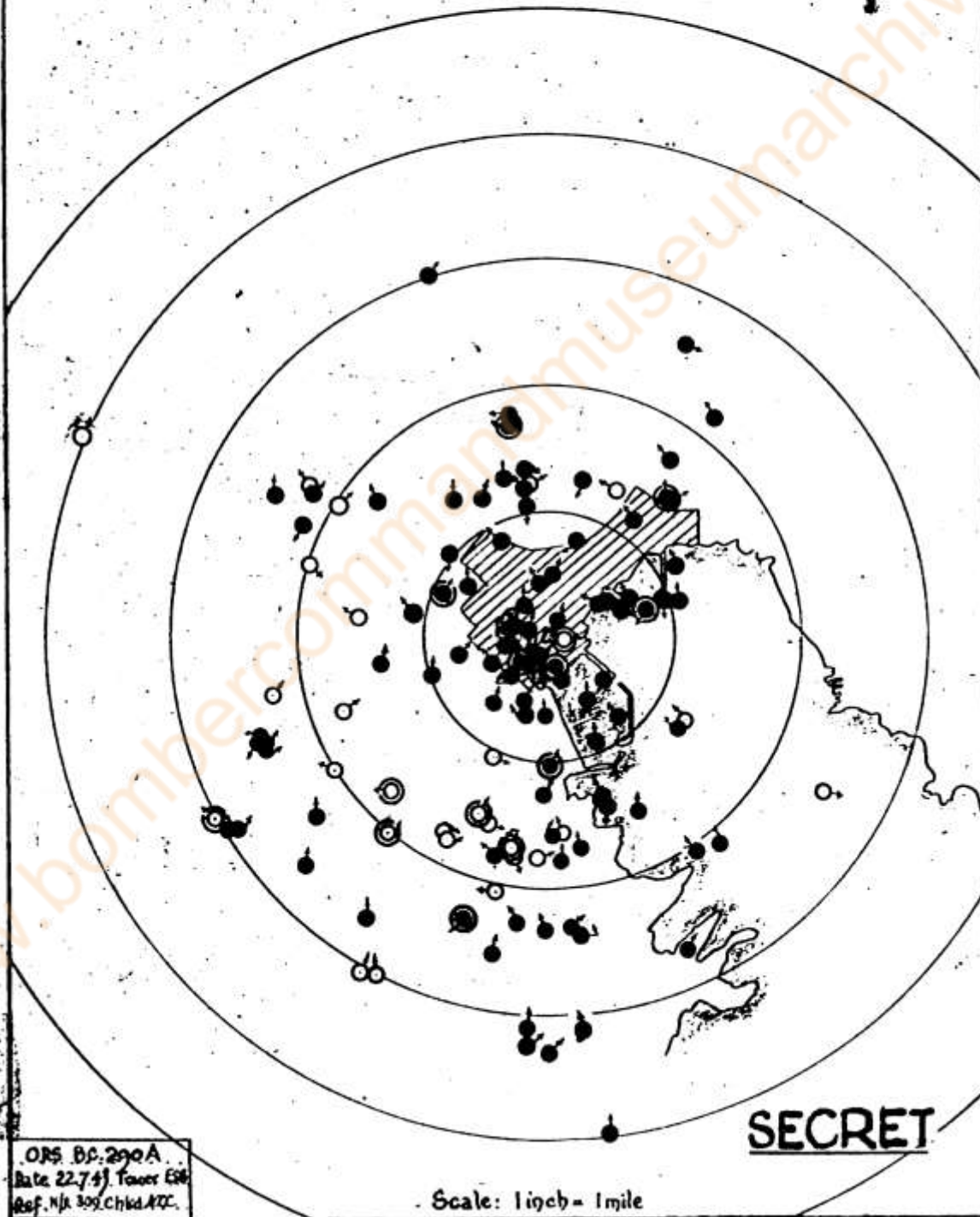
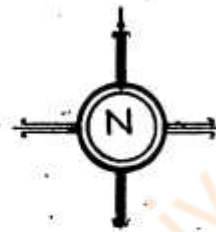
FINAL PLOT OF NIGHT PHOTOGRAPHS

TAKEN 13/14th APRIL 1943

TARGET SPEZIA

141

	REF. Marker A/G	Main Force A/C
Plotted by Ground Detail		
Plotted by Fires		
PLOTTED	By Ground Detail	By Fires
Within 3 miles	86	26
Outside 3 miles	26	2
UNPLOTTED	11	24
No. of priests (with bombing) escaped161	



SECRET

ORS BC. 290A
Date 22.7.43 Tower ESB
Ref. N/A 309 Chkd ACC.

Scale: 1 inch = 1 mile

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 14/15th APRIL, 1943.STUTTGARTSUMMARY

Stuttgart. 462 aircraft set out for Stuttgart. 370 reached the target area, where the early Y aircraft bombed 2 miles N.E. of the aiming point; but their T.I.'s attracted less attention than some dropped subsequently in the N.E. suburb of Bad Cannstatt. Most of the main force bombed here, and in the adjacent northern district of Stuttgart, where most of the town's factories are situated. Over 40 industrial concerns were heavily damaged. We lost 23 aircraft.

Metereological Forecast

Midnight positions of fronts: (1) warm from 60° N. 11° E to S.E. England to N.W. France (2) cold from 60° N 11° E to Solway Firth to N.Ireland.

Home Bases:- Much layer cloud, base above 1,000', with showers. All at dusk and for return after midnight with visibility 1-2 miles. 4 Group may be affected by the cold front, but cloud should remain above 1,000', increasing southwards and becoming well broken about 50 N. Slight icing at 18,000'. Broken strato-cumulus along Baltic coast, dispersing inland. Little or no cloud in extreme south.

N. Italy:- Broken medium cloud, patches of strato-cumulus.

France:- Much medium cloud and probably low stratus over Brest minima. Little cloud in S.

Winds:- At 18,000': S. England, 280°/20 m.p.h.

Denmark and N. Germany, 70-80 m.p.h.

S. Germany, 300°/15 m.p.h.

Plan of Attack

Zero hour 0046 hours. Period of attack 0045-0125

Route:- 50°00'N 01°15'E - 49°09'N 09°20'E - Stuttgart - 48°40', 08'E - 4858N. 0120E - 5000N 0115E.

En route to the target, 9 Y-Stirlings were to drop yellow T.I. at 50°22'N 07°00'E and at 49°09'N 09°20'E: these markers were to be maintained by Lancaster and Stirling backers-up, aiming yellow T.I.'s at yellows.

At zero hour, 17 Y-aircraft were to drop red T.I.'s blindly on the aiming point, and, on the same heading 10 secs. later, to release bundles of lit flares in a stick at 5 second intervals. The Y-aircraft were to be followed, 2 minutes later, by 5 "marker-illuminators" instructed to identify the aiming point visually and mark it with green T.I.; if necessary, they were also to release flares, 10 seconds after bombing and on the same heading. Backers-up were to follow the marker-illuminators and aim green T.I.'s at the estimated centre of the area of green T.I.'s: the last 12, who were to attack between 0057 and 0124 hours, were to aim their green T.I.'s to overshoot by 10 seconds.

.../The main force

The main force were to attempt to identify the aiming point but, if this proved impossible, they were to aim at the estimated centre of the area marked by previous green T.I's. The red T.I's and illuminating flares were for the use of the P.F.F. only and were to be ignored by the main force.

<u>Timing</u>	<u>Markers</u>	<u>Main Force</u>
0045	17 Y aircraft	-
0047	3 Illuminator-Markers	0047-0057 H.E.-Lancs. of 1 & 3 Group
0048	2 "	-
0049-0055	7 Backers-up at 1 min. interval	0050-0110 I.P.-Tells & Stirlings
0057-0124	12 " 2 "	0105-0120 H.E.+I.P. - Halifaxes 0115-0125 H.E.+I.P. - Lancs. of 5 Gp.

Loads - P.F.F.

	<u>T.I's</u>			<u>Flares</u>	<u>H.E.</u>
	<u>Yellow</u>	<u>Red</u>	<u>Green</u>		
Y aircraft					
9 Stirling	2	4(1L.D.)	-	6 x 3	4 x 250 G.P. (L.D.)
8 Halifax	-	4(1L.E.)	-	6 x 4	2 x 1000 G.P.

Marker-Illuminators

1 Stirling	2	-	8(4L.E.)	6 x 3	4 x 500 G.P. (L.D.)
5 Lancaster	2	-	7(4L.E.)	3 x 4	1 x 4000 H.C.

Backers-Up

2 Stirling	2	-	4(1L.D.)	-	4 x 500 G.P. (L.D.)
6 Halifax	-	-	4(1L.E.)	-	4 x 1000 + 1 x 500 (L.D.)
11 Lancaster	2	-	4(1L.E.)	-	1 x 4000 H.C. + 3 x 100 G.P. + 1 x 500 (L.D.)

Sorties

4.	(a) No. of aircraft despatched.....	462
	(b) " " reporting attack on primary area.....	370(80.1%)
	(c) " " " alternative area.....	9(1.9%)
	(d) " abortive sorties (technical or manipulative defects.....)	48
		{ weather..... 3 } 60(13.0%)
		{ sickness of crew..... 4 }
		{ late take-off..... 2 }
		{ collided with British A/C.... 2 }
		{ flak..... 1 }
	(e) " aircraft missing.....	23(5.0%)

Weather Experienced

5. Home Bases:- Fit all night.

Route:- Variable medium cloud thickening and increasing over S.E. England; with tops to 17,000'. Moderate to heavy icing. Cloud thinned over N.France, becoming dispersed towards Stuttgart. Fog patches over France and in valleys on return.

Target:- No cloud, except patches of cirrus. Industrial haze.

Moon above the horizon and 75% of full.

Visibility good.

Winds:- at 15,000', N.E. France: 250°/25 n.p.h.

Stuttgart: 270°/20 n.p.h.

Surface wind at Stuttgart: light S.W'ly or variable.

.../Night Photographic Statistics

Night Photographic Statistics

6.	No. of photographs examined.....	348
	" showing ground detail (plotted within 3 mls..)	34
	(plotted between 3&5	
	miles.....)	53
	(plotted outside 5	
	miles.....)	61
	(unplotted.....)	38
	" showing fire-tracks	
	only	
	(plotted within 3	
	miles.....)	16
	(plotted between 3 & 5	
	miles.....)	82
	(plotted outside 5	
	miles.....)	7
	(unplotted.....)	55
	" aircraft reporting attack.....	370
	" estimated, from the evidence of photographs	
	showing ground detail and fire-tracks, to	
	have bombed within 3 miles of the aiming-point....	60-80

Narrative of Attack

7. The first 3 Y-aircraft to attack at zero - 2, zero and zero, have been plotted $3\frac{1}{2}$, 2 and 2 miles respectively N.E. of the aiming point. 8 more Y-aircraft and back-up bombers by zero + 9, together with a number of main force aircraft which seem to have been concentrated about $2\frac{1}{2}$ miles N.E. of the aiming-point, i.e. slightly N.W. of Bad Cannstatt. But at zero + 2, a Y-aircraft had dropped green T.I's 5 miles N.N.E. There must have attracted a number of aircraft, for after zero + 9 the concentration shifted to this area and remained there till the end of the attack, apart from a slight northward spread. It was unfortunate that all but 4 of the Lancasters of 3 and 8 Groups, who had been planned to lead the Main Force at zero + 2, arrived 10 minutes late, when the earlier and better concentration of T.I's had more or less burnt out. But since the industries of Stuttgart are mostly situated in the N. of the town, the diversion, like those at Nuremberg on 8/9th and at Munich on 9/10th March, was far from wasted.

Alternative Targets

8. 9 aircraft attacked alternative targets, in the areas of Stuttgart, Mannheim, Junglinster, Cannstatt, Verdun(2), Rheims, Arras and Dieppe.

Day Reconnaissance

9. Very heavy destruction was revealed in the north of Stuttgart, where the industries of the town are mainly concentrated, and in outlying districts. Some 40 industrial and commercial concerns were affected, including manufacturers of ball-bearings, precision instruments, machinery, ventilators, veneer presses, steel windows, sugar, flour, bricks and coal gas. At Unterturkheim Goods Station, 8 acres of buildings were demolished, while 2 direct hits were scored on the tracks at the Main Station. The generator house of the power station at Bad Cannstatt was destroyed by fire.

Most of the residential damage occurred in the urban districts of Munster and Bad Cannstatt, and in the two villages of Malhausen and Hofen, further north. Altogether, over 300 houses were rendered uninhabitable. One area of devastation in Bad Cannstatt covers 36 acres.

Barracks and public buildings sustained a number of hits, notably Wilhelma Castle, which was burnt to the ground.

.../Blind Bombing Aids

Blind Bombing Aids (H2S)

10. The performance of Y aircraft may be summarised as follows:-

Dropped red T.I. and flares blindly on H2S.....	2
Dropped red T.I. and flares on H2S with visual confirmation.....	9
Dropped no T.I. nor flares (H2S C.X.).....	1
Dropped flares only (H2S C.X.).....	1
Dropped flares only (H2S u/s).....	1
Abortive (H2S u/s).....	1
Missing.....	2
	<u>17</u>

Navigators' reports on H2S revealed no points of special interest. Most saw a clear outline of the built-up area and only 3 complained of an ill-defined signal. One of these could not clearly identify the edge of the target from more than 5 miles away.

Navigational Aids

11. The Eastern Chain was operating on the Virginia frequency throughout, and on the target frequency also from 0001-0145. 112 aircraft were fitted with Hec Mk.I and 225 with Mk.II. 88% of both had no set difficulties, the former obtaining an average range of 255 miles and the latter 265 miles, with a maximum of 480 miles. Good propagational conditions were probably responsible for the excellence of these ranges, as few fixes were taken on the target frequency. C signal was very strong.

Entry Defences12. (a) Flak and Searchlights

Ground defences were most active to the north of the target. A small concentration of searchlights, a great deal of ineffective light flak and some inaccurate heavy flak were reported. Heavy flak was intense at Mannheim.

(b) Fighters

Enemy wireless traffic revealed 9 active patrols, making 24 pursuits with 5 claims:- 2 unlocated, 2 in the Mannheim area and one in the Dinant area. The reports of bomber crews show that activity was very marked in the areas Mannheim-Karlsruhe and St. Didier-Soissons. There was also some activity over the target. One Ju.88 fighter was seen circling round the yellow flares dropped by Pathfinder aircraft in the Saarbrücken area. Bombers probably destroyed four night fighters, 2 Me. 110 being claimed by a Wellington W. of Strasbourg. Two Halifaxes claimed a Ju.88 at Laon and a probable Me.109 20 miles S.W. of Stuttgart.

Casualties

13. No. of aircraft missing.....23
 " damaged (a) flak.....23)
 (b) fighter.....7).....35
 (c) not enemy action.. 5)

4 losses may be attributed to flak, 14 to fighters and 5 to unknown causes. One outbound aircraft was destroyed by fighter at Amiens and another at Saarbrücken. Flak defences at Mannheim accounted for 2 bombers and between there and Karlsruhe fighters shot down 4, including 3 Y aircraft. Another outbound aircraft was destroyed at Heilbronn. On the return, 7 more bombers were lost to fighters, one at Bar Le Duc, one in the Nancy-Metz area and 5 from St. Didier to Soissons. 2 were probably shot down by flak at Chalons-sur-Marne. It is probable that one Wellington came down in Switzerland, after the crew had baled out.

APPENDIXTiming of AttackI. Pathfinder Force

14 Y aircraft attacked, at: 0053, 0045(2), 0046, 0047(2), 0048,
0049(2), 0050(2), 0055(2) and 0056.

21 backers-up attacked, at: 00:6, 0047, 0049, 0050(3), 0052(2),
0054, 0059(3), 0102, 0105, 0109, 0112,
0113, 0114, 0117, 0118 and 0119
= 35 aircraft

Main Force(1) Lancasters of 1, 3 and 8 Groups

4 aircraft attacked within planned period (0047-0057)
14 " " from 0057-0125
18 aircraft

(2) Wellingtons and Stirlings

3 aircraft attacked from 0045-0050
143 " " within planned period (0050-0110)
25 " " from 0110-0130
171 aircraft

(3) Halifaxes

17 aircraft attacked from 0049-0105
72 " " within planned period (0105-0120)
10 " " from 0120-0140
99 aircraft

(4) Lancasters of 5 Group

14 aircraft attacked within planned period (0115-0125)
33 " " from 0125-0145
47 aircraft

Bomb Loads

I. (of aircraft reporting attack)

Pathfinder Force

18 aircraft carried T.I. + H.E. + flares
17 " " T.I. + H.E.
35 aircraft

Main Force

165 aircraft carried 4 lb. + 30 lb. incendiaries
97 " " H.E. + 4 lb. + 30 lb. incendiaries
30 " " H.E. only
25 " " H.E. + 4 lb. incendiaries
18 " " H.E. + 30 lb. incendiaries
335 aircraft

VP.
S. 26342/2 /ORS.
th July, 1943.

14/15th April, 1943-

STUTTGART

Target	Group	Type	Sorties	A/C reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results	
				prim. area	alt. area	over on. territ.	not over on. territ.		flak	fighter	not E/A	attacked	not attacked	Tons of Bombs	
														H.E.	Inc.
STUTTGART	8	Halifax IIE	14	12	-	-	1	1	-	-	-	-	-	(P) 334.3	439.8
		Lanc. I	15	13	-	1	1	-	1	-	-	-	7	(A) 154	11.3
		Stir. I	13	10	-	-	2	1	-	1	-	1	1	(N) 21.0	22.2
	8	Halifax E	3	2	-	-	1	-	1	-	-	-	-	-	-
		Lanc. I	4	2	1	-	1	-	-	-	-	-	-	-	-
	Main Force	Stir. I	3	1	-	-	-	2	-	-	-	-	-	-	-
		Lanc. I	8	6	-	-	1	1	-	-	-	-	-	-	-
	1	Lanc. III	6	3	-	-	2	1	-	-	-	-	-	-	-
		Well. III	6	5	-	-	1	-	1aC	-	-	-	-	-	-
		Well. X	26	21	-	1	4	-	2	-	-	1	-	-	-
	3	Lanc. II	8	7	1	-	-	-	-	-	-	-	-	1	-
		Stir. I	23	18	-	-	4	1	2	1aC	1B	1	2	-	-
		Stir. III	44	33	2	1	4	4	4	-	1aC	1	10	-	-
	4	Halifax E	67	56	2	3	5	1	2	1B+1aC	1aC	2	11	-	-
		Lanc. I	23	21	-	1	1	-	-	-	-	2	3	-	-
		Well. X	33	27	-	1	3	2	1B+1	1	1aC	2	1	-	-
	5	Lanc. I	30	25	1	-	3	1	2	-	-	3	2	-	-
		Lanc. III	27	22	1	1	3	-	1aC+2	-	1aC	2	4	-	-
	6	Halifax E	28	20	1	2	3	2	-	1	-	2	5	-	-
		Well. X	76	64	-	1	6	5	3	-	-	1	8	-	-
Well. III		5	2	-	1	1	1	-	-	-	-	-	-	-	
TOTAL			462	370	9	13	47	23	1B+2aC +20	1B+2aC +4	1B+ 4aC	18	55		

RAID TRACK NOT AVAILABLE

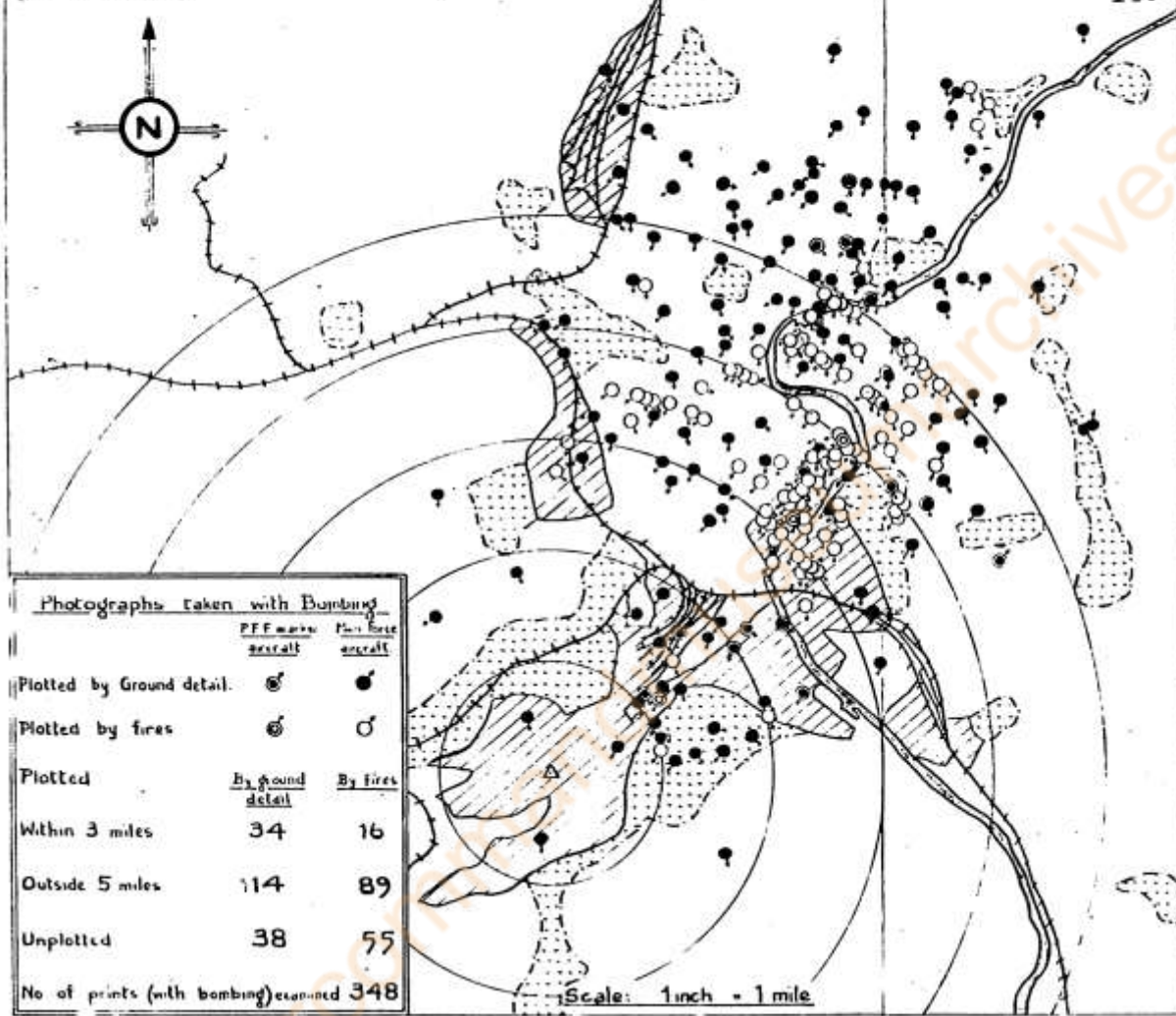
FINAL PLOT OF NIGHT PHOTOGRAPHS

TAKEN 14/15th APRIL 1943 TARGET :
STUTT GART

O.R.S. B.C.	No:- 199B
Date:- 25.7.43	Tracer:- J.D.
Ref:-	Checked:-

SECRET

146



Photographs taken with Bombing		
	P.F.F. marks overall	Flare lights overall
Plotted by Ground detail.	⊙	⊙
Plotted by fires	⊙	⊙
Plotted	By ground detail	By fires
Within 3 miles	34	16
Outside 5 miles	114	89
Unplotted	38	55
No. of prints (with bombing) examined	348	

Scale: 1 inch = 1 mile

www.bombercommand.com archives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 15/16 th APRIL, 1943.

