

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 1/2nd. JULY, 1943.MESSAGESUMMARY

1. 30 aircraft, out of a force of 33, laid 95 mines off the Frisians, the Dutch coast, and the French Atlantic ports. No losses were sustained.

Meteorological Forecast

2. Midnight frontal positions:- (1) occlusion from $59^{\circ}\text{N. } 05^{\circ}\text{W.}$ to $55^{\circ}\text{N. } 06^{\circ}\text{E.}$ to $50^{\circ}\text{N. } 10^{\circ}\text{E.}$ (2) occlusion from $56^{\circ}\text{N. } 06^{\circ}\text{W.}$ to $55^{\circ}\text{N. } 0^{\circ}$ to $52^{\circ}\text{N. } 03^{\circ}\text{E.}$

Bases:- Along each front there will be a belt of rain and cloud extending to great heights, with high icing index above 4,000' in front (2). Operational Groups should remain fit at night, with variable cloud, base 2,000' in N., and a risk of some cloud at 1,000' in S. Visibility 4 miles or more. Showers, especially in S.

Germany:- Front (2) will be active over S. North Sea, with thundery rain and local thunderstorms. Over N. Germany E. of front (1), there will be broken layer cloud. In S. Germany, layer cloud will be well broken, with good visibility. W. of front (1) residual thundery cloud will prevail in broken layers.

W. France:- Brest to La Pallice: up to 0200, broken cumulus and strato-cumulus, base mainly above 1,000' with a risk of showers. Increasing medium cloud between 12,000' and 15,000'. Visibility moderate. After 0200, low cloud will increase and fall to 1,000', with rain spreading from W.

Dutch coast and Frisians:- Instability front is expected to clear the Dutch coast by midnight and the Frisians by 0300. Behind this front, 6-9/10ths cloud, base 1,000-1,500', freezing level 6,000'.

Sorties

3.	(a)	No. of aircraft despatched.....	33
	(b)	" " " reporting mines laid in primary area.....	30
	(c)	" " abortive sorties { technical defect.....2 } (weather.....1)	3
	(d)	" " aircraft missing.....	Nil
	(e)	" " mines laid.....	95

Weather Experienced

Bases:- Very variable cloud. Large clearances between showers. Base locally below 1,000'. Good visibility.

Frisians:- Very variable cloud. Generally cumulus and strato-cumulus, 6-8/10ths., base 2,000', with slight local showers. Some heavier showers en route with cloud base 1,500' or below. Good visibility. Wind at 2,000': $220^{\circ}/30-40\text{m.p.h.}$

N.W. France:- 5-9/10ths cumulus, base 1,000 (but locally 700'). Showers. Good visibility. Wind at 2,000'. $260^{\circ}/40\text{ m.p.h.}$

No moon.

...../Enemy Defences.

Enemy Defences5. (a) Flak and Searchlights

Crews laying mines in the Frisians were engaged by several flak ships off Texel and Terschelling. The only land activity was at Texel, where light flak and one searchlight were reported. One aircraft was damaged by a flak ship off Terschelling.

No defences were reported in action against our bombers in Western France.

6. (b) Fighters

Enemy wireless traffic revealed the presence of one controlled night fighter patrol in the Lecuwarden area, but no encounters with enemy aircraft were reported.

Casualties

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

MLM/VF/JT.
 BC/S. 26342/1/ORS.
 14th. August, 1943.

Minesweeping (1/2nd. June 1943)

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		AGGRESSIVE SORTIES		MISSING	D.J.G.S.			INTERCEPTIONS		RESULTS
				PRIMARY ARE.	ALTERNATIVE ARE.	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK	FIGHTER	NOT ENEMY ACTION	NOT ATTACK-ED	NOT ATTACK-ED	
FRISIANS	3	Str.I	5	5	-	-	-	-	-	-	-	-	-	20 mines
		Str.III	5	5	-	-	-	-	1	-	-	-	-	27 mines
ERENT	4	Well.X	5	5	-	-	-	-	-	-	-	-	-	10 mines
SP. K. LAIRE	4	Well.X	4	3	-	-	1	-	-	-	-	-	-	6 mines
LORIENT	4	Well.X	5	4	-	-	1	-	-	-	-	-	-	8 mines
TEXEL	6	Well.X	5	2	-	-	1	-	-	-	-	-	-	4 mines
S. TEXEL	6	Well.X	6	6	-	-	-	-	-	-	-	-	-	12 mines
TOTAL			33	30	-	-	3	-	1	-	-	-	-	95 mines

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 2/3rd. JUNE, 1943.MINELAYINGSUMMARY

1. 32 aircraft, out of a force of 35, laid 80 mines off the French Atlantic coast. All returned safely, one claiming the destruction of an Me.110.