MINELAYING: LEAFLETS.

SUMMARY

Mine laying 23 aircraft of 1,3 and 6 Groups laid 59 mines off the coast of France according to plan. All returned safely.

leaflets

Leaflets 4 out of 5 aircraft dispersed in the Orleans area. No casualties were sustained.

Metereological Forecast

Midnight position of cold fronts: (i) 60°N. 20°E - Copenhagen - W. Channel (ii) 60°N. 15°E. - Wash - 50°N. 10°W.

Home Bases:- cloud clearing to N. of fronts. Much cloud between the bases at various levels, generally in layers. Visibility not less than 2,000 up to 0400, except for local smoke fog in 1 and 4 Groups.

Germany:- Much cloud to great heights over E. North Sea. Broken cloud inland. Fine S. of 52°N.

W. France:- Little or no cloud. Chance of fog patches.

MINELAYING

(a)	No. of aircraft despatched.....	23
(b)	" " reporting mines laid in primary area....	23
(c)	" " missing.....	0

Experienced

Home Bases:- Fit except for industrial fog after 0300.

Route:- Well broken medium cloud, no low cloud, mist patches in ..

Targets:- Little cloud. Moderate visibility, with patches of haze to Moon above the horizon and 83% of full.

Defences

(a) Flak and Searchlights

The minelayers encountered heavy flak at Cap de la Hague and Cherbourg, searchlights with some light flak on the Atlantic coast and light flak from three merchant ships west of the Gironde Estuary. Only one aircraft was damaged.

(b) Fighters

There was no evidence from enemy wireless traffic of controlled fighters. Crews reported two approaches, one at Caen while outbound and the other over Brest Bay. The enemy aircraft was fired upon and disappeared.

Casualties

Casualties

6. No. of aircraft missing.....Nil
 " " damaged (a) by flak.....1
 (b) by fighters.....Nil
 (c) not enemy action ")..... 1

Light flak caused minor damage to one aircraft over the Ile de Groix.

LEAFLETS

7. 5 aircraft of 91 Group were detailed to drop leaflets in the Orleans area. One returned early for technical reasons. The others completed their task without incident. All returned undamaged.

MLI/VF.
 EC/S. 26342/4/ORS.
 16th July, 1943.

15/1943 - 1944 - 1945

Target	Group	Type	Berties	w/c reporting attack on		Aberative sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over un-territ.	not over un-territ.		Flak	fighter	not E/A	attacked	not attacked	
LO. 1943	1	Woll. X	5	5	-	-	-	-	1	-	-	-	-	10 mines
SP. 1943	1	Woll. X	6	6	-	-	-	-	-	-	-	-	-	12 mines
GE. 1943	3	Lune. II	2	2	-	-	-	-	-	-	-	-	-	12 mines
L.V. 1943		Star. I	1	1	-	-	-	-	-	-	-	-	1	4 mines
		Star. III	3	3	-	-	-	-	-	-	-	-	-	9 mines
BREST	6	Woll. X	6	6	-	-	-	-	-	-	-	-	1	12 mines
AGGLAYING	TOTAL		23	23	-	-	-	-	1	-	-	-	2	59 mines
LEAFLETS	91	Woll. Io	5	4	-	-	1	-	-	-	-	-	-	
TOTAL			28	27	-	-	1	-	1	-	-	-	2	

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 16/17 APRIL, 1943.PILSEN: MANNHEIM: LEAFLETS.SUMMARYPILSEN

327 aircraft, all Halifaxes and Lancasters, led by 8 Y-type aircraft of the P.F.F., set out by full moon to destroy the Skoda Works at Pilsen. The flares, mostly dropped by visual identification from above a thin layer of cloud, were scattered and illuminated various factory-like buildings which were wrongly identified by the Main Force as the Skoda Works.

249 aircraft claimed to have attacked the target and, in fact, the bombing was well concentrated; but it was centred mainly on the village of Dobrany, 5 miles S.W. of Pilsen. Daylight reconnaissance showed no evidence of damage to the Skoda factory.

The operation resulted in the loss of 36 aircraft, the majority of which were destroyed by night fighters and light flak, for these success conditions are very favourable.

MANNHEIM

A force of 271 aircraft, mainly Stirlings and Wellingtons, was dispatched to this target, of which 205 completed their task. The P.F.F. markers were well placed and early arrivals bombed close to the aiming point. Later the attack drifted away and only a moderate concentration was achieved. Considerable scattered damage was inflicted and the works of the I.G. Farbenindustrie A.G., Joseph Vogele A.G. (tank, M.V. and tractor components) and dockside premises suffered some destruction.

17 aircraft (6.3%) failed to return.

LEAFLETS

10 out of 11 aircraft detailed to drop leaflets in the Rouen area completed their mission successfully. The other aircraft returned early.

Metereological Forecast

Home Bases:- A threat of fog early in the day receded as the pressure fell in the N. of Scotland, making the onset of a N.Westerly gradient in northern groups by the time of return more certain. Most bases probably fit, with visibility not less than 2,000 yards, apart from smoke troubles. 3 bases uncertain.

Germany:- Route to Middle Rhine and Pilsen, and at targets: patches of thundery cloud up to 5/10 may prevail over the route, but in the main, cloud could be confined to medium type above 14-15000' and not more than 7/10. Visibility probably 3 miles apart from some haze. Increased spheric activity over Central Germany makes the target areas worrying, but there is reason to believe that this is associated only with isolated thunderstorms which will begin to break up and disperse after dark.

...../N. Italy

N. Italy: Small amounts of cloud.

France:- Patches of medium cloud are expected but there is a risk of convection cloud over S.W. France.

PILSEN (Skoda Works)

Plan of Attack

3. Period of attack 0130-0210 Zero Hour 0130.

Briefed Route:- Cayeux - 4937N 0205E - 4920N 0700E - 4855N 1230E - Pilsen - 4950N 0550E - 4937N 0205E - 5010N 0130E.

The intention was to illuminate the aiming point with white flares and for green T.I's to indicate the near edge of the target.

At zero hour (0130 hours), 7 Halifax (Y type) and 2 others were to release bundles of white flares in a long stick, at 5 second intervals, from S.W. to N.E., the first to be released 10 seconds after the centre of the works was seen on the bombing circle. They were also to drop green T.I's on the southwest edge of the target area, if visible on the flare-releasing run, otherwise on a second run over the target.

Backers-up (20 Lancasters) were to drop green T.I's on the southwest edge of the target area, if it could be identified by the light of flares, and long sticks of white flares (bundles at 5 second intervals) from S.W. to N.E., the first to be released 12 seconds after the southwest edge of the works was in sight.

If cloud conditions rendered the use of illuminating flares impracticable, Y aircraft were to drop red T.I's on the aiming point and the backers-up were also to drop reds.

The main force was instructed to identify the aiming point by the light of flares, if possible, using the green T.I's as a guide. If the illumination technique was not used, they were to aim at the estimated centre of the concentration of red T.I's.

As a landmark en route to the target, Y aircraft were to drop yellow T.I's at 48°53'N 12°36'E and this marking was to be maintained by the backers-up.

The instructions concerning flying heights were similar to those given to crews detailed for Mannheim: the crews on Pilsen were to climb to 13/15,000' before reaching Dungeness, to lose height and gain speed on crossing the enemy coast to 3°E and fly at 1500-2000' (above ground level) through the fighter belt from there to the last turning point (48°55'N 12°30'E) and to climb to bomb from between 4000' and 6000'. Crews of 6 Group were instructed to bomb from 10,000'. The attack was to be made from as low a height as possible, not below 4,000', and every effort was to be made to ensure that the weight of the attack fell on the factory and not on the surrounding town.

Timing of Illuminators

7 Y + 2 others at 0130 hours
 2 at 0131 hours.
 2 at 0132 hours.
 2 at 1 min. intervals 0131-33
 2 " " 0137-38
 2 " " 0140-41
 2 " " 0143-44
 2 " " 0146-47
 2 " " 0149-50
 1 at 0152 hours.
 2 at 0154 hours.

..../No aircraft

No aircraft carrying incendiaries was to attack before 0140 hours and all crews were to set course for base by 0210 hours.

P.F.F. Bomb Loads

Halifax	1 yellow T.I. + 2 green T.I. (1 long burning) + 2 red T.I. (1 long burning) + 6 x 4 white flares.
Lancaster	1 yellow T.I. + 2 green T.I. (1 long burning) + 2 red T.I. (1 long burning) + 4 x 4 white flares + 1 x 4000 HC.

Sorties

4.	(a) No. of aircraft despatched.....	327
	(b) " reporting attack on primary area.....	249 (76.3%)
	(c) " reporting attack on alternative area.....	28 (8.5%)
	(d) " abortive sorties (technical & manipulative	
	defect.....	11
	(illness.....	1
	(mistaken pinpoint.....	1
	(hit by flak.....	1
	(e) " aircraft missing.....	36 (11.0%)

Weather Experienced

5. Home Bases:- Little cloud. Mist patches in 3, 8, 5-4 and S. of 4 Groups late in the night.

Route:- Little or no cloud. Thin medium cloud varying from nil-8/10, base 8000', tops 10,000' and increasing over the Rhine valley to 10/10 at times, tops above 10,000'. Slight icing in this cloud locally at 12,000'.

Target:- Cloud 4/10-7/10 between 9000' and 11,000' breaking to 2/10-3/10 at times, but increasing towards the end of the attack. Visibility moderate. Surface winds: light north westerly.

The moon was 90% of full and above the horizon during operations.

Night Photographic Statistics

6.	No. of photographs examined.....	214
	showing ground detail (plotted within	
	3 miles.....	2
	(plotted between 3	
	and 5 miles.....	12
	(plotted outside	
	5 miles.....	52
	(unplotted.....	25
	" photographs showing fire tracks only.....	113
	" aircraft reporting attack.....	249
	" estimated, from the evidence of photographs	
	showing ground detail, to have bombed within	
	3 miles of the aiming point.....	6

Narrative Of Attack

7. The attack was opened at Z + 2 mins. by a Y aircraft which dropped white flares. The target was identified by means of H2S, but not visually and therefore no green T.I.'s were dropped; 2 other Pathfinders dropped flares at Z + 5 and Z + 7 respectively and one of these dropped green T.I.'s at Z + 11 (0141 hours) visually by the light of flares. This aircraft claims to have identified the Skoda Works. Reports of crews indicate that ample illumination
.... / was

was provided from this time onwards, but the evidence of night photographs proves that the attack was scattered over 3 areas, where bombing started simultaneously, as follows:-

- (i) Within 3 miles of the Aiming Point - 2 a/c at 0141 and 0144 hours.
- (ii) Near the village of N.Vos. 5½ miles S.W. - scattered bombing 0139-0150 hours.
- (iii) At Dobransy, 7 n. S.W. - concentrated bombing 0141-0210 hours.

The only aircraft to photograph the aiming point bombed at 0141 hours and reported as follows:-

"Long sheds seen in the light of P.F.P. reconnaissance flares. Green and one red T.I. marker seen to cascade in target area after bombing. One burst of probable 4000 lb. seen on sheds. Saw numbers of incendiaries going down on a fairly concentrated area after bombing."

In view of the fact that no P.F.P. aircraft reported having dropped red T.I.'s it is probable that the target area was illuminated by a missing Pathfinder.

It appears that the first green T.I.'s were dropped at Dobransy about 0146 and that these P.F.P. aircraft, which arrived later were only able to identify the "target" by means of green T.I.'s., due to drizzle and smoke and the fact that they were forced to fly above a thin layer of cloud in order to drop their markers. They therefore all marked Dobransy and it is not surprising that the concentration of flares, which lay athwart the main line of approach to the target, should have attracted most of the main force so that practically all the subsequent bombing was concentrated in this area. Most crews were, however, confident that they had bombed the real target and it seems that they were misled by a superficial resemblance between Pilsen and Dobransy in relation to their rivers, a large lunatic asylum situated S.W. of the latter town being mistaken for the Skoda works.

Other Targets Attacked

8. 23 aircraft which were unable to reach Pilsen for various reasons attacked specified alternative targets in the area of Saarbrücken(4), Nürnberg(3), Munich(3), Mannheim(2), Karlsruhe(2), Stuttgart(2), Koblenz, Erlangen, Rothenburg, Worms, Trier, Neustadt and Würzburg. 5 aircraft attacked unidentified towns or factory buildings.

Day Reconnaissance

9. Subsequent P.R.U. reconnaissance covered part of the area attacked and showed damage in the villages of N.Vos. and Dobransy. Cover of the Skoda Works was incomplete owing to cloud, but as far as could be observed no damage had been caused there.

Blind Bombing Aids (H2S)

10. The performance of the Y aircraft was as follows:-

Dropped flares only on H2S and D.R.....	1
" & green T.I.'s visually (H2S O.K.).....	1 + 1 *
" " " (H2S u/s).....	1
" flares only visually..... (H2S,u/s).....	1*
Returned early.....	2
Missing.....	1
	Total 8

* Crews of these aircraft were under training and carried H2S for training purposes only.

the 3 aircraft whose H2S was serviceable, only one made use of it in the target area and this was the aircraft which opened the attack. Of the other two, one was training on H2S and the other arrived too late (0150 hours) to have had any effect on the raid, owing to the fact that the diversion at Harney was well established at that time.

Navigation Aids (Gee) - see para. 18.

Enemy Defences and Casualties - see paras. 19 and 20.

HAMMHEIM

Plan of Attack

Zero Hour 0045

Period of Attack 0045-0110

Briefed Routes:- Cayeux 4937N 0205E - 4920N 0700E - 4920N 0835E - Hammheim - 4937N 0205E - 5010N 0130E.

As a guide to the backers-up, 8 Stirlings (Y type) were to drop red T.I's in a salvo, at zero hour, blindly on the aiming point: 10 seconds later, on the same heading, they were to release bundles of white steady flares at 5 second intervals in a long stick.

Backers-up (2 Stirlings and 6 Halifaxes of the P.F.F. + 5 Stirlings of 3 Group) were to identify the aiming point visually if possible in the light of the preceding flares. If visual identification were possible, green T.I's were to be dropped, between 0046 and 0110 hours, on the aiming point and, 5 seconds later, bundles of white steady flares were to be dropped at 5 second intervals on the same heading (340°M.). If, however, visual identification proved to be impossible, a second run was to be made on the same heading and green T.I's were to be aimed at reds, if visible, otherwise so as to overshoot the centre of the greens by 1 second (in order to prevent the main bombing effort from trailing back.) Flares were to be dropped as before, but, if conditions were such as to render flares of no assistance for identifying or illuminating the target, they were not to be dropped.

Main Force aircraft were to ignore the red T.I's and early white flares dropped by Y aircraft and were to aim at green T.I's only. Nothing was to be dropped before 0055 hours: if no markers were visible on arrival before that time aircraft were to turn left and circuit to the west.

Crews were instructed to climb to 13/15000' before reaching Dungeness, then to lose height and gain speed on crossing the enemy coast to 3°E and to 1500'-2000' (above ground level) through the fighter belt from 3°E to 5°15' E. From that point to the target they were to climb in order to bomb from a "suitable height" above 9000'. After bombing they were to lose height again and gain speed to pass through the fighter belt at 1000'-2000' (above ground level) as before.

Halifax aircraft were to return to base but diversions were planned for Wellingtons of 4 Group (431 and 466 Sq. to land at Harwell and 196 Sq. at Big Marston.) Diversions were also planned for 6 Group, but aircraft were to return to base unless definitely short of petrol, in which case they were to land at the allotted diversion airfields.

...../Timing

Timing

<u>Y aircraft</u>	<u>Backers-Up</u>	<u>Main Force</u>
8 Stirling at 0045	2 at 1 min. intervals 0046-47	Halifax & Stirling 0047-0057
	6 at 2 min. intervals 0050-	Wellington 0050-0110 hours
		0100
	x5	0102-
		0110
	x 3 Group aircraft	

Bomb Loads

<u>P.P.F.</u>	Stirling(Y)	6 T.I. red (2 long burning) + 8 x 3 flares white + 3 T.I. green (1 long burning) + 1 x 2000 H.C.
	Stirling	6 T.I. green (2 long burning) + 8 x 3 flares white + 1 x 2000 HC + 2 x 500 G.P.
	Halifax	4 T.I. green (2 long burning) + 4 x 4 flares white
<u>Main Force</u>	Halifax	4 x 1000 (1 long delay) + incendiaries.
	Stirling	2/3 H.E. (including a small proportion of 500 lb. H.C.: 1/4 all G.P. to be long delay).
		1/3 I.B.
1 Gp.	- 19 Wellington	6 x 500 H.C.
	15 "	incendiaries
6 Gp.	"	3 x 500 G.P. or M.C. incendiaries.

Sorties

12. (a) No. of aircraft despatched.....271

(b) " reporting attack on primary area...205(75.6%)

(c) " " alt. targets... 7(2.6%)

(d) " abortive sorties (technical defect.....36)

(illness..... 3)

(late start..... 1)

(target not located..... 1) .42(15.5%)

(crashed, result not known..... 1)

(e) No. of aircraft missing.....17(6.3%)

Weather Experienced

13. Bases & Route:- as for Pilsen.

Target:- Mainly 0-3/10 cloud, base 8000', tops 10,000', increasing at times to about 5/00. Visibility moderate. Surface wind, calm.

Moon 90% of full and above horizon during operations.

5½ acres in the premises of Joseph Vogele A.G., makers of components for tanks, M.V. and tractors, have been devastated and there is a further area of nearly 2 acres of destruction in adjoining factories, which may be part of the same works.

The dock areas have suffered considerably, particularly the Mannheim inland port, where many warehouses and transshipment sheds have been destroyed by fire. There is also much damage to timber and other goods stacked in open yards or on the quays. The residential and commercial buildings affected are mainly in the centre of the city and in Neckarstadt. There are no large areas of devastation and most of the incidents are confined to single blocks or small areas.

Blind Bombing Aids (H2S)

18. 8 Y type aircraft, all Stirlings, were despatched to find and mark the target. One returned early owing to engine trouble, but the remainder completed their task successfully, using their Y equipment in the target area. Photographic and circumstantial evidence suggests that they all dropped their markers within 2 miles of the aiming point.

Pilsen and Mannheim

Navigational Aids (Gee)

19. The Eastern Chain was in operation on the Virginia frequency throughout and on the target frequency between 2330-0130 and again between 0215-0330 hours. 73 aircraft fitted with Gee Mk.I and 297 with Gee Mk.II returned useful information. 83% of each had no set difficulties, the former obtaining an average range of 205 miles and the latter 220 miles. The poor ranges may have been due to the fact that there was clear moonlight and navigators flew low, making use of visual pinpoints. Interference was heavy on the Virginia frequency. C of 7 Squadron using a Mk.II set obtained the maximum range of 411 miles.

Enemy Defences

20. (a) Flak and Searchlights

Flak and searchlight activity was considerable at Mannheim, but apparently not very great at Pilsen. Ground defences were, however, active at many points on the route, Cayeux, Paris, Rheims, Karlsruhe, Nurnberg, Darmstadt, Saarbrucken, Stuttgart and Munich being mentioned by crews. In addition there were reports of light flak being fired at low flying aircraft along a great part of the route. About 15% of sorties were damaged by flak. This is about three times the proportion usually damaged in attacks on targets in Southern Germany, such as Mannheim or Munich. It is noticeable that an unusually high proportion of this damage was caused by light flak, particularly to aircraft of the Groups which flew low.

(b) Fighters

Intercepted wireless traffic indicated that 97 sorties were made by controlled fighters, 33 of them operating against hostile aircraft. This figure, while moderately high, has been exceeded on some previous operations against Southern Germany. 3 claims to success and a further 6 indirect references to successes were heard.

26 returning aircraft reported having been attacked by fighters and a further 59 had taken evasive action or had opened fire to avoid attack. No aircraft was attacked at a height of less than 5000 feet and no attacks were reported east of Mannheim. Fighters were, however, sighted on the way to Pilsen and in the target area. The moonlight and good visibility provided favourable conditions for fighter activity and the large number of attacks
.../reported

orted is about the same as would be expected from past experience in this part of Germany under similar conditions. Wireless intelligence reported that about two thirds of the controlled fighter activity was directed against returning aircraft.

Losses

	<u>Munheim</u>	<u>Pilsen</u>
No. of aircraft missing	17(6.3%)	36(11.0%)
" damaged	35	50
(a) flak	6	4
(b) fighter	3(15.8%)	57(17.4%)
(c) other causes	2	3

There were over 200 observations by returning crews of aircraft seen destroyed, analysis of which leads to the following estimate of the causes of our loss of 53 aircraft:-

Fighters.....	20 aircraft
Light flak.....	10 "
Heavy flak.....	6 "
Either light or heavy flak or both..	7 "
Unknown causes.....	10 "
	<u>53</u>

All Groups were detailed to follow the same route but there was considerable variation in the planned flying heights. A survey of the heights at which crews were flying when they made observations suggests that aircraft were distributed fairly evenly between 1,000 and 17,000 ft. en route, with a few even below and above these heights. The route crossed two areas in which G.C.I. controlled night fighters are known to operate. These areas are roughly from Beauville to Metziers (2°E to 5°E) and from Luxemburg to Mannheim (6°E to 6½°E). Our known losses to fighters were distributed over both these areas and occurred on both the outward and homeward journeys.

Losses to light flak were spread out from the French coast to Nurnberg. Losses to heavy flak occurred over both targets, and gun-defended areas off the main route at Laon, Saarbrucken, Stuttgart and Burnberg, also claimed by fighters. In several of these instances there was co-operation from batteries of searchlights. The number of aircraft damaged by light flak, the number of reported attacks and the enemy "Sieg Heil" all support the estimate deduced from crews' reports.

A Wellington of 1 Group, losing height after crossing the coast, as directed, hit the sea when one of its engines cut. There is no evidence of similar disasters to other low-flying aircraft, but, in view of the rising ground which had to be crossed, the possibility exists.

Our losses on raids made against targets in S.W. Germany under conditions favourable to fighter defence have usually been heavy and it is believed that fighters have been the main cause on all occasions. In view of past experience, a loss of 20 aircraft to fighters in the present attack on Mannheim and Pilsen by full moon would not have been unexpected. It appears likely that this loss was, in fact, sustained.

Moreover, on this night, in conditions favourable both to fighters and to light flak, part of our bomber force flew at heights offering no difficulty to fighters and the remainder at heights offering good opportunities to light flak. This resulted in heavy losses to both of these forms of defence.

The cause of the heavier loss sustained by the Pilsen force is not clear. There is no evidence that more than three aircraft were destroyed in the target area or that many losses occurred on that part of the route not common to both the bomber forces. It is possible that the increasing effectiveness of the defences, as shown by the greater night-fighter effort made against the returning
.../bombers

bombers, continued throughout the operation and therefore fell with special severity against the Pilsen force, which returned later than the Mannheim force.

LEAFLETS

22. 11 aircraft were despatched to drop leaflets in the Rouen area. 1 returned early, but the remainder completed their task successfully. 3 crews reported sighting an enemy aircraft, but in each case our aircraft took successful evasive action and no attack developed.

APPENDIX A (Pilsen).

Timing of Attack

I. Pathfinder Force

5 Y aircraft dropped flares at 0132, 0141, 0149 and 0150(2) respectively.
 45 bombers-up attacked at 0136, 0137, 0144, 0145(2), 0146, 0147, 0148, 0149(2), 0153, 0155(2), 0156 & 0203 hours respectively.

Main Force

226 aircraft (including 4 P.M.F. u/t) attacked within the planned period 0130-0210.
 2 aircraft attacked 0-2 mins. late
 1 " " 25 "
 229 aircraft

Bomb Loads

I. (of aircraft reporting attack on primary).

Pathfinder Force

5	aircraft	carried	flares + T.I.'s
15	"	"	" + H.E.
4	"(u/t)	H.E. only	
24	aircraft		

Main Force

132	aircraft	carried	H.E. only
41	"	30 lb. + 4 lb. I.B's.	
26	"	30 lb. + 4 lb. I.B's + H.E.	
16	"	30 lb. I.B's only.	
10	"	4 lb. I.B's only.	
225	aircraft		

APPENDIX B (Mannheim)Timing of AttackPathfinder Force

7 Y type aircraft attacked at 0045(3), 0046, 0047, & 0050 hrs.(2)
 respectively.
 11 backers-up attacked at 0050, 0052, 0057(2), 0058, 0100, 0103^x
 0104^x 0114^x 0115^x 0140^x hours.

x These were 3 Group a/o acting as backers-up.

Main ForceSection I

19 aircraft attacked within the planned period (0047-57)
 49 " " 0-23 mins. late
 68 aircraft

Section II

88 aircraft attacked within the planned period (0050-0110)
 31 " " 0-16 mins. late.
 119 aircraft

Load Loads

V. (of aircraft reporting attack on primary).

Pathfinder Force

5 aircraft carried Flares + T.I's
 13 " " Flares + T.I's + H.E. (includes 5 a/o of 3 Gp.)
 18 aircraft

Main Force

66 aircraft carried H.E. only
 46 " " H.E. + 4 lb. + 30 lb. I.B's.
 32 " " H.E. + 30 lb. I.B's.
 24 " " H.E. + 4 lb. I.B's.
 19 " " 4 lb. + 30 lb. I.B's.
 187 aircraft

EWG/VP.
 EC/S. 26342/4/ORS.
 14th July, 1943.

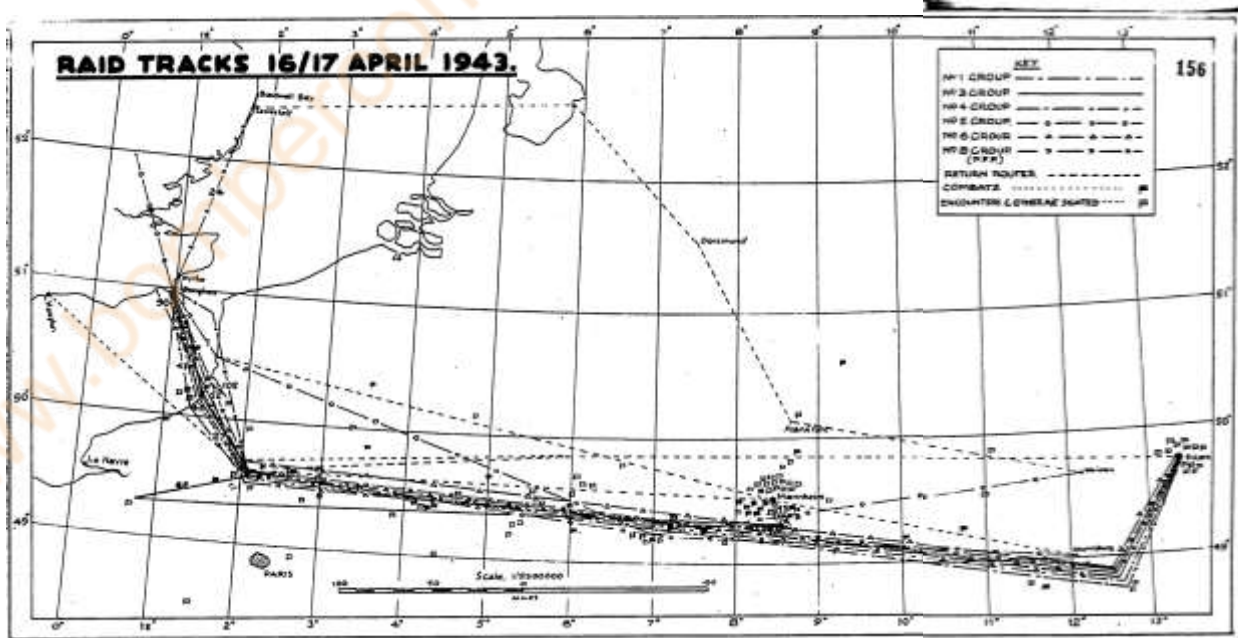
Target	Group	Type	Sorties	A/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over en. territ.	not over en. territ.		Flak	fighter	not E/A	att-acked	not attacked	Tons of Bombs H.E.	Inc.	
LISEN	8	Lancaster I	18	15	-	-	-	4	1	-	-	-	3	-	(Y) 109.3	131.3
	P.F.F.	Halifax Z	8	5	-	1	1	1	1	1	1	1	1	-	(Z) 59.8	10.0
	8	Lancaster I	3	2	1	-	-	-	1	-	-	-	-	-	(N) 62.7	15.5
	Main Force	Halifax Z	2	2	-	-	-	-	2	-	-	-	-	-	-	-
	1	Lancaster I	39	24	10	-	2	3	1B+2L+9	1	1	-	11	-	-	-
		Lanc. III	26	16	6	-	-	4	1	1	1	1	1	-	-	-
3	Lancaster II	8	7	-	-	1	-	-	1	1	-	-	2	-	(P) 105	-
4	Halifax Z	68	56	1	-	1	10	1B+6	1	-	-	5	5+3+	(A) 16	-	
	Halifax I	25	19	2	-	1	3	-	-	1	1	2	2	(K) 14	-	
5	Lancaster I	47	40	2	-	1	3	1	1	-	-	1	7	-	-	
	Lanc. III	55	41	6	-	1	1	6	1B+2L+6	1	1	2	8	-	-	
6	Halifax Z	27	22	-	-	1	4	3	-	-	-	-	6	-	-	
LISEN TOTAL			327	249	28	4	10	36	2B+1B+2L+39	1+1	2	11	54	-	-	Tons of Bombs H.E. Inc. (Y) 255.9 96.9 (A) 7.1 2.9
MORSE	8	Halifax Z	6	5	-	-	1	-	-	-	-	-	1	-	(P) 25.9	96.9
	P.F.F.	Stirling I	9	8	-	-	-	-	1	1	1	1	1	-	(A) 7.1	2.9
	8	Main Force													(M) 24.6	6.6
	1	Stir. III	1	-	1	-	-	-	1	-	-	-	-	-	-	-
		Well. III	4	3	1	-	-	-	-	-	-	-	-	-	-	-
		Well. X	30	25	-	1	4	-	2	2	1	1	2	-	-	-
3	Stirling I	29	21	-	2	4	2	2	2	2	1	3	1	-	-	
	Stir. III	56	45	1	1	4	5	2B+1L+8	1	1	-	1	6	-	-	
4	Halifax Z	6	4	1	-	-	1	3	-	-	-	1	1	-	-	
	Halifax L	5	3	-	-	1	1	1	-	-	-	-	-	-	-	
	Wellington X	30	25	-	-	-	3	2	1	-	1	4	-	-	-	
6	Well. III	6	3	-	-	1	1	1	-	-	-	2	-	-	-	
	Well. X	84	63	3	3	11	4	2	1	1B+1	1	2	3	-	-	
MORSE TOTAL			274	205	7	8	34	17	2B+8L+35	2B+2L+1	1B+1	12	18	-	-	
BOHEMIA TOTAL			598	454	35	12	44	53	4B+1B+16L+5L	2B+5L+3	1B+2L+2	26	70	-	-	

* Mark of aircraft not known

...../LAMPHEIM

Target	Group	Type	Sorties	A/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over en. territ.	not over en. territ.		Flak	fighter	not E/A	att-acked	not attacked	H.E.	Inc.	
LAMPHEIM ROUEN	95	Whitley	3	3	-	-	-	-	-	-	-	-	-	-	-	-
		Well. Ic	2	2	-	-	-	-	-	-	-	-	-	2	-	-
		Well. III	6	5	-	-	1	-	-	-	-	-	-	1	-	-
LAMPHEIM TOTAL			11	10	-	-	1	-	-	-	-	-	3	-	-	
TOTALS			609	464	35	12	45	53	4B+1B+16L+5L	2B+5L+2	1B+2L+2	26	73	-	-	

* Result not known: A/C crashed in sea.

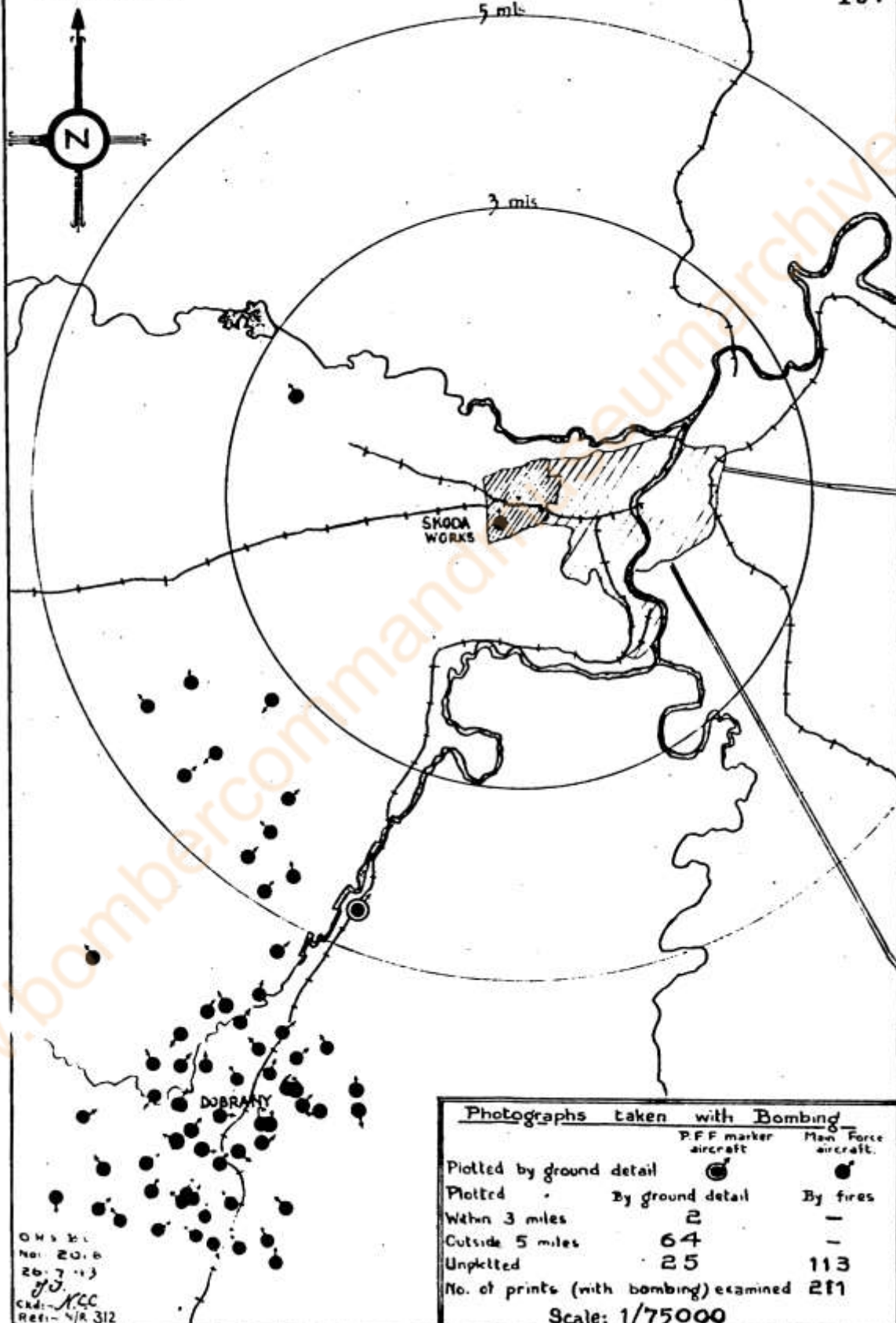


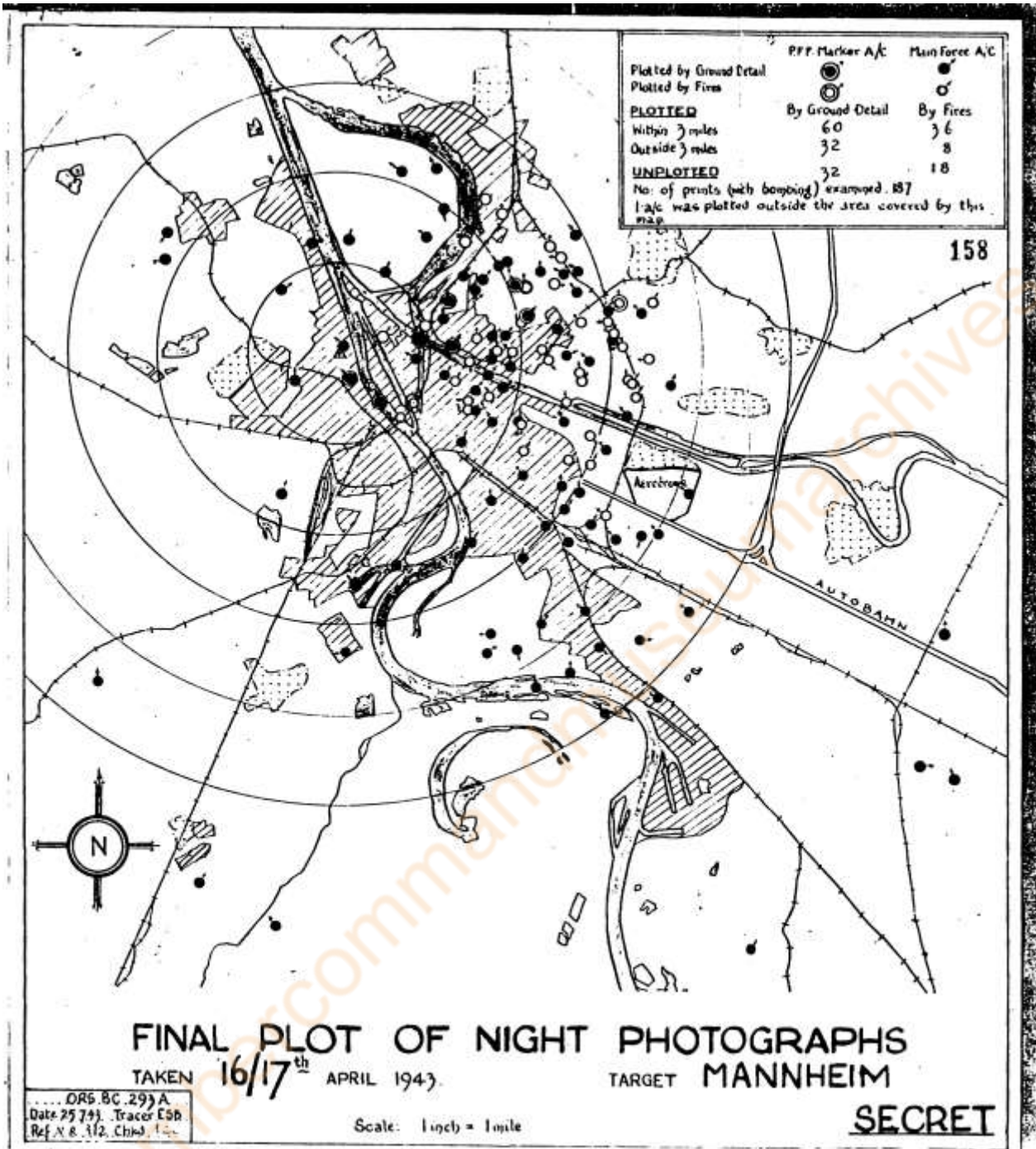
FINAL PLOT OF NIGHT PHOTOGRAPHS

TAKEN 16/17th APRIL 1943. TARGET: PILSEN

SECRET

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS 17/18th APRIL, 1943.

MINELAYING: LEAFLETS

SUMMARY

Minelaying 24 aircraft of 1,3,4 and 5 Groups were detailed on a minelaying operation off the west coast of France. 21 reached their targets, laying 56 mines. All returned safely.

Leaflets One aircraft of 91 Group dropped leaflets in the Orleans area without incident.

Metereological Forecast

Midnight position of fronts: (i) occluded front 61°N, 20°E. to 56°N, 16°E., becoming warm to Zuyder Zee and cold to Yar mouth (ii) cold front N 16°E. to S. Scotland.

Home Bases:- Fit all night. Variable amounts of cloud, mainly medium and high. Moderate visibility.

Germany:- N. Sea coast: much low cloud, below 600' in places. Local fog. Inland cloud will decrease, becoming variable in amount, mainly at medium and high levels; but some broken cloud will persist in afternoon thunderstorms.

Denmark:- Much cloud, base below 1,000 ft. in places, especially on coast.

W. France:- Medium cloud only from Brest to Bordeaux, with moderate visibility. S. of Bordeaux, there is a threat of local thunderstorms.

MINELAYING

Statistics

(a)	No. of aircraft despatched.....	24
(b)	" " reporting mines laid in primary area.....	21
(c)	" abortive sorties { navigational error.....1	} 3
	{ technical defect.....1	
	{ sickness of crew.....1	
(d)	" aircraft missing.....	0

Weather Experienced

Home Bases:- Fit.

Route and targets:- Little or no cloud. Moderate visibility with moon above the horizon and 98% of full.

Enemy Defences

(a) Flak and Searchlights

Ground defences were not very active. One aircraft sustained minor damage from light flak and small arms fire at Quiberon Bay.

...../Fighters

(b) Fighters

Enemy wireless traffic revealed the presence of one patrol in the Lorient area, but no pursuits were heard. Our crews had no encounters.

Casualties

6. No. of aircraft missing.....NIL
 " damaged (flak.....1)
 (fighter.....Nil)
 (non-enemy action....Nil)..... 1

All our aircraft returned safely.

LEAFLETS

7. One Wellington of 91 Group dispersed leaflets in the Orleans area without incident.

MM/VF.
 BC/S. 26342/4/ORS.
17th July, 1943.

17/18th April, 1943. -- Minelaying: Leaflets

Target	Group	Type	Sorties	A/C reporting attack on		Aversive sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not R/A	att-asked	not attacked	
LORIENT	1	Well. I	4	3	-	-	1	-	-	-	-	-	-	6 mines
ST. NAZAIRE	1	Well. X	5	4	-	-	1	-	1	-	-	-	1	8 mines
GIRONDE RIVER	3	Stir. I	1	1	-	-	-	-	-	-	-	-	-	3 mines
		Stir. III	5	5	-	-	-	-	-	-	-	-	-	15 mines
BREST	4	Well. I	3	4	-	-	1	-	-	-	-	-	-	8 mines
	5	Lano. I	2	2	-	-	-	-	-	-	-	-	-	8 mines
B. YVONNE	5	Lano. III	1	1	-	-	-	-	-	-	-	-	-	4 mines
ST. JEAN DE LAUE	5	Lano. I	1	1	-	-	-	-	-	-	-	-	-	4 mines
RE/ELAYING TOTAL			24	21	-	-	3	-	1	-	-	-	1	56 mines
LEAFLETS ORLEANS	91	Well. Ic	1	1	-	-	-	-	-	-	-	-	-	
TOTAL			25	22	-	-	3	-	1	-	-	-	1	

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 18/19 APRIL, 1943.SPEZIA: Minelaying: LeafletsSUMMARYSPEZIA (Bombing and Minelaying)

1. 178 heavy bombers were despatched to attack Spezia. The target was ground-marked by 7 Y-type Halifaxes with 15 Lancasters as back-up. Good concentration, a little north west of the airming point, was achieved. The railway station, several public buildings, the barracks and the dock area sustained severe damage, and a destroyer was sunk. The single missing Lancaster was probably shot down by flak over France.

At the same time 7 Lancasters laid 28 mines off Spezia. An eighth Lancaster was despatched, but returned early. Neither loss nor damage was sustained.

MINELAYING (Bayonne and St. Jean de Luz)

2. 18 mines were successfully laid off Bayonne and 12 off St. Jean de Luz by a force of 10 Stirlings, which returned without loss.

LEAFLETS

3. 3 Wellingtons were despatched to drop leaflets at Lille. 2 completed the task, while the third returned early.

Metéorological Forecast

4. Estimated midnight position of fronts: cold from S.W. Norway to Wash to S. of Pembroke, with possible cold front from N. Norway to St. Abbs Head to Poynes.

Home Bases:- All fit for take-off, with broken cloud at 2000 ft. or above, and moderate to good visibility. For return only small amounts of cloud N. of Wash, but cloudy with base 1500/2000 ft. tops 6000 ft. S. of Wash. Well spaced layers of upper cloud near cold front, which is expected to lie W. to E. at about $51\frac{1}{2}^{\circ}$ N. Petrol diversion: cloud about 1500/2000 ft., but risk of local patches below 1000 ft., on South Coast.

Germany: N. of 51° N - much low cloud, base below 1000 ft. on N.W. coast and at 1000 ft. in Kattegat. A few breaks to S. and S.E. Much medium cloud above, 3-4,000 ft. thick. S. of 51° N - well broken medium and high cloud. Isolated thunderstorms may develop in the evening, but these will die out, and by midnight any low cloud will be well broken.

France:- Small amounts of cloud S. of 48° N. Much layer cloud at 2000 ft. thickness 1/2000 ft. further N., becoming broken to the E.

Alps: Clear.

Italy: Little or no cloud.

Route and target: From 50° N only small amounts of cloud above 1500 ft.

..../winds

Winds: N.England - 250°/70-80 m.p.h.

N.Germany - 270°/60 m.p.h.

Average to Italy not more than 40 m.p.h. Over the Continent less than 40 m.p.h.

SPEZIA

Plan of Attack

5. Zero hour 0140 hours - Period of attack 0140-0210 hours.

Briefed Route:- Cabourg - W. of Lac du Bourget - 4412N. 0825E. - Spezia - 4412N. 0825E. - W. of Lac du Bourget - Cabourg.

All aircraft followed this route except 3 Group, which made landfall at St. Valery and joined the force at Verneuil, returning the same way.

The aiming point was to be identified visually and marked with red T.I. by 6 Halifax (Y type) and 12 Lancaster aircraft of the P.F.F. If the smoke screen was operating in such a way as to make flares necessary, each aircraft could drop a stick of white flares at 5 second intervals with precise aiming. The main force was to identify the aiming point, guided to it by the red T.I's. If the large ships lying south of the aiming point could be identified they were to be attacked with H.E. in preference to the marked aiming point. Lac du Bourget was also to be identified by the P.F.F. on the way to and from the target, and marked with white and green flares as an aid to navigation for the main force,

Special emphasis was laid on the need for careful timing; in particular, the main force, consisting entirely of Lancaster aircraft, was to avoid arriving in the target area too early and so giving prior warning of the attack to the defences.

The bombing run was to be made, by the main force, along the coast from south to north from Palmaria Island. The P.F.F. were to approach from the north to south.

Timing (P.F.F.)

6 Y + 2 Lancasters at 0140 hours
 10 Lancasters at 1 min. intervals 0141 - 0150,
 2 " 2 " 0152-0154

Bomb Loads

P.F.F.: 6 Halifax 4(4 flares white) + 2(2 flares white + 2 flares green)
 + 2 T.I. red + 1 x 1000 G.P. + 1 x 500 G.P.

12 Lancaster 5(4 flares white) + 2(2 flares white + 2 flares green)
 + 2 T.I. red + 5 x 1000 G.P.

Main Force - Mixed loads of H.E. and incendiaries

Sorties

6. (a) No. of aircraft despatched.....178
 (b) " reporting attack on primary area.....163(91.6%)
 (c) " " alternative area..... 2(1.1%)
 (d) " abortive sorties (technical defect and
 manipulative errors.....9)
 (illness of crew.....2)..... 12(6.7%)
 (late.....1)
 (e) " aircraft missing..... 1(0.6%)

Author Experienced

Other Experienced

Route: Small amounts of cloud on outward journey. On return, much cloud S. of Paris, in layers from 3,500 ft. to more than 25,000 ft. with several thunderstorms. Static and icing experienced in cloud. Winds at 20,000 ft. - 250°/40 m.p.h. in Northern France, decreasing and veering 230°/25 m.p.h. further south.

Target: B. cloud. Moderate visibility, but hazy over the town, probably owing to the smoke screen. Winds at 5000 ft. - 170°/20 m.p.h. at 18000 ft. - 210°/30 m.p.h.

Full moon, above the horizon during the period of the attack.

Photographic Statistics

No. of photographs showing ground detail.....	110
Plotted by ground detail within 3 miles.....	102
" " between 3 and 5 miles.....	2
" " outside 5 miles.....	Nil
Unplotted.....	6
No. of photographs showing fire-tracks.....	68
Plotted by fire-tracks within 3 miles.....	25
" " between 3 and 5 miles.....	Nil
" " outside 5 miles.....	Nil
Unplotted.....	43
Total photographs with bombing examined.....	155
No. of aircraft reporting attack.....	163
" " estimated, from the photographic evidence, to have bombed within 3 miles of the aiming point.....	135

Narrative of Attack

5 Y-type Halifaxes, backed up by 14 Lancasters, ground-marked the target accurately. H2S was used to assist in navigation, but identification and marking was visual. The main force, which also identified the target usually assisted by the markers, achieved a well localised attack. The aiming was good. Night photographic evidence indicated that about 80% of the aircraft reporting attack bombed within 3 miles of the aiming point. The attack fell a little to the north west of the target, near the greatest concentration of T.I.'s., but more damage was caused than on the night of the 13/14th April. Although the smoke-screen effectively obscured the ships in the harbour, one destroyer was sunk.....

Night Reconnaissance

Photographs taken after the attack cover the whole of the town and harbour. The Naval Dockyard and the town suffered more severely than on the night of 13/14th April, considerable damage being caused both by H.E. and by fire. 23 dockyard buildings were seriously damaged, and several workshops and store sheds were still burning, when the photographs were taken. The destroyer "Viere" of the "Orlan" class, which was berthed off the Molo della Fregata, was sunk. 11 direct hits on the main railway station damaged tracks, rolling-stock and station buildings. The Post and Telegraph office in the Via Chiado, the Town Hall and the Prefettura were also damaged. The infantry and artillery barracks, which were both damaged in the previous raid, have again been severely hit. Industrial damage, which was scattered through the town, included 8 sheds demolished or gutted. 50 house blocks and 20 houses were destroyed, gutted or partially demolished, while 80 house blocks and 60 houses were damaged. In addition 25 small commercial buildings were damaged.

...../Alternative Targets

Alternative Targets

11. One aircraft attacked a flakship near Le Havre and another bombed an alternative target near Toulon.

Navigational Aids

12. (a) Gee: The Eastern and Southern Chains operated on the Virginia and Carolina frequencies respectively. All the aircraft despatched were fitted with Gee Mk.II. Of the 164 aircraft which returned useful information, 85, had no difficulties with their equipment. An average range of only 190 miles was obtained, the maximum being 312 miles. The low ranges were probably due to poor propagation and to the navigators using visual pinpoints as they were flying at the normal altitude. There is no evidence of any change in the strength or type of enemy jamming.

(b) H2S: 5 Y type Halifaxes were despatched to find the target and to mark it by visual identification. All the aircraft completed the task successfully, but only one attacked on time, the rest being 1-15 minutes late, the special equipment of the latest being useless throughout the raid. H2S failed in 3 additional aircraft on the return journey.

Enemy Defences13. (a) Flak and Searchlights

There was little change from the defences encountered on the last raid on this target (13/14th April). Slight heavy flak was reported from Palmaria Island and light flak from the west of the gulf and in the dock area. A few searchlights exposed in spasmodic and ineffective attempts at coning. At Turin considerably heavy flak and a conc of some 20-30 searchlights was encountered. Most of the 9 Flak casualties were caused by heavy flak over the target, but one aircraft was seriously damaged by heavy flak near Le Havre.

(b) Fighters

Enemy wireless traffic revealed only 2 unsuccessful patrols of controlled fighters, but crews reported 4 attacks and 20 other encounters of which 7 were over Spezia, and the remainder mostly over France from the coast to Orleans.

Casualties

14. No. of aircraft missing.....1
 " damaged (a) flak.....9
 (b) fighter.....Nil
 (c) not enemy action..... 1

The one aircraft lost was probably shot down by flak at Caen.

MINE LAYING

15. Spezia: 8 Lancasters of 5 Group set out to lay mines off Spezia. One aircraft returned early owing to a technical defect, while the rest completed their task, laying a total of 28 mines, the first of which was dropped 11 minutes after the bombing raid began. All the aircraft returned undamaged.

16. Bayonne and St Jean de Luz: 6 Stirlings were despatched to Bayonne, and 4 to St. Jean de Luz, each aircraft laying 4 mines successfully in its allotted area. Enemy wireless traffic revealed 3 patrols of controlled night fighters operating near Brest. One fighter claimed to have destroyed an aircraft, but all the Stirlings returned safely, although one was seriously
damaged

engaged by flak from a ship off St. Jean de Luz.

LE FLSTS

17. 3 Wellingtons of 92 Group set out to scatter leaflets in the Lille area. 2 aircraft completed the mission, but the third returned early owing to a technical defect. Opposition was very slight, and neither loss nor damage was sustained.

APPENDIX

I. Timing of Attack

(a) Pathfinder Force

(i) 5 Y type aircraft attacked at: 0140, 0141, 0142, 0146, 0153.

(ii) 14 backers-up attacked at: 0144, 0145, 0147, 0148(2), 0149(2), 0150(4), 0142, 0153, 0154.

(b) Main Force (0141-0210)

Aircraft attacked within prescribed period.....	136
" " 1-5 minutes late.....	5
" " 6-10 " ".....	3
	<u>144</u>

II. Bomb Loads Carried

(a) Pathfinder Force

Flares + T.I. + H.E..... 19

(b) Main Force

H.E. + 30 lb. inc. + 4 lb. inc.....	57
H.E. only.....	56
30 lb. inc. + 4 lb. inc.....	7
30 lb. inc.....	15
4 lb. inc.....	9
	<u>144</u>

EMO/VP.
BC/S. 26342/2/ORS.
24th July, 1943.

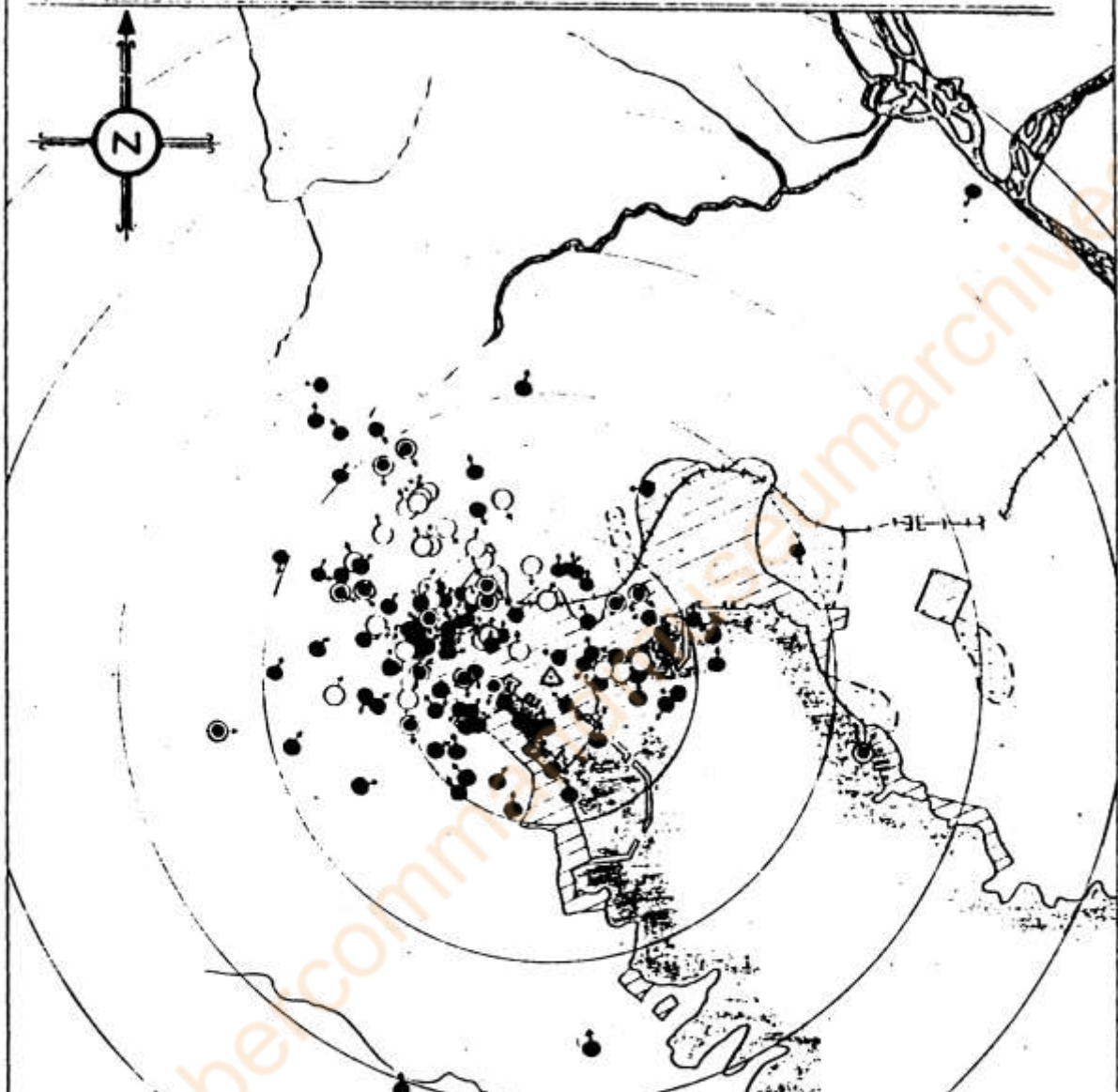
18/19th April, 1943.

SPECIAL: Mineslaying: Louflets.

Target	Group	Type	Sorties	W/C reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results
				prin. area	alt. area	over on territ.	not over on territ.		flak	fighter	not F/A	att-acked	not attacked	
SPECIAL	8	Lancaster I	14	14	-	-	-	-	1AC	-	-	1	4	
	P.F.P.	Halifax 2	5	5	-	-	-	-	-	-	-	-	1	
	8	Main Force	7	5	1	-	-	1	-	-	-	-	-	
	1	Lancaster I	38	34	1	-	3	-	1	-	-	1	9	
		Lancaster III	24	23	-	1	-	-	1	-	-	-	3	
	3	Lancaster II	5	7	-	-	2	-	-	-	-	1	1	
5	Lancaster I	47	43	-	2	2	-	1AC+2	-	1B	-	-		
		Lancaster III	34	32	-	1	1	-	3	-	-	1	2	
SPECIAL	TOTAL		178	163	2	4	8	1	2AC+7	-	1B	4	20	
MINESLAYING														
L'YVONNE	3	Stirling I	4	4	4	-	-	-	1AC	-	-	-	-	12 mines
		Stirling III	2	2	-	-	-	-	-	-	-	-	-	6 mines
ST JEAN DE LUZ	3	Stirling III	4	4	-	-	-	-	-	-	-	-	-	12 mines
S-BELA	5	Lancaster I	2	2	-	-	-	-	-	-	-	-	-	8 mines
		Lancaster III	6	5	-	-	1	-	-	-	-	-	2	10 mines
MINESLAYING	TOTAL		18	17	-	-	1	-	1AC	-	-	-	2	38 mines
LOUFLETS														
LOUFLETS	92	Well. III	3	2	-	-	1	-	-	-	-	-	-	
TOTAL			199	182	2	4	10	1	3AC+7	-	1B	4	22	

RAID TRACK NOT AVAILABLE

FINAL PLOT OF NIGHT PHOTOGRAPHS 185
 TAKEN 18/19th APRIL 1943 TARGET: SPEZIA



Photographs taken with Bombing	P.F.F. marker aircraft		Main force aircraft	
	By ground detail	By fires	By ground detail	By fires
Plotted by ground detail	●	●	●	●
Plotted by fires	⊙	⊙	⊙	⊙
Plotted				
Within 3 miles	102	25		
Outside 3 miles	2	-		
Unplotted	6	18		
No of prints (with bombing) examined			155	

Scale: 1 inch = 1 mile

SECRET

O.R.S. B.C.	No:- 202 B
Date:- 27.7.43	Tracer:- J.J.
Ref:- S 1314	Checked:- K.C.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 20/21st APRIL, 1943.STETTIN: ROSTOCK: BERLIN: Minelaying: Leaflets.SUMMARYSTETTIN

339 heavy aircraft were despatched to the Baltic port of Stettin. An extremely accurate groundmarking attack was delivered, causing immense damage to industrial and military installations. In the Pommerensdorf district, 100 acres of closely grouped industrial buildings were devastated, including the whole of the important Pommerensdorf-Milch chemical factory. 1 aircraft did not return.

ROSTOCK

86 Stirlings set out to attack the Heinkel Works at Rostock. A smoke screen had unfortunately been generated on the approach of the Stettin force, and our bombers found the factory almost completely obscured. 69 aircraft attacked the town, causing a fair amount of damage to the docks. 4 1/2 acres of the Neptun Werft submarine yards were laid waste. The Heinkel works apparently escaped damage. 8 aircraft were lost.

BERLIN

11 Mosquitoes carried out a diversionary attack on Berlin in order to deceive the enemy as to the intentions of our main forces operating against Stettin and Rostock. 9 reported attack, the crews being convinced of the success of their efforts. 1 aircraft did not return.

MINELAYING

15 Wellingtons, out of a force of 18, laid 30 mines in the Bay of Biscay. None was lost, but one was wrecked on landing after being hit by flak.

LEAFLETS

3 Wellingtons dropped leaflets over Lille without incident.

Metereological Forecast

Estimated position of fronts at midnight: (1) occluded from 50°N 04°E. to 56°N. 04°E., becoming warm to S. Alps and cold to S. Britain (2) cold from 49°N. 20°E. to Alps.

Home Bases:- All fit at dusk, with little cloud and moderate to good visibility. Local troubles later in 4 and 5 Groups; 4 Group may have to report to Training Groups. Fog in Boscombe Down and Abingdon areas after 300-0400. Otherwise, most operational bases will remain fit all night. The warm front will cause few difficulties.

Germany:- N. Sea and Baltic coasts: broken strato-cumulus, with some clear areas. Little cloud inland, except in extreme S. near cold front. E. of 15° E.: broken convection cloud. Moderate to good visibility everywhere, except for industrial haze in W. Route to Stettin: small amounts of strato-cumulus, .../especially

especially over Denmark, these small amounts of medium cloud, probably above 14,000'. Patches of low stratus, below 1,000', may be found over Danish coast. Rather more medium cloud on return over N. Sea. Wind at 2,000' over E. North Sea: 270°/25 m.p.h., increasing to 30 m.p.h. after midnight.

N. Italy:- High medium cloud. Frontal belt over Alps with cloud to great heights.

France:- Little cloud, apart from broken strato-cumulus over Brittany.

STETTIN

Plan of Attack

7. Zero hour: 0100 hours Period of Attack: 0100-0130 hours.

Route:- 5550N 0810E - 5535N 1037E - 5440N 1317E - Stettin - 5315N 1435E - 5428N 1232E - 5535N 1037E - 5550N 0810E.

Stirling and Halifax (Y) aircraft were to drop yellow T.I.'s at 55°35'N 10°37'E (Odense) as an aid to the main force: this marking was to be maintained by other aircraft of the P.F.F.

At zero hour, Y aircraft were to drop red T.I.'s blindly on the aiming point, and, 10 seconds later on the same heading, white flares were to be released in bundles at 4 second intervals. Two and three minutes later, 3 aircraft were to identify the aiming point, visually guided by red T.I.'s, and mark it with green T.I.'s: if the illumination proved insufficient they were also to drop white flares in the same manner as the Y aircraft. If they proved unable to identify the aiming point they could aim their green T.I.'s at the centre of the reds. Backers-up between zero + 4 and zero + 10 were to aim green T.I.'s at the centre of existing greens: later backers-up were to aim to overshoot the centre by 4 seconds. The backers-up were not to attempt to identify the aiming point for themselves.

Main force crews were instructed to aim at the centre of green T.I.'s and to ignore red T.I.'s and flares, and in no circumstances were they to aim at the red T.I.'s. Careful attention was to be paid to timing, particularly at arrival and early bombing.

First plans were laid down thus:-

Group	N. Sea - 06°30'E	06°30' - 54°40'N	Bombing Ht.	Return
1	Below 5000'	Below 1000' or 3-5000'	10-12000'	Lose height and gain speed (below 1000' or 3-5000') till enemy coast finally crossed
6	3-5000'	500' or below	12000' or above	as low as possible till well out to sea

4 }
5 } Low as possible crossing Denmark.

<u>Timing</u>	<u>P.F.F.</u>	<u>Main Force</u>
8. Blind Marker Illuminators	10S & 5H(Y) at 0100	-
Visual "	2L & 1H at 0102	Halifax 0102 - 0115
	2L & 1H at 0103	6
Backers-up	5(S,H,L,H,L) at 1 min. intervals 0104-08	-
	9(3L, 1H, 2L, 1H, 2L) at 2 min. intervals 0110-26	Lancaster 0110-0130

...../Bomb Loads

Bob Loads

9.	<u>Yellow</u>	<u>T.I. Red</u>	<u>Green</u>	<u>Flares(White)</u>	<u>H.E.</u>
<u>Blind Marker Illuminators</u>					
10 Stirling	1	5	2	6 x 3	8 x 40 G.P.
5 Halifax	1	5	1	4 x 5	-
<u>Visual Marker Illuminators</u>					
2 Halifax	1	-	5	4 x 4	2 x 1000 G.P.
4 Lancaster	1	-	5	4 x 4	1 x 4000 H.C. + 2 x 500 G.P.
<u>Backers-Up</u>					
1 Stirling	1	-	5	-	2 x 500 G.P.
4 Halifax	1	-	5	-	3 x 1000 G.P.
9 Lancaster	1	-	5	-	1 x 4000 H.C. + 2 x 1000 G.P.
<u>Main Force</u>					
Halifax (4 Gp.)				1 x 1000 G.P. + incendiaries	
(6 Gp.)				1 x 1000 G.P. or H.C. + 1 x 500 H.C. + incendiaries	
2 Lancasters(5 Gp.)				2 x 8000 H.C.	
Lancaster				1 x 4000 H.C. + incendiaries	

Sorties

10.	(a)	No. of aircraft despatched.....	339
	(b)	" reporting attack on primary area.....	304(89.7%)
	(c)	" " alternative area... 1(0.3%)	
	(d)	" abortive sorties (technical or manipulative defect.....)	6) 12(3.5%)
		(hit by flak.....)	5
		(attacked by E/A.....)	1
	(e)	" aircraft missing.....	22(6.5%)

Weather Experienced

11. Home Bases:- Mainly cloudless. Moderate visibility all night.

Route and target:- Cloudless apart from patches of 7-8/10ths medium cloud over Denmark, base 14,000', with patches of sea fog. Visibility mainly moderate, poor locally over Denmark. Moon above the horizon and 88% of full.

Winds:- N. Sea, at 2-3,000': 220-240°/25 n.p.h.
Denmark, at 2-8,000': 220-230°/20-30 n.p.h.
Stettin, at 9-16,000': 290-310°/30-40 n.p.h.
Stettin, surface: light, W. - W.N.W.

Night Photographic Statistics

12.	No. of photographs examined.....	237
	" " showing	(plotted within 3 mls.....143)
	" " ground detail	(plotted between 3 & 5 mls 12) 170
	" " " "	(unplotted..... 15)
	" " showing	
	" " fire tracks (unplotted).....	67
	" " aircraft reporting attack.....	304
	" " estimated (from the evidence of photographs showing ground detail) to have bombed within 3 miles of the aiming-point.....	256

Narrative of Attack

13. 10 Y-aircraft attacked between zero-1 and zero + 2, and all 6 visual markers before zero + 5. Most of the T.I.'s were placed extremely accurately, several being within a few hundred yards of the aiming-point, and there was no undershooting, so that the wider markers attracted little attention. The backer-up maintained this marking over the required period until 0126, and kept the bombing in the same area. The main force kept to their table, so that the attack was carried out almost exactly according to plan.

Alternative Targets

14. One aircraft failed for technical reasons to release its bombs over the target, and jettisoned them about 20 miles to the south.

Day Reconnaissance

15. Reconnaissance sorties flown on 21st and 22nd April, 1943, revealed a scene of extraordinary destruction in Stettin.

Nearly all the damage was concentrated in the centre of the town. In the Pommerensdorf district, nearly 100 acres of closely grouped industrial buildings were completely devastated, including the whole of the famous chemical works of A.G. der Chemischer Produkten-Fabriken Pommerensdorf-Milch, the Didier Werke A.G. (Catalysts) and two factories producing edible oils, A.H. Zander and Paul Julius Stahlberg. The Sachsenberg, Kruger and Stettiner Oderwerke shipbuilding yards, and the naval/Bredow-Werder all sustained damage from direct hits. 2 large breweries were destroyed, one being gutted over an area of $7\frac{1}{2}$ acres. Military installations suffered considerably, notably the Pioneer barracks, the Police barracks, the Intelligence Division and the Proviantamt (provision depot) while 4 buildings of the artillery Magazine at Torney were flattened.

Many public buildings, including the Courts of Justice, a Waterworks and 2 gasworks were destroyed or damaged, as well as a number of timberyards, warehouses, storage wharves, sawmills etc. The railway suffered less severely, although about 50 goods trucks were burnt out. 320 residential houses and some 3,700 flats were rendered uninhabitable.

On 22nd April, 34 hours after the attack, when the second reconnaissance aircraft flew over the town, 24 fires were still burning.

...../Blind Bombing Aids

Blind Bombing Aids (H2S)

16. 15 Y-type aircraft (10 Stirlings and 5 Halifaxes) were despatched. 2 bombed blindly, and were plotted $1\frac{1}{2}$ and 2 miles from the aiming point. 9 attacked on H2S with the aid of visual pinpoint; 6 of these were plotted, all within 4 miles. 2 others bombed visually, experiencing trouble with their special equipment; one returned early with engine trouble and one did not return. The target response was good, and the lake was clearly visible.

Navigational Aids (Gee)

17. The Eastern, Northern and Southern Chains operated throughout, the first named transmitting the target frequency 2359-0200. 95% of the 312 Gee aircraft returning useful information (including those on Rostock) were fitted with the Mk. II set. 85% had no set difficulties, obtaining an average range of 290 miles. Lancaster, using Mk. II on the Eastern Virginia frequency, secured the maximum of 368 miles. No fixes were taken while the target frequency was being transmitted, indicating that the force was outside Gee range throughout this period. About half the reports stated that no Northern Chain signals were received.

Enemy Defences

18. (N.B. Since the routes to the 3 main targets coincided as far as $55^{\circ}35'N$ $10^{\circ}37'E$, a joint account of the enemy defences encountered and the casualties suffered on this night follows).

(a) Flak and Searchlights

Flak defences were very active along the whole route over enemy territory. Light flak was reported from most of the Danish towns, particularly from coastal areas and a considerable concentration of shipping in the Great Belt.

At Stettin, moderate light and heavy flak co-operated with a few searchlights. More intense and accurate fire was met at Rostock, principally from light flak co-operating with small cones of searchlights. The bombing height over this target was much lower, averaging about 9,000 feet, as against 13-14,000 feet over Stettin.

Of 66 aircraft damaged by flak, at least 38 were hit by light flak, mostly over Denmark. 17 of these were seriously damaged. Of the 31 aircraft whose height at the time of being hit is known, 80% were reported to be flying at 500 feet or below.

A few aircraft were damaged by heavy flak over the target areas.

(b) Fighters

Enemy wireless traffic revealed 10 patrols in connection with Stettin and Rostock raids. 6 claims and 3 other references to success were overheard. A further nine patrols, making 3 pursuits and claiming one victory, appear to have been related to the Berlin force.

Bomber crews reported 14 attacks and 29 other encounters, which are tabulated below:

	Outbound		Target Areas			Homebound	
	Denmark	Other Areas	Stettin	Rostock	Berlin	Denmark	Other Areas
attacks	6	1	1	1	-	2	3
Other encounters	5	5	10	5	1	-	3
	11	6	11	6	1	2	6

...../The proportion

The proportion of encounters outbound and over the target area to the number homebound (which is usually greater) is particularly high.

4 night fighters were probably destroyed, two Ju.88's by Lancasters of 5 Group at Odense and Vejle and a Mk. 109 by a Stirling of P.F.F. at Stettin. A He. 110 was shot down in flames by light flak at Stettin.

Casualties

19.		<u>Stettin</u>	<u>Rostock</u>	<u>Berlin</u>
No. of aircraft missing		22	8	1
" damaged				
(a) flak	52		14	Nil
(b) fighter	1	55	4	Nil
(c) not R/A	2		4	Nil

Of the 31 missing aircraft, 16 are estimated to have been shot down by light flak and ships, 3 by heavy flak and 9 by fighters, the remaining 3 being destroyed by unknown causes at Ringjobing, Rostock and Odense.

Analysis of the estimates shows that 11 outbound aircraft were shot down, 9 by light and ship's flak, one by fighters and one by an unknown means. Fighters accounted for 2 at Stettin, where light flak had one success and heavy flak 2, while at Rostock heavy flak was seen to shoot down one bomber and probably accounted for another. 12 homebound aircraft were shot down, 6 by light flak, and 5 by fighters, including a Mosquito returning from Berlin claimed by a controlled fighter near Amsterdam. The remaining one crashed into a house at Odense, the cause of loss being unknown.

The ninth fighter loss was a Lancaster, which landed at Skanne in Sweden after its port wing had been set on fire. 2 S.O. 5's were picked up, one from a Lancaster whose crew baled out over Stettin and one from a Stirling with a starboard engine on fire off Zealand.

In a collision between a Lancaster and a Stirling, the Stirling's fine cut a 6 foot hole in the fuselage of the Lancaster between the front turret and the bomb doors.

ROSTOCK

Plan of Attack

20. Zero hour: 0130 hours. Period of Attack: 0130-0140 hours

Route:- 555°N 0810E. - 5535N. 1037E - 5430N 1223E - Rostock - turn left - 5400N 1215E - 5428N 1232E - 5535N 1037E - 555°N 0810E.

Stirlings of 3 Group (3 2 main force Stirlings of the P.F.F.) were detailed to attack the aircraft factory at Rostock, identifying the target visually from east to west.

Bomb aimers were instructed to aim at the near side of the factory in order to get the majority of their bombs in the small and narrow target area.

The two most experienced crews in each squadron were to carry maximum incendiary loads and were to set course for a carefully timed run to the target from a specified point at 0125 hours precisely. No other crews were to set course from this point before 0126 hours. Inexperienced crews were to carry H.E. loads, and were not to set course for the timed run before 0128 hours. Aircraft arriving at this point before their allotted times were to orbit in sight of the position.

.../The Gee

The Gee Eastern and Northern Chains were to be available all night; the Eastern Chain was to radiate two frequencies between 2359 and 0200 hours.

Sortics

21.	(a)	No. of aircraft despatched.....	86
	(b)	" " reporting attack on primary area.....	69(80.2%)
	(c)	" " " alternative area.....	4(1.1%)
	(d)	" abortive sortics (technic 1 defect.....)	6
		(hit by flak.....)	1
		(attacked by E/A.....)	1
	(e)	" aircraft missing.....	8(9.3%)

Weather Experienced

22. As for Stettin.

Night Photographic Statistics

23.	No. of photographs examined.....	57
	" showing ground (plotted within 3 mls...)	34
	detail (plotted between 3 & 5 miles.....)	6
	(plotted outside 5 mls..)	1
	(unplotted.....)	6
	" showing fire tracks only	8
	No. of aircraft reporting attack.....	69
	" estimated (from the evidence of photographs showing ground detail) to have bombed within 3 miles of the aiming-point.....	50

Narrative of Attack

24. A smoke screen was apparently started at Rostock on the approach of our aircraft attacking Stettin. It had developed and become effective by the time the Rostock force arrived. The factory was obscured, and most aircraft attacked the town. Over half the force was late, and the bombing was spread over a period of 45 minutes.

Alternative Targets

25. One aircraft, experiencing technical trouble en route, bombed Lübeck.

Day Reconnaissance

26. Except for a dozen craters in the Rostock Gehlsdorf area and to the south of the town, damage was shown to be well centred about the docks and built-up area. In the Neptun Werft submarine yards, an area of $4\frac{1}{2}$ acres was devastated, including a boiler house, a factory building and several sheds. 2 large adjacent warehouses were also destroyed, as well as several small industrial buildings. 60-80 residential houses were rendered uninhabitable, and 2 large blocks of flats, each 180 yards long, were burnt out. The tram depot and the Universitäts Klinikern sustained damage from direct hits. The Hunkel works apparently escaped unscathed.

Navigation Aids (Gee)

27. See paragraph 17.

Enemy Defences and Casualties

28. See paragraphs 18 and 19.

...../BERLIN

BERLIN

29. 11 Mosquitoes of 2 Group were detailed to attack Berlin between 0015 and 0045 hours, in order to deceive the enemy into thinking that the forces employed on Stettin and Rostock were heading for the capital. In excellent visibility, at least 9 aircraft reached their objective, each dropping 4 x 500 M.C. bombs from heights of between 15,000 and 23,000 feet. Negligible opposition was encountered from the city's defences. One aircraft returned early for technical reasons, and one was lost, probably to a night fighter near Amsterdam. This aircraft is believed to have attacked the target, as a fix was obtained near the Dutch coast on the return journey.

MINELAYING

30. 18 Wellingtons of 1 and 6 Groups were detailed on a mining operation off the west coast of France. Little cloud was encountered en route, but this thickened over France, becoming 5-7/10ths, base 15,000', over target area. Visibility was moderate. 15 aircraft reached their destination, each laying 2 mines. 3 aircraft returned early, 2 for technical reasons and one because of a navigational error.

A little light flak and a few searchlights were encountered at Pont-Aven, Vannes, Lorient and Quiberon. The flak was not very accurate, but one aircraft was hit at 600' over Brest and crashed on return at Exeter. One unsuccessful controlled fighter patrol in the Lannion area was overheard by enemy wireless traffic. One aircraft was hit by a fighter S.E. of Morlaix and had to effect a crash-landing at Exeter, but sustained only slight damage. None of our minelaying aircraft was missing.

LEAFLETS

31. 3 Wellingtons of 92 Group scattered leaflets over Lille without incident.

PREPARESTETTINTiming of AttackI. Pathfinder Force

13 Y aircraft attacked at: 0059(2), 0100(4), 0101(2), 0104(1 + 1x) and 0122x

x (H23u/s)

22 backers-up attacked, at: 0101, 0103(3), 0104(2), 0105, 0107(2), 0108(2), 0109(2), 0112(2), 0115, 0119, 0121(2) and 0124. = 33 aircraft

Main Force(1) Halifaxes

2 aircraft attacked at 0100

94 " within planned period (0102-0115)

12 " from 0115-0145

109 aircraft

...../2 Lancaster

(2) Lancasters

18	aircraft	attacked	from 0100-0110
137	"		within planned period (0110-0130)
8	"		from 0130-0150
<u>163</u>			

Bomb LoadsII. Pathfinder Force

14	aircraft	carried	T.I. + H.E.
11	"		T.I. + H.E. + flares
6	"		T.I. + flares
2	"		H.E. only
<u>33</u>	aircraft		

Main Force

186	aircraft	carried	H.E. + 4 lb. + 30 lb. incendiaries
45	"		H.E. + 4 lb. incendiaries
29	"		H.E. + 30 lb. incendiaries
11	"		H.E. only
<u>271</u>	aircraft		

ROSTOCKTiming of Attack

III.	1	aircraft	attacked	at 0129
	31	"		within planned period (0130-0140)
	32	"		from 0140-0200
	5	"		from 0200-0215
	<u>69</u>	aircraft		

Bomb Loads

IV.	28	aircraft	carried	H.E. + 4 lb. + 30 lb. incendiaries
	24	"		4 lb. + 30 lb. incendiaries
	9	"		H.E. only
	4	"		H.E. + 30 lb. incendiaries
	4	"		30 lb. incendiaries
	<u>69</u>	aircraft		

BERLINTiming of Attack

V. 9 aircraft reported attack, at: 0024, 0026, 0028, 0030, 0032, 0034, 0035(2), and 0100.

Bomb Loads

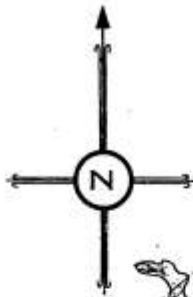
VI. All aircraft carried 4 x 500 lb. H.O. bombs.

MLM/VF.
BC/S. 26342/2/OFS.
25th July, 1943.

FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 20/21st APRIL 1943 TARGET STETTIN

O. R. S. B. C.	No.- 1888
Date:- 27.4.43	Tracer:- JH
Ref:- NR.35	Checked:- KCC.

172



SECRET

Scale: 1 inch = 1 mile

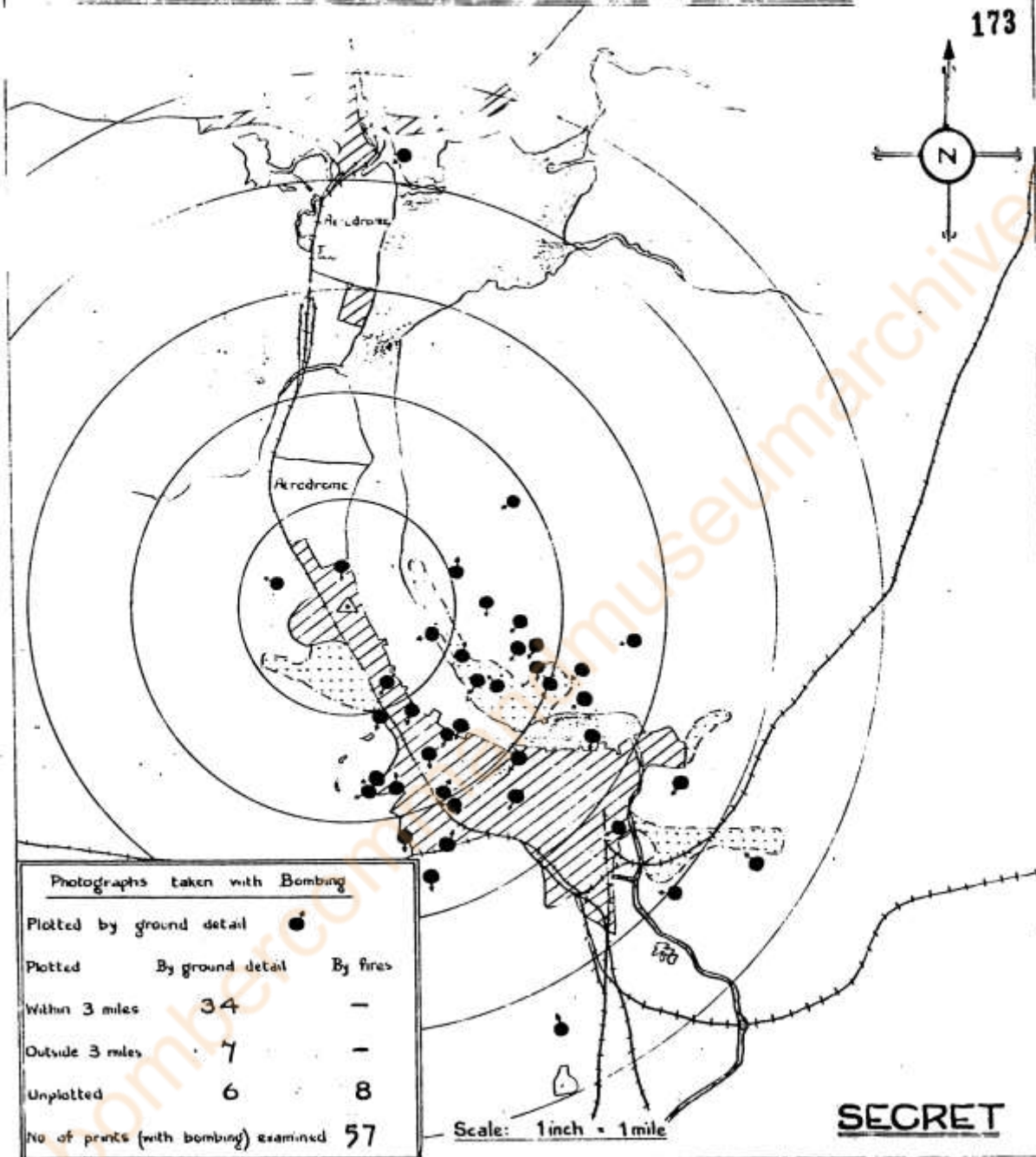
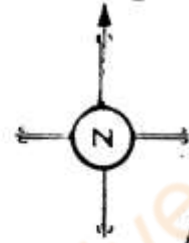
Photographs taken with Bombing	
● Aircraft plotted by ground detail	
⊙ P.F.F. Marker aircraft	
No of aircraft reporting attack-----	304
No of photographs (with bombing) showing ground detail-----	170
Percentage of photographs (with bombing) showing ground detail, plotted within 3 miles of A/P-----	84%
No of photographs (with bombing) plotted within 3 miles of A/P-----	143
No of unplotted photographs (with bombing) showing ground detail-----	15

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FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 20/21st APRIL 1943 TARGET: ROSTOCK AND
 WARNEMÜNDE

ORS	No.
BC	2088
Date:	Tracer
29 7 43	57
Ref:	Cmd
N/75	1-1

173



Photographs taken with Bombing		
Plotted by ground detail ●		
Plotted	By ground detail	By fires
Within 3 miles	34	—
Outside 3 miles	7	—
Unplotted	6	8
No of prints (with bombing) examined	57	

SECRET

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 22/23rd APRIL, 1943.MINELAYING ; LEAFLETS.SUMMARY.

MINELAYING. 32 aircraft of 1,3,4 and 5 Groups were detailed on a mining operation off the French Atlantic coast. 27 reached their targets, laying 80 mines. 2 aircraft did not return.

LEAFLETS. 5 aircraft of 91 Group dispersed leaflets over France without success.

Weatherological Forecast.

Midnight position of occluded front: 51° N. 10° E. - Orkney - Hebrides, becoming cold to France - Yorkshire - Antwerp - N. Italy.

Home Bases:- A westerly gradient being established across S. England has removed the threat of thundery rain imposed by the cold front. Bases will be fit at night, with cloud not below 1,500 feet and showers, except possibly in 4 Group, where visibility will be poor. 1,4 and 5 Groups will be suspect after 0400 hours, owing to the possibility of radiation fog. 3 and 8 Groups are safer because of a lighter gradient. Diversions to 92 Group and S. Coast, where strong winds will need careful watching.

Germany:- Thundery rain between the fronts. Medium cloud will prevail for 100 miles E. of occluded front, thence becoming well broken. E. of 15° E., weather will be fine.

3. Italy:- Much cloud. Showers.

4. France:- Generally fair, with well broken cloud. Threat of local thundery showers in Bordeaux-Gironde area. Thunderstorms may be encountered on the coast, but should not be serious.

MINELAYINGStatistics

(a)	No. of aircraft despatched.....	32
(b)	" " " reporting mines laid in primary area.....	27
(c)	" " abortive sorties (weather..... 3).....	3
(d)	" " aircraft missing.....	2 (6.3%)

Weather Experienced

Home Bases:- Mist patches N. of 53° N. by midnight, becoming widespread and local fog, by 0600.

Brest:- Much layer cloud, patches down to 400'. Visibility moderate.

Gironde:- Broken layer and convection cloud. Visibility moderate.

Biarritz:- Much medium cloud. Showers on route over France, with considerable cumulus, isolated tops to 15,000 feet.

Clouds above the horizon and 75% of full.

Defences(a) Flak and Searchlights

A little opposition was encountered from light flak and searchlights at /..... coastal points.

coastal points. 4 ships off Cape Trochel opened fire with machine-guns and light flak. 3 aircraft sustained minor damage.

(b) Fighters

Enemy wireless traffic revealed two pursuits by controlled night fighters in the Morlaix-Brest area. Neither resulted in contact being made with our aircraft. A further unlocated patrol made no pursuits. Crews had nothing to report.

Casualties.

6. No. of aircraft missing..... 2
 " " " damaged (a) flak..... 3
 (b) fighter..... NIL) 3
 (c) not by enemy action NIL)

The Lancaster of 5 Group was seen to be illuminated by searchlights while flying at 300 feet above the mouth of the R. Adour. It was hit by light flak and crashed into the sea in flames 100 yards from the shore.

There is no evidence to account for the loss of the Wellington of 1 Group.

LEAFLETS.

7. 5 Wellingtons of 91 Group were detailed to disperse leaflets in the Limoges area. 4 reached their target; the fifth experienced technical trouble and dropped its bundles over Le Mans, where it received slight damage from light flak. No other casualties were sustained.

MLM/PVD/VF.
 BC/S.2634/ 3 /ORS.
 17th July, 1943.

22/23rd April, 1943.

Mine laying: Leaflets

Target	Group	Type	Sorties	A/C reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results
				prin. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attacked	not attacked	
ST. NAZAIRE	1	Well. X	6	4	-	-	1	1	2	-	-	-	-	8 mines
LORIENT	1	Well. III	2	1	-	-	1	-	-	-	-	-	-	8 mines
		Well. X	4	3	-	-	1	-	-	-	-	-	-	
GIRONDE RIVER	3	Str. I	3	3	-	-	-	-	-	-	-	-	-	32 mines
		Str. III	5	5	-	-	-	-	-	-	-	-	-	
BREST	4	Well. X	6	6	-	-	-	-	-	-	-	-	-	12 mines
RAYONNE	5	Lanc. I	4	4	-	-	-	-	-	-	-	-	-	16 mines
ST. JEAN DE LEE	5	Lanc. III	2	1	-	-	-	1	-	-	-	-	-	4 mines
MINELAYING TOTAL			32	27	-	-	3	2	3	-	-	-	-	80 mines laid
<u>LEAFLETS</u>														
LIMOGES			91	Well. III	4	4	-	-	-	-	-	-	-	
				Well. X	1	-	1	-	1	-	-	-	-	
TOTAL			37	31	1	-	3	2	4	-	-	-	-	

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 26/27th APRIL, 1943.DUISBURG: LeafletsSUMMARYDUISBURG

1. A force of 557 aircraft set out to attack Duisburg, which was ground marked by Oboe Mosquitoes. Almost 90% of the force completed the operation, but despite this little damage was caused, probably owing to the smallness and peculiar shape of the target. 17 aircraft failed to return, and 4 Wellingtons crashed on return.

2. No. 2 Group despatched 4 Mosquitoes to make a high-level attack on Duisburg. 3 aircraft completed the task successfully and all returned undamaged.

Leaflets

3. 5 aircraft dropped leaflets near Paris and 3 aircraft near Rouen, all returning without incident.

Meteorological Forecast

4. Estimated midnight position of fronts: (1) cold front $62^{\circ}\text{N } 20^{\circ}\text{E}$ - $55^{\circ}\text{N } 20^{\circ}\text{E}$ (2) occlusion $60^{\circ}\text{N } 10^{\circ}\text{E}$ - $55^{\circ}\text{N } 12^{\circ}\text{E}$ - $50^{\circ}\text{N } 10^{\circ}\text{E}$ - $46^{\circ}\text{N } 5^{\circ}\text{E}$.

Home Bases: Fit with good visibility throughout the night. Only small amounts of cloud after dusk. Surface winds: 20-25 n.p.h.

N. France: Well broken convection cloud, tops below 10,000 ft.

Central France: Good clearances in cloud, north of occluded front.

Germany: W. of 8°E . - broken convection cloud, with good clearances late in the night.

E. of 8°E - W. of occluded front - much convection cloud, tops above 1500 ft. with squally showers.

E. of occluded front. - broken cloud at various levels.

Alps: Cloud to great heights.

Plain of Lombardy: Generally cloudy.

Route and Target: Well broken cloud over the North Sea, tops not generally above 10,000 ft, decreasing in target area to Nil-4/10ths below 10,000 ft, with possibly a little medium cloud above.

Winds: at 750 mb. - $300^{\circ}/40-45$ n.p.h.
500 mb. - $300^{\circ}/45-50$ n.p.h.
350 mb. $300^{\circ}/60-65$ n.p.h.

...../Plan of Attack

Plan of Attack

5. Zero hour: 0215 hours. - Period of attack 0212-0300 hours

Briefed routes:-

P.F.F. Mosquitoes: Overflakke - Duisburg - Orfordness.

All other aircraft: Egnond - 52°00'N 06°40'E - Duisburg - turn right - Noordwijk.

The P.F.F. were to use 8 Oboc Mosquitoes to drop red T.I's on the aiming point, backed up by 27 other aircraft aiming green T.I's at reds, if possible, but otherwise at the centre of the pattern of all clusters of greens.

The main force were instructed to aim at red T.I's if visible, but otherwise at the centre of all clusters of green. If no markers were visible on arrival before Z + 10, main force aircraft were to turn right and circuit and make a second run after that time.

Yellow T.I's were to be dropped by Mosquitoes at 51°45'N 06°42'E en route for the target and the marking was to be maintained by 12 Lancasters of 156 Sq.

1 Lancaster of 83 Sq. was to carry out a photographic reconnaissance at 0245 hours., carrying 1 x 4000 lb. H.C., 4 x 1000 G.P., 4 x 500 M.C. and 4 photoflashes.

The Gee Eastern Chain was to be available on one frequency all night and on two from 0145 to 0315 hours.

Timing

6.	Mosquitoes*	Backers Up	Main Force
	0212	-	
	0215	-	
	-	6 a/c at 1 min. intervals 0216-0221	1/3 of force consisting of specially selected crews of each group including P.F.F.
	0222	-	
	-	3 a/c at 1 min. intervals 0223-0226	
	0228	-	
	-	4 a/c at 1 min. intervals 0229-0232	Remaining Stirlings & Wellington a/c 0230-0245
	0234	-	
	-	4 a/c at 1 min. intervals 0235-0238	
	0240	-	Remaining Halifax 0240 & Lancaster 0300
	-	1 a/c at.....0241	
	-	2 a/c at 1 min. interval 0243-0244	
	0246	-	
	-	1 a/c at.....0247	
	-	2 a/c at 1 min. interval 0249-0250	
	0252	-	
	-	1 a/c at.....0253	
	-	2 a/c at 1 min. interval 0255-0256	

* 2 reserved, to drop H.C. bombs at the end of the attack if not required as markers.

...../Bomb Loads

Bomb Loads

7.	<u>T.I.</u>			<u>H.E.</u>
	<u>Yellow</u>	<u>Red</u>	<u>Green</u>	
F.F.F.	{ 8 Mos. 1	3	-	-
Markers	{ 2 Mos. -	2	-	2 x 500 H.C.
	{ 3 Stir. -	-	6	4 x 2000 H.C.
	{ 3 Hal. -	-	6	1 x 2000 H.C. + 6 x 1000 G.P.
	{ 6 Lancs. -	-	6	1 x 4000 H.C. + 4 x 1000 G.P. + 2 x 500 H.C.
	{ 10 Lancs. 1 (156 Sq.)	-	6	1 x 4000 H.C. + 4 x 1000 G.P. + 2 x 500 H.C.
	{ 2 Lancs. 1	-	6	1 x 4000 H.C. + 2 x 1000 G.P.
	{ 1 Lanc. -	-	6	1 x 4000 H.C. + 2 x 1000 G.P.
F.F.F.	{ 3 Stir. -	-	-	4 x 2000 H.C. + 2 x 500 H.C.
Main	{ 3 Hal. -	-	-	1 x 2000 H.C. + 7 x 1000 G.P.
Force	{ 17 Lanc. -	-	-	1 x 4000 H.C. + 4 x 1000 G.P. + 6 x 500 H.C.

Sorties

8.	No. of aircraft despatched.....	557
	" reporting attack on primary area.....	501(89.9%)
	" " alternative area.....	Nil
	" abortive sorties (technical defects and manipulative errors.....)	32)
	(Illness of crew.....)	2)
	(Damaged by flak.....)	1)..... 39(7.0%)
	(Attacked by fighters.....)	2)
	(Held in searchlights.....)	1)
	(Unknown (no r.r.).....)	1)
	aircraft missing.....	17(3.1%)

Weather Experienced

9. Route- 5-8/10ths cloud, base 2-3,000 ft. tops only 6-8000 ft;
very local patches 10/10ths, tops 10-12,000 ft, with slight rim in cloud.
Cloud broke to small amounts over the continent. Visibility good. Wind at
15,000 ft: - 290°-300°/50-60 n.p.h.

Target: Cloud 0-3/10ths, tops 5-6,000 ft. Visibility moderate to
good. Wind at 20,000 ft; 290°-300°/70-75 n.p.h. Surface wind: Westerly,
10-15 n.p.h.

Moon: Half full, rising about 0330 hours.

Night Photographic Statistics

10.	N. of photographs showing ground detail.....	101
	Plotted by ground detail, within 3 miles.....	38
	" " between 3 and 5 miles.....	10
	" " outside 5 miles.....	19
	Unplotted.....	34
	No. of photographs showing fire tracks.....	309
	Plotted by fire tracks, within 3 miles.....	61
	" " between 3 and 5 miles.....	88
	" " outside 5 miles.....	22
	Unplotted.....	135
	Total photographs taken with bombing examined.....	419
	No. of aircraft reporting attack.....	501
	No. of aircraft estimated, from the photographic evidence, to have bombed within 3 miles of the aiming-point.....	100-200

...../Narrative of attack

Narrative of Attack

11. The target was marked, at fairly irregular intervals, by red T.I's dropped by 7 Mosquitoes equipped with Oboc. The continuity of the marking was however maintained by 26 backscatters with green T.I's. There was no cloud over the target and the main force bombed concentrations of red and green T.I's, which were fairly well placed. The timing of the main force was good; only two aircraft bombed early and one late, while the whole attack was carried out in less than 50 minutes. The night photographic evidence indicates that between 20 and 40% of the aircraft bombed within 3 miles of the aiming point, but Duisburg is a small target with many open spaces between the built-up areas, so that the very small amount of damage revealed by the daylight reconnaissance is not surprising. Many fires in the target area were however burning when the small force of light bombers attacked several hours later.

Daylight Reconnaissance

12. Photographs taken on the day following the attack cover the whole town, but cloud and cloud shadow considerably reduce the area where the damage can be assessed. 4 direct hits were scored on the railway lines near the Hafen Bahnhof and 2 on a main road near the Sports Ground. About one acre of industrial buildings at Speldorf were almost entirely destroyed. Serious damage was caused to 3 blocks of commercial/residential property, and a number of houses in several districts of the town, including one group covering more than an acre, were demolished or gutted. Buildings near the viaduct were damaged.

Alternative Targets

13. No alternative target was attacked, although 7 aircraft jettisoned their bombs over enemy territory.

Navigational Aids(Gee):

14. The Eastern Chain operated on the Virginia frequency throughout, while the target frequency also was used from 0145-0315 hours. 92% of the aircraft were fitted with the Mk.II set, and 88% had no set difficulties, obtaining an average range of 225 miles. 7 aircraft using the Mk.II set reported reception in the target area. There was very heavy jamming on the Virginia frequency; and this occasionally broke through to the target frequency.

Blind Bombing Aids(Oboc):

15. 8 Mosquitoes equipped with Oboc, and carrying red T.I. and yellow ground-markers were to find and mark the target. 2 reserve aircraft, also equipped with Oboc, carried H.E. and yellow ground markers. Half the aircraft were controlled by each pair of ground stations. One Swingate aircraft failed owing to the aerial connection breaking. The remainder completed the operation successfully, but one aircraft dropped a red T.I. with the yellows in error. Both the reserve Mosquitoes attacked with H.E. but did not drop their ground markers. All the aircraft controlled by Walner and Triningham I released their loads within 3½ minutes of the specified time, and those controlled by Swingate and Triningham II were between nil and 10 minutes late.

Enemy Defences

16. (a) Flak and Searchlights

66 aircraft were damaged by flak, mainly in the target area, where heavy barrage fire and some light flak was reported. This was mainly in the dark areas between the 6 cones of searchlights, of which approximately/150 were operating.

150 were operating. The guns did not appear to engage any of the aircraft held in the searchlights, but one aircraft reported being approached by a fighter while coned.

(b) Fighters

Enemy wireless traffic revealed 7 patrols of fighters over Holland. These undertook 15 pursuits, which resulted in 4 attacks, with 3 claims to victories. 2 enemy fighters reported difficulty with their A.I.; this might possibly have been caused by Grocer, which was in operation for the first time. Bomber crews reported 10 attacks and 45 other encounters. 10 outbound encounters occurred at the coast and in the Apeldoorn-Nijmegen area. Over the target there were a further 14 encounters and on the return trip 31 were reported in the coastal area and the Nijmegen-Hertogenbosch region. 4 aircraft were damaged by fighter action.

2 single engine aircraft were seen to fall in flames at Duisburg and a Halifax claims to have shot down an Me. 109 at Nijmegen.

Casualties

17.	No. of aircraft missing.....	17
	" damaged (a) flak.....	66
	(b) fighters.....	4
	(c) not enemy action.....	5
		75

It is estimated that 2 aircraft were brought down by light flak, and 7 by heavy flak, in the target area. Enemy fighters shot down 4 bombers, 2 at Amsterdam, 1 at Alkmaar and 1 at Utrecht. The cause of loss of the remaining 4 aircraft is unknown, but 2 were destroyed in the target area and another near Amsterdam.

Three aircraft which crashed on landing owing to fuel shortage or faulty manipulation, were total losses. One aircraft was seriously damaged by incendiaries from another bomber, and one by collapse of tail wheel on landing.

Duisburg (2 Group)

18. 4 Mosquitoes set out to make a high level attack on Duisburg. 3 bombed the target from 20/25000 ft. about 3½ hours after the end of the main attack, while the fourth returned early owing to engine failure. No damage was sustained.

Leaflets

19. Leaflets were scattered over Paris by 5 Wellingtons and over Rouen by 2 Wellingtons and one Whitley. There was only slight opposition to the raids, and all the aircraft returned safely.

APPENDIX

Timing of Attack

I. (a) Pathfinder Force

(i) 7 Mosquitoes attacked at 0213, 0215, 0221, 0231, 0233, 0246(2).
2 reserve Mosquitoes attacked at 0258, 0312.

0222(3)

(ii) 26 bombers-u attacked at 0217, 0220(2), 0223(2), 0224, 0225, 0227, 0228, 0230, 0232(2), 0234, 0237, 0239, 0242(2), 0243, 0245, 0249, 0251, 0252, 0255.

.../Main Force

(b) Main Force

2	aircraft	attacked	1	minute	early
180	aircraft	attacked	between	0217	and 0230
176	"	"	"	0231	and 0240
91	"	"	"	0241	and 0250
14	"	"	"	0251	and 0300
1	"	"	1	minute	late
2	"	"		time	unknown
<u>466</u>					

Bomb Loads CarriedII. (a) Pathfinder Force:

T.I. only	7
T.I. + H.E.	28

(b) Main Force

H.E. + 30 lb. inc. + 4 lb. inc.	268
H.E. + 30 lb. inc.	48
H.S. + 4 lb. inc.	61
H.E. only	63
30 lb. inc. + 4 lb. inc.	26
	<u>466</u>

W.D/VF.
 BC/S. 26342/2/ORS.
27th July, 1943.

26/27th April, 1943.

DUISBURG AND LIEPENS

Target	Group	Type	Sorties	w/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over en. territ.	not over en. territ.		Flak	fighter	not R/L	att-acked	not attacked	Tons of Bombs	H.E.	INC.
DUISBURG	P.F.P.	Hosquito IV	10	9	-	1	-	-	1n	-	-	-	-	-	(P) 785.0	556.5
		Lano. I	19	19	-	-	-	-	2n	-	-	-	-	2	(J) 7.5	6.8
		Stir. I	3	2	-	-	1	-	-	-	-	-	-	3	(K) 25.3	22.4
			Hol. Z	5	5	-	-	-	-	-	-	-	2	2		
	8	Lano. I	11	9	-	1	-	1	-	-	-	-	-	-		
		Lano. III	7	6	-	1	-	-	2n	-	-	-	-	2		
		Stir. I	3	3	-	-	-	-	1n	-	-	-	-	-		
		Hol. 'Z'	11	12	-	1	-	1	1n	-	-	-	-	-		
	1	Lano. I	35	33	-	-	2	-	1.C, 1n	-	1.Ce	-	-	1		
		Lano. III	27	26	-	-	1	-	1n	-	-	-	-	1		
Well. III		2	1	-	1	-	-	-	-	-	-	-	1			
		Well. X	29	25	-	1	3	1.C, 1n	-	-	-	1	4			
3	Lano. II	11	10	-	-	2	1	-	-	-	-	-	-			
	Stir. I	22	19	-	-	2	1	2n	-	1.C	-	-	1			
	Stir. III	50	43	-	2	4	1	1n	1B, 1n	-	-	2	4			
4	Hol. 'Z'	62 (10n)	56 (9n)	-	1	2	3 (1n)	10n	-	-	-	1	5			
	Hol. L	21	18	-	-	-	3	2n	-	-	-	-	3			
	Well. X	40	36	-	-	3	1	2n	-	2E	-	-	3			
5	Lano. I	42	48	-	1	2	1	1.C, 3n	-	1.C	-	-	3			
	Lano. III	53	50	-	2	1	-	4n	-	-	-	1	2			
6	Hol. Z	17	14	-	1	2	-	3n	-	-	-	-	2			
	Well. X	64	57	-	1	2	1	1B+1, 3n	1E	1E	-	-	5			
		TOTAL	557	501	-	14	25	17	3.C, 1B 62 n	1E, 1B 1.C, 1n	3E+ 2.C	10	45			
DUISBURG	2	Hosquito IV	4	3	-	-	1	-	-	-	-	-	-	(P) 2.7 tons	H.E.	
LIEPENS	93	Well. Ic	2	2	-	-	-	-	-	-	-	-	2	Primary	re-	
PARIS & ROUEN		Well. III	5	5	-	-	-	-	-	-	-	-	-	Jettisoned	over E.T.	
		Well. V	1	1	-	-	-	-	-	-	-	-	-	-	-	
TOTAL	TOTAL	L	569	512	-	14	26	17	3.C, 1B 62 n	1E, 1B 1.C+1n	3E+ 2.C	10	47	1/2 Carried by	Missing w/C	

* HOV

* Hit by incendiaries

100

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 27/28th APRIL, 1943.

MINELAYING: LEAFLETS

SUMMARY

Minelaying 160 aircraft of all Groups were despatched on a mining operation to the Frisians, the Dutch coast and the Bay of Biscay. 123 reached their targets, laying 458 mines. One aircraft did not return.

Leaflets 4 aircraft of 92 Group were detailed to drop leaflets in the Limoges area. 2 completed their task. All returned safely.

Metereological Forecast

Home Bases:- Variable medium and broken low cloud, generally 3/10ths but decreasing considerably late in night. Patches of thundery rain drifting eastwards. Cloud base generally 2,000 feet, falling to 1,000 feet or below in heavier rain.

Germany:- Medium cloud, with a few breaks, in N. and N.W., with all broken strato-cumulus. Ruhr: 10/10ths.

Pilsen:- Much cumulus and medium cloud. Winds of 70 m.p.h.

Bight and Frisians:- Cloud rather above 1,000 feet, with breaks, unless thunderstorms reach this area. Slight showers. Surface winds about 30 m.p.h.

Baltic:- Much cloud at about 1,000 feet. Rainy periods. Strong surface winds.

S.W. Norway:- Squally, with heavy convection cloud.

W. France:- 7-9/10ths strato-cumulus at 2,000 feet in N., breaking in small amounts S. of St. Nazaire. Good visibility.

MINELAYING

Statistics

(a)	No. of aircraft despatched.....	160
(b)	" " reporting mines laid in primary area.....	123
(c)	" abortive sorties (weather.....29)	
	(technical & manipulative 36)	
	defects..... 7)	
(d)	" aircraft missing.....	1(0.6%)

Weather Experienced

Frisians and Dutch coast:- Minor front encountered at 04-05⁰⁰E., with heavy convection cloud (base 400-1,500 feet), strong showers and thunderstorms. Cloud was very variable over targets, generally 7-8/10ths, base 2,000 feet with locally local showers. Visibility poor.

...../J. France

W. France:- Convection cloud over Channel, base 1,000-1,500 feet, tops 8,000 feet, breaking over N. France to small amounts of thin strato-cumulus. Visibility moderate. Wind at 10,000', 300°/ 30-40 m.p.h.: at 2,000 feet, 290°/20-25 m.p.h.

No moon.

Enemy Defences

5. (a) Flak and Searchlights

Light and heavy flak and a few searchlights were reported from many points on the Atlantic coast. There was little activity from the ground defences on the Dutch coast. One bomber sustained severe damage from light flak after being engaged by searchlights at Cap Breton.

(b) Fighters

Enemy wireless traffic revealed one controlled fighter patrol in the Rennes area, which made one unsuccessful pursuit. Crews reported 2 encounters with enemy fighters over the Breton peninsula, but the bombers took successful evasive action. 2 further approaches occurred in the Frisian area near the islands of Juist and Terschelling, but no attacks developed.

Casualties

6. No. of aircraft missing.....1
 " damaged (a) flak.....1
 (b) fighter.....Nil
 (c) not enemy action..... 3)4

The missing bomber crashed in flames near Biarritz. It had been coned by four searchlights and was hit by light flak at a height of about 12,000 feet.

LEAFLETS

7. 4 Wellingtons of 92 Group were detailed to disperse leaflets in the Linoges area. 2 completed their task; the other 2 returned early for technical reasons. No opposition was encountered and all the aircraft returned undamaged.

MLM/VF.
 EC/S. 26342/3/ORS.
17th July, 1943.

27/28th April, 1943.

MIRLANTO: 124 PLATO

Target	Group	Type	Sortied	J/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attackd	not attackd	
D. FORTNE	1	Lanc. I	4	2	-	-	2	-	-	-	-	-	-	35 mines
		Lanc. III	6	5	-	-	-	-	-	-	-	-	-	
ST. JEAN DE LAZ	1	Lanc. I	3	3	-	-	-	-	1.0	-	-	-	-	20 mines
		Lanc. III	2	1	-	-	1	-	-	-	-	-	-	
LOBRIZ	1	Well. X	8	7	-	-	1	-	-	-	1m	-	-	14 mines
ST. LAURE	1	Well. X	8	5	-	-	3	-	-	-	-	-	-	10 mines
GEORGE RIVER	3	Stir. I	2	2	-	-	-	-	-	-	-	-	-	28 mines
		Stir. III	7	5	-	-	2	-	-	-	-	-	1	
P ISLANDS	3	Stir. I	12	10	-	-	2	-	-	-	-	-	-	254 mines (incl. 28 x 1000 lb.)
		Stir. III	4	2	-	-	2	-	-	-	-	-	1	
		Lanc. II	3	2	-	-	1	-	-	-	-	-	-	
		Hul. II '2'	27	23	-	-	4	-	-	-	-	-	-	
		Hul. V '2'	6	4	-	-	2	-	-	-	-	-	1	
5	Lanc. I	7	7	-	-	-	-	-	-	-	1m	-	-	
	Lanc. III	12	10	-	-	2	-	-	-	-	-	-	1	
GIORGE RIVER	5	Lanc. I	1	1	-	-	-	-	-	-	-	-	-	26 mines
		Lanc. III	4	4	-	-	-	-	-	-	-	-	-	
L. WALLACE	5	Lanc. I	4	4	-	-	-	-	-	-	-	-	-	21 mines
P ISLANDS	6	Hul. II '2'	19	11	-	-	8	-	-	-	-	-	-	31 mines (29x1000 lb.)
S. VEGEL	6	Well. X	6	6	-	-	3	-	-	-	1m	-	-	12 mines
REPT	6	Well. X	6	4	-	-	2	-	-	-	-	-	-	7 mines
MIRLANTO TOTAL			160	123	-	-	36	1	1.0	-	3m	-	4	458 mines (48 x 1000 lb.)
124 PLATO														
1174 GBS	92	Well. III	4	2	-	-	2	-	-	-	-	-	-	
TOTAL			164	125	-	-	38	1	1.0	-	3m	-	4	

BOEMER COMMAND REPORT ON NIGHT OPERATIONS 28/29th APRIL, 1943.WILHELMSHAVEN: LeafletsSUMMARY

1. WILHELMSHAVEN 6 Mosquitoes of 2 Group, not equipped with Oboc, attacked Wilhelmshaven from above 20,000 ft. Three aircraft released flares and the remaining three 500 lb. M.C. bombs, but no results were observed. All aircraft returned safely without damage.

MINELAYING The largest minelaying operation undertaken to date by the Command involved 226 sorties, mainly to the Danish Islands and Baltic ports. The record number of 593 mines was laid, but 23 aircraft failed to return. It is thought that low cloud, which forced aircraft to fly low in order to pinpoint, together with the considerable dispersion of the routes followed, made the aircraft easy victims to the formidable light flak defences of this region. Night fighters apparently achieved very little success.

Meteorological Forecast

2. Estimated position of fronts at midnight:- Warm front from $56^{\circ}\text{N}.11^{\circ}\text{W}$. - S.E. Ireland - S.W. England - Cherbourg, becoming cold to crest of wave at $48^{\circ}\text{N}.4^{\circ}\text{E}$., then warm again to $47^{\circ}\text{N}.6^{\circ}\text{E}$ and again cold to $47^{\circ}\text{N}.15^{\circ}\text{E}$ - $52^{\circ}\text{N}.20^{\circ}\text{E}$ then northwards.

Home Bases:- Fit for take-off at dusk, with broken cumulus cloud, base not generally below 2,500 ft., and good visibility. They should remain fit all night in operational groups, with cloud becoming small in amount and visibility at 2-3 miles, apart from local smoke. Rain and low cloud are spreading slowly from the S.W., but are not expected to affect any area north of a line from the Thames Estuary to mid-Wales before dawn.

Germany:- Convection cloud inland over Germany will become more broken, but high cirrus-nimbus cloud will probably penetrate to 50°N , with medium frontal cloud further S. In the vicinity of the wave there will be an area of bad weather with much cloud at all levels. N. Italy and extreme S. of Germany:- Well broken cloud with some good clearances.

N.W. France:- Much cloud of stratus type, with base below 600 feet, is expected. South of Nantes will be well broken strato-cumulus cloud.

North Sea, Baltic and N. Germany:- Convection cloud with base not generally below 2,000 feet and tops mainly below 8,000 feet., but there will be a few isolated showers with cloud base down to 1,000 feet or lower and tops to 10,000 feet. Beyond the Danish coast conditions will be very similar, with very variable cloud, averaging 5/10ths, and probably no showers. Visibility good in the Baltic. Freezing level 3000 ft. in the west, 2000 ft. or slightly higher in the east.

Winds:- at 10,000 ft: E. of 5°E , $300^{\circ}/35$ n.p.h.: Denmark and Baltic $280^{\circ}/35$ n.p.h.

at 18,000 ft.: Yorkshire - 5°E , $310^{\circ}/35-40$ n.p.h.
 $5^{\circ}\text{E}-10^{\circ}\text{E}$, $310^{\circ}/40$ n.p.h.
 East of 10°E , $280^{\circ}/35-40$ n.p.h.

...../WILHELMSHAVEN

WILHELSHAVEN

3. 6 Mosquitos of 2 Group, not equipped with Oboc, left for Wilhelmshaven, three carrying 8 I. flares and the other three 4 x 500 lb. H.C. bombs each. The attack was made by all aircraft from above 20,000 feet. The night was dark with 5/10ths cloud at 7-10,000 feet in the target area. The first arrival dropped its flares after identifying a dummy to the N. of the town and the second and third markers were each released after 6 and 12 minutes respectively, on the position of flares already burning, the coastline also being identified by their light. Two of the bomb-carrying aircraft were able to identify the target by the aid of the flares. The third saw nothing and released its load on N.E. . .

One crew reported a glint in the target area, but otherwise no results were observed.

No opposition was encountered and all aircraft returned safely and undamaged.

MINE LAYING

a.	(c)	No. of aircraft despatched.....	226
	(b)	" reporting mines laid in position detailed.....	176(77)
	(c)	" " alternative position..	7
	(d)	" abortive sorties (unable to pinpoint.....)	12
		{ technical defects.....	5
		{ attacked by fighter.....	1
		{ petrol shortage.....	1
		{ fuel damage.....	1
	(e)	" aircraft missing.....	23(10)
	(f)	" mines laid.....	593

Weather Experience

5. Home Bases:- Fit until 0400-0600 hours, when rather extensive mist and fog developed.

Right Hand:- Variable convection cloud with occasional showers. Cloud base 2000 ft. but 800 ft. in showers. Good visibility. One slight static electricity was reported.

Western Baltic:- Mainly 3/10-6/10 layer cloud, base 2-3,000 feet. At times in the extreme S. (Sieddenburg Bay area) 6/10-10/10 convection cloud, with showers and cloud base down to 500-1,000 feet, was encountered.

Eastern Baltic:- Fine with moderate visibility. A belt of heavy convection cloud, base 2-3,000 ft, with icing at 5,000 ft. in cloud.

Route:- 3/10-7/10 convection cloud, base 1-2,000 feet, with slight showers across the N. Sea to 5°E. From this point to the Danish coast, convection cloud increased to 8-10/10, base falling to 100 ft. at times with heavier showers and much static. Across Denmark, small amounts of layer cloud at about 3,000 feet.

Winds:- Across N. Sea at 1,000 ft. - 300°/20 m.p.h.
Over Denmark at 3,000 feet. - 290°-300°/30 m.p.h.
In Right hand at 1,000 ft. 270°/10-15 m.p.h.
Over Baltic at 1,000 ft. 300°/20-25 m.p.h.

No moon during operations.

Results

6. This was the largest minelaying operation so far undertaken by the Command, 226 aircraft being despatched to numerous areas in the channels between the Danish Islands, the Baltic, the Norwegian coast and the approaches to the
...../German

German N.S.C. ports.

Low cloud at 2-3,000 ft, prevailed over most of the routes and areas concerned, but visibility was good below, enabling 165 aircraft to complete their mission. 20 sorties were abortive, most of these through inability to pinpoint their position, and 23 aircraft failed to return.

The effort and losses were distributed broadly as follows:-

	<u>Sorties</u>	<u>Missing</u>	<u>Mines laid</u>
Kiel and Danish Islands	79	12	217
Kattegat	69	2	229
Baltic Ports and Cadet Channel	40	7	124
Heligoland and N.S.C. Ports	14	2	18
Norwegian Coast	4	-	5
	<u>206</u>	<u>23</u>	<u>593</u>

Enemy Defences

7. (a) Flak and Searchlights

Light flak was reported from a very large number of places in most of the land areas over which our aircraft passed. A few searchlights assisted the flak at some places. Eight aircraft returned damaged by light flak, but none by heavy flak.

(b) Night Fighters:-

Wireless traffic gave evidence of fairly widespread activity by controlled night fighters but little indication of their success. During the night they made approximately 53 sorties, of which about two-thirds are believed to have been active against the bombers. 21 attempted interceptions were overheard, but only one of these resulted in an attack being made. This was apparently unsuccessful and is presumably that reported by a Lancaster of 12 Squadron.

Comparatively few sightings of fighters were reported by crews: 2 attacks and 5 approaches occurred but only one of these was near a mining area. In this instance a Stirling was approached by a fighter at 700 ft. immediately after dropping its mines.

The wireless traffic contained several references to the bombers flying low and being below cloud and this, combined with the unusually large number of apparently unsuccessful attempts at interception, makes it appear likely that fighters had a comparatively unsuccessful night. Only one returning bomber reported damage from this cause.

Casualties

8.	No. of aircraft missing.....	23(10.2)
	" damaged (a) light flak.....	8
	(b) fighters.....	1
	(c) other causes.....	2
		11(4.9)

The enemy's claim to have shot down 24 bombers suggests that nearly all our losses were probably caused by enemy action.

One Stirling, which failed to return from the Cadet Channel, received a fix about an hour after it should have released its mines. An S.O.S. followed three-quarters of an hour later, but nothing further was heard and the aircraft presumably crashed in the North Sea. Nothing was heard from any other missing aircraft.

...../owing to

4.

6.4

Owing to the scattered nature of the operations many of the reports by returning crews of aircraft seen destroyed lack confirmation. However it appears likely that one, possibly two, losses to fighters occurred in or near the Cadet Channel and another one near Copenhagen; losses to light flak seem to have occurred in the Gulf of Danzig, the Little Belt, the Great Belt, Pohnarn, near Randers on the E. coast of Denmark, near Flensburg and two in the Vardo-Esbjerg region on the N. Danish coast.

Thus about half the night's casualties remain unaccounted for.

The unusually high losses suffered on this occasion have formed the subject of a special investigation the main results of which may be summarised as follows:-

- (i) Light flak fired from ships and coastal areas was the major cause of casualties. Its heavy toll was probably caused by aircraft having to fly below low clouds in order to pinpoint and by the fact that lack of co-ordination between the routes selected by Groups resulted in low concentration of aircraft over heavily defended areas. Some routes also passed close to more coastline defences than was necessary.
- (ii) It is likely that the defences in the South-western Baltic have been strengthened as part of an increased protection for Berlin.
- (iii) A high proportion of the pilots lost on this night had no previous experience of night-bombing, though their experience of bombing varied from 3 to 27 operations.

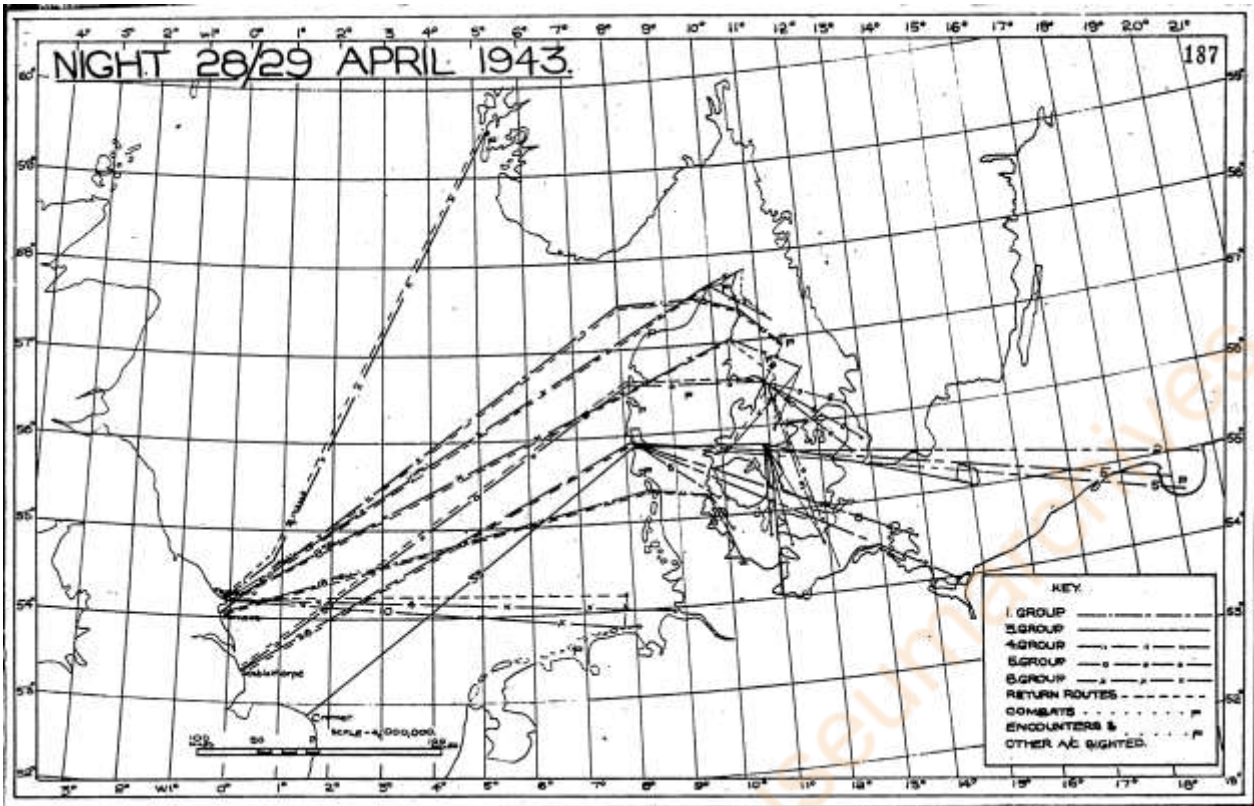
KG/VF.
BC/S. 26342/4/ORS.
11th July, 1943.

Target	Group	Type	Sorties	w/c reporting attack on		abortive sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attacked	not attacked	
WILHELMSHAVEN	2	Mosquito	6	6	-	-	-	-	-	-	-	-	-	-
HINDELAAGS LITTLE BELT	1	Well. X Well. X	5 5	5 4	-	-	-	1	-	-	-	-	-	10 mines 8 mines
SKIDNARDE	1	Lanc. I Lanc. III	4 1	-	2*	-	1	1	-	-	-	-	-	12 mines
GDYNE	1	Lanc. I Lanc. III	3 2	1	1*	-	1	1	-	1.0	-	1	-	4 mines* 4 mines
LANDE	1	Lanc. I Lanc. III	2 3	2	-	-	-	-	-	-	-	-	-	8 mines 12 mines
PIELAN	1	Lanc. I Lanc. III	1 1	-	-	-	1	-	-	-	-	-	-	-
S. BELT GREY BELT	1 3	Lanc. III Stir. I Stir. III Stir. I Stir. III	4 1 1 1 1	4 1 1 1 1	1* 2*	-	-	-	-	-	-	-	-	30+12* 4* 4 mines 3 mines 4 mines 3 mines
SKIDNARDE	3	Stir. I Stir. III	2 2	2 2	-	-	1	-	-	-	-	-	-	6 mines 6 mines
LANDE AND BELT	3	Stir. I	3	4	-	-	1	1	-	-	-	-	-	16 mines
GREY CHANNEL	3	Stir. I Stir. III	5 5	3 4	-	-	-	2 1	-	-	-	1	1	10 mines 12 mines
VERDE CHANNEL	3	Stir. I Stir. III Lanc. II	3 5 2	1 2 2	-	-	-	2 2	-	-	-	-	-	4 mines 6 mines 12 mines
K. FJORD	4	Hal. II-2' Hal. II-4' Hal. V-2'	40 15 5	38 13 5	-	-	2 1	-	-	-	-	-	1	96 mines 24 mines 10 mines
WILHELM BELT	4	Well. X	6	5	-	-	1	-	-	-	-	-	-	10 mines
LITTLE BELT	4	Well. X	12	7	2*	-	-	3	-	-	1.0	-	-	14 + 4

* The Sound * Odet Channel * Esbjerg and Great Belt.

...../Contd. 11

Target	Group	Type	Sorties	attack on		abortive sorties		Missing	Damage			Interceptions		Results
				prim. area	alt. area	over en. territ.	not over en. territ.		flak	fighter	not E/A	attacked	not attacked	
K. FJORD	5	Lanc. I Lanc. III	5 5	5 5	-	-	-	-	-	-	-	-	-	30 mines 30 mines
THE SOUND	5	Lanc. I Lanc. III	2 3	1 3	-	-	1	-	-	-	-	-	-	5 mines 15 mines
COPIERLAND	5	Lanc. I Lanc. III	3 2	2 2	-	-	1	-	-	-	-	-	-	10 " 10 "
THE SOUND	5	Lanc. I Lanc. III	2 4	1 4	-	-	1	-	-	-	-	-	2	5 " 20 "
GREY CHANNEL	5	Lanc. I Lanc. III	1 4	1 4	-	-	-	-	-	-	-	-	-	4 " 16 "
TR. VERDE	5	Lanc. I Lanc. III	4 1	3 1	-	-	1	-	-	-	-	-	-	14 " 4 "
LANDE	5	Lanc. I Lanc. III	4 1	4 1	-	-	-	2	-	-	-	-	-	14 " 4 "
K. FJORD	6	Hal. II-2'	19	14	-	-	1	1	-	-	-	-	-	39 mines
LANDE	6	Well. X	4	3	-	-	1	-	1.0	-	-	-	-	5 "
BLANK RIVER	6	Well. X	4	3	-	-	1	-	-	1.0	-	-	-	6 "
HERDOLAND	6	Well. X	10	6	-	-	2	2	1.0	-	-	-	-	12 "
HINDELAAGS TOTAL			226	176	7	-	20	23	2.0 +6	1.0	2.0	2	5	593 mines
TOTAL			232	182	7	-	20	23	2.0 +6	1.0	2.0	2	5	



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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 30th & 1st MAY 1943.ESSEN: Bocholt.SUMMARYESSEN

1. A force of 295 heavy bombers made a blind-bombing raid through 10/10th cloud, on Essen. The target was sky-marked by 10 Oboe Mosquitoes. 78% of the Main Force reported attack but daylight reconnaissance revealed only a little fresh damage to Krupps works, and a few incidents in the town. 12 bombers are missing and one crashed on the return owing to damage by flak.

Bocholt

2. No. 8 Group despatched 12 Y type aircraft to attack Bocholt; 6 bombers completed the operation, and one failed to return.

Metereological Forecast

3. Cold front at midnight from 61°N . 09°E . to 55°N 08°E ., becoming warm southwards and cold to Brussels to Nantes.

Home Bases:- All fit at dusk, with broken low cloud at 1,500-2,000' and medium cloud above; 7-9/10ths alto cumulus, tops 10-12,000'. Fit for return (from Ruhr) with similar conditions, visibility not less than 2 miles.

Germany:- Continuous cloud near frontal zone at least 15,000', with rain. Ruhr (confirmed by Pampa, 2115 hrs.) 9-10/10ths medium cloud, tops 14-15,000', with well broken cloud above. Cold front will probably be encountered at about 05°E ; aircraft will have to negotiate 50... miles of dense cloud to 15,000', with cirrus above to great heights continuous at times with the medium. Wind at 20,000': 240/25 m.p.h. west of front: 270/30 m.p.h. east of front.

ESSENPlan of Attack

4. Zero hour 0230 Period of Attack - Essen 0230 to 0309 hrs.

Briefed route:

Mosquitoes:- $52^{\circ}20'\text{N}$ $04^{\circ}30'\text{E}$ - Essen - $51^{\circ}40'\text{N}$ $03^{\circ}54'\text{E}$

Heavy bombers:- Egmond - $51^{\circ}45'\text{N}$ $06^{\circ}56'\text{E}$ - Essen - turn left - $51^{\circ}50'\text{N}$ $07^{\circ}15'\text{E}$ - Egmond.

The Oboe skymarking technique was to be adopted by 8 Mosquitoes, attacking at five minute intervals, to indicate the aiming point to the main force.

Tracking flares (red steady) were to be dropped by the Mosquitoes at $51^{\circ}45'\text{N}$ $06^{\circ}56'\text{E}$, 5 minutes short of the target, and they were to drop further tracking flares (green steady), $51^{\circ}37'\text{N}$ $06^{\circ}57'\text{E}$., 2½ minutes later. The main .../force

force were to use these tracking flares as a guide for the bombing run up and were to aim their bombs at release point flares (red with green stars + one white for longer burning) on an exact heading of 200 M, with bombsight setting true height and air speed, zero wind and at an indicated speed of 165 m.p.h. Any crews compelled to bomb on E.T.A. were to release their bombs from 20,000', on this heading of 200 M and at the same speed, at 51°26'N. 07°00' 30"E.

Every precaution was to be taken at briefing to ensure that crews clearly understood the marking technique to be adopted, in particular the colour of flares to be expected at each point. The necessity for accurate timing was also to be stressed.

All aircraft were to climb before crossing the English coast, and fly above the main cloud mass of the front expected between the Dutch coast and the target. They were to avoid flying in the main cloud mass, owing to the risks of severe icing in cloud, and any aircraft unable to climb above it were to return to base.

The Eastern Gee Chain was to be available on two frequencies between 0155 and 0320 hours.

Timing and Bomb Loads

5.		<u>Mosquitoes +</u>	<u>Main Force Aircraft</u>	<u>Loads</u>
<u>Time</u>	<u>Time</u>			
0230	0231-0235		2/3 Lancasters of 1 Gp.	1 x 4000 H.C. + I.B.
0235	0235-0239		(1/3 Lancaster of 1 Gp.	1 x 4000 H.C. + I.B.
			{ All " 3-Gp.	Max. concn. I.B. load.
			{ 5 " 6 Gp.	1 x 4000 H.C. + I.B.
			1/4 Halifaxes of 6 Gp.	2 x 1000 H.C. or G.P. + I.B.
0240	0240-0244		10 Halifaxes of 4 Gp.	1 x 2000 H.C. + I.B.
			1/2 rem. Halifaxes of 4 Gp.	2 x 1000 H.C. + I.B.
0245	0245-0249		Rem. " 4 Gp.	2 x 1000 H.C. + I.B.
0250	0250-0254		1/2 Halifaxes of 6 Gp.	2 x 1000 H.C. or G.P. + I.B.
			All " 8 Gp.	1x2000HC + 3x1000GP + 8x500
			3/4 Lancasters of 8 Gp.	1x4000HC + 4x1000GP + 6x500
0255	0255-0259		1/2 Lancasters of 8 Gp.	" " "
			1/2 rem. Lancs. of 5 Gp.	1 x 4000 HC or G.P. + I.B.
0300	0300-0304		1/3 rem. Lancs. of 5 Gp.	" " "
0305	0305-0309		rem. Lancs. of 5 Gp.	" " "

* 2 Lancasters of 61 Sq. to carry 1 x 8000 lb. H.C.: actual time of attack not stated.

+ 2 reserve Mosquitoes also detailed carrying 2 x 500 H.C. bombs in addition to sky markers.

...../Sorties

Sorties

6. (a) No. of aircraft despatched.....35
 (b) " reporting attack on primary area.....239(78.4.)
 (c) " " alt. area..... 3(1.0.)
 (d) " abortive sorties (technical and
 manipulative defects....28)
 (icing.....21) 51(16.7.)
 (sickness of crew..... 2)
 (e) " aircraft missing.....12(3.9.)

Weather Experienced

7. Home Bases:- Light rain and cloud below 1,000' affected east coast areas at dusk, gradually receding eastwards during the night. Otherwise, no cloud below 1500-2000'. Moderate visibility.

Route:- 10/10ths medium cloud, tops 12,000-16,000', with 10/10ths cirrus surging with medium cloud at 02⁰⁰-04⁰⁰ B., and extending above 25,000'. Light rain to heavy icing from 14,000-24,000'. Static and bumpiness. Widely varied reports of wind at 20,000': 200-280°/20-30 m.p.h. veering towards surface to 350°/30 m.p.h.

Target:- 10/10ths medium cloud, tops 14,000-16,000': variable cirrus above, base 19,000-21,000'. No moon. Visibility fair. Wind at 20,000': 240-260°/25-30 m.p.h.

Night Photographic Statistics

8. 10/10 cloud covered the target and no photographs showing ground detail were obtained.

Narrative of Attack

9. 6 of the 8 Mosquitoes detailed to release skyrockets at 5 minute intervals were successful, only the 5th and the 8th failing. Thus during the main part of the attack there was an adequate succession of rockets with only one break of 2 minutes during which no flares were visible. Many aircraft made use of the longer burning white flares after seeing the release point flares go out. There were some complaints that the flares went into cloud and were only visible as a glow. As a result of the failure of the last Mosquito, aircraft of the last wave had to bomb on E.T.A. The majority of these reported a fairly concentrated glow of fire in the prescribed target area, but also suggested that there were other more scattered fires: earlier crews considered that the effort was probably successful if the marking was accurate.

One reserve Mosquito attacked at 0337 hours with H.U. bombs from 23,000 feet, but the crew were unable to observe the results of the bomb or other bombing owing to cloud.

Alternative Targets

10. Three aircraft, unable to reach the target, released their loads at Gladbach, 5 miles N.W. of Essen and 51°59'N. 06°19'E respectively.

Day Reconnaissance

11. Two or three fresh incidents in Krupps Works are seen, including roof damage to a sheet rolling mill and machine shops; partial destruction of a 3 bay shed and roof damage to a railway shed.

Damage by fire and H.U. to residential property in Frohnhausen, S.W. of Krupps seen for the first time, is probably the result of the raid on
/5.0.43

3/4.4.45. A hit in the centre of the sports ground off Kleine Hamner Strasse, in the N. of Essen, may have damaged the balloon site there. Part of the roof of Huyssenstift, S.E. Essen, has been stripped. (Report No. E. 1550).

Navigation Aids(Geo)

12. The Eastern Chain operated on the Virginia frequency throughout and on the target frequency from 0155-0320 hours. All aircraft were equipped with Mark II sets and 220 of them returned useful data. 185 experienced no set difficulties, obtaining an average range of 280 miles, while 14 aircraft received signals over the target. Interference on the Virginia frequency was very heavy and broke through on to the target frequency in the areas where jamming was heaviest. The signals were very strong, with B the strongest.

Blind Bombing Aids (Oboc)

13. 10 Mosquitoes (including 2 reserves) equipped with Oboc were detailed to skymark the target, 4 aircraft with 1 reserve being controlled by each pair of ground stations. The first signal to release was given at 0231 hours by Triningham I and 6 aircraft released markers successfully, the signals being between 1 minute late and three minutes early. Owing to technical defects and errors in manipulation, those aircraft which should have attacked at 0250 and 0305 received no release signals, but the reserves were not called upon. One reserve did not bomb owing to failure of its equipment, the other attacked with 2 x 500 H.G. bombs after the main force. 6 aircraft released tracking flares en route, according to plan.

Enemy Defences

14. (a) Flak and Searchlights:- Searchlights were unable to penetrate the prevailing 10/10ths cloud but they were very active beneath, illuminating the cloud and possibly acting as an aid to fighters. Heavy flak at the target was either predicted 'Unseen' or in barrage form, and was reported as moderate to intense. No light flak was reported.

42 aircraft were damaged from this cause.

(b) Fighters:- Enemy wireless traffic revealed 11 patrols near Eindhoven(3), Eindhoven/Amsterdam(1), Twente Enschede/Rhine(5), Vechta(1), Arnhem(1). A total of 11 pursuits were made, but only 2 claims were heard. These were made by the fighter in the Eindhoven/Amsterdam area, and its reserve, the first on the outward journey, and the second on the return. Fighter pilots complained that it was difficult to maintain radio contact with their control stations. Crews reported 20 encounters with enemy aircraft mainly in the Eindhoven/Arnhem area, only 2 of which (one near Dorsten and one in the target area) developed into attacks. In neither case was the bomber damaged.

Casualties

15.	No. of aircraft missing.....	12(3.9%)
	" damaged (a) flak.....	42
	(b) fighter.....	Nil
	(c) not enemy action....	3
		45(15.0%)

Observations of crews indicate that 6 or 7 aircraft were shot down by flak one at Dülmen and the remainder in the target area. Of the 4 losses sustained in the Zutphen/Arnhem area at least 2, and possibly all, were caused by fighters. In addition it is probable that one bomber was shot down by a fighter in the Eindhoven/Amsterdam area before reaching the target.

...../One of the

One of the 42 aircraft damaged by flak crashed on the return, being totally destroyed. The only serious non-enemy action damage was caused by an accident at take-off.

Bocholt

16. B Y type Stirlings and 4 Y type Halifaxes were detailed to make a blind-bombing attack on Bocholt, using their special equipment. 6 aircraft completed the task, attacking through 10/10ths cloud. Failure of H2S caused the early return of 2 bombers, 2 sorties were abortive owing to other technical defects, and one reported icing and a technical defect. The remaining aircraft was shot down by flak in the target area. None of the returning bombers was damaged.

APPENDIX

Timing of Attack

I. (a) Pathfinder Force:-

6 Mosquitoes attacked at 0231, 0235, 0241, 0243, 0253, and 0259.

1 reserve Mosquito attacked at 0337.

(b) Main Force

attacked between 0231 and 0240.....	30
" 0241 and 0250.....	78
" 0251 and 0300.....	33
" 0301 and 0309.....	74
" 1-5 minutes late.....	11
" 6-10 minutes late.....	5
	<u>232</u>

Bomb Loads Carried

II. (a) Pathfinder Force

T.I. only.....	6
T.I. + H.E.	1

(b) Main Force:

H.E. + 30 lb. inc. + 4 lb. inc.....	70
H.E. + 4 lb. inc.....	143
H.E. only.....	19
	<u>232</u>

KSHG)
EHO } VF.

BC/S. 26342/1/ORS.
4th August, 1943.

30th April/1st May, 1943.

Base: Bocholt

Target	Group	Type	Sorties	W/C reporting attack on		Abortive sorties		Missing	Damage			Interceptions		Results		
				prim. area	alt. area	over on. territ.	not over on. territ.		flak	fighters	not H/A	att-acked	not attached	H.E.	Inc.	
ESSEN	8	Moag. IV	10(2*)	7(1*)	-	3(1*)	-	-	-	-	-	-	-	(P)	404.2	396.4
	P.F.F.													(*)	3.1	5.5
	8	Hal. II'2'	10	5	-	-	4	1	-	-	1B	-	-	(H)	18.3	20.4
	Main Force															
		Lanc. I	5	5	-	-	-	-	-	-	-	-	-			
		Lanc. III	8	7	-	-	1	-	3	-	-	-	1			
	1	Lanc. I	33	25	1	-	6	1	2	-	-	-	-			
		Lanc. III	32	24	-	-	4	-	1, C+2	-	-	-	1	(P)	2	155
	3	Lanc. II	11	5	-	-	4	-	1	-	-	-	-	(*)	-	1
		Hal. II'2'	48	36	1	-	7	4	1E+3	-	1	2	5	(H)	-	6
4	Hal. V'2'	9	6	-	-	2	1	3	-	-	-	-				
	Hal. II-III	18	15	-	-	2	-	2	-	-	-	-				
5	Lanc. I	43	39	-	-	3	1	5	-	-	-	-				
	Lanc. III	58	48	-	-	6	4	12	-	1	-	-				
6	Hal. II'2'	20	13	1	-	6	-	2	-	-	-	-				
ESSEN	TOT.L.		305	239	3	5	46	12	1E+1A+C+4D	-	1B+2	2	1B			Tons of Bombs
BOCHOLT	8	Stur. I	8	5	-	-	1	1	-	-	-	-	-			H.E. Inc.
		Hal. II'2'	4	3	-	-	1	-	-	-	-	-	-	(P)	16.0	-
BOCHOLT	TOT.L.		12	6	-	-	5	1	-	-	-	-	-	(M)	2.7	-
TOT.L.			317	245	3	5	51	13	1E+1A+C+4D	-	1B+2	2	1			

* Reserve aircraft (included in total)

From Primary
Seen Alternative
Carried by
Missing Aircraft

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