Meteorological Forecast

2. Midnight frontal positions:- occlusion from Orkney to E. of Zuyder Zee to 46°N. 02½°E.

Bases:- Fit at dusk, and for return after midnight. Little cloud, base above 2,000'. Visibility moderate to good.

Germany:- A centre of low pressure, positioned at 53°N. 01°E. by midnight and moving E.N.E., with a trough from the centre southwards, will result in great thunderstorm activity over the S. North Sea, with cloud to 30,000'. In N. Germany there will be residual thundery cloud in broken layers. In S. Germany, broken layer cloud.

W. France:- 4-8/10ths cumulus and strato-cumulus, base 2,000', with patches at 1,500' in scattered showers. Strato-cumulus may increase southwards. Good visibility.

Sorties

- | | | | |
|----|-----|------------------------------------------------------------------|-----|
| 3. | (a) | No. of aircraft despatched..... | 35 |
| | (b) | " " " reporting mines laid in primary area..... | 32 |
| | (c) | " " abortive sorties (technical defect.....2)
(weather.....1) | 3 |
| | (d) | " " aircraft missing..... | Nil |
| | (e) | " " mines laid..... | 80 |

Weather Experiences

4. Bases:- Showers all night, with cloud base falling at times below 1,000'. Visibility otherwise good.

Route:- Much convection cloud over Channel, tops 8-12,000' with frequent showers. Wind to 49°N. at 2,000': 300°/25 n.p.h.

W. France:- Very variable cloud. 8-10/10ths in N. with frequent showers, 4-6/10ths in S. with only scattered showers. Cloud base generally 1,500'. Good visibility. No moon. Wind at 2,000', S. of 49°N.: 270°/25mph.

Enemy Defences

5. No flak and few searchlights were reported. In the only encounter with an enemy aircraft, the crew of a Stirling claimed the destruction of an Me.110, which dived in flames and crashed near the mouth of the Gironde; the Stirling was damaged but returned safely. No other incidents were reported, and all other aircraft returned without casualties or damage.

MLM/JT.
BC/S. 26342/1/ORS.
14th. August, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		AGGRESSIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIMARY ARE.	ALTERNATIVE ARE.	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK	FIGHTER	NOT INTY ACTION	A/TACK-ED	NOT A/TACK-ED	
BREST	1	Well.X	8	7	-	-	1	-	-	-	-	-	-	14 mines
LA PALlice	3	Stir.I	1	1	-	-	-	-	-	-	-	-	-	3 mines
		Stir.III	4	4	-	-	-	-	-	-	-	-	-	12 mines
GIRONDE R.	3	Stir.I	4	4	-	-	-	-	-	-	-	-	-	14 mines
		Stir.III	5	4	-	-	1	-	-	1.C	-	1	-	13 mines
ST. NAZAIRE	4	Well.X	6	5	-	-	1	-	-	-	-	-	-	10 mines
LORIENT	4	Well.X	7	7	-	-	-	-	-	-	-	-	-	14 mines
TOTAL			35	32	-	-	3	-	-	1.C	-	1	-	80 mines

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 3/4th JUNE, 1943.

MINELAYING: Leaflets

SUMMARY

Minelaying

30 aircraft, out of a force of 39, laid 77 mines off the French Atlantic coast. All returned undamaged.

Leaflets

16 aircraft dispersed leaflets over Paris, Lorient and St. Nazaire. None were lost, but one ditched in the Channel on return. All but one of the crew were rescued.

Metereological Forecast

Bases:- Mainly fit all night. Broken cloud, base 1,500-2,000', tops locally to 15,000'. Showers on east coast from E. Yorks to Norfolk, with cloud base falling to 1,000'. Visibility good.

Germany:- Thundery cloud in N.W. all night, tops to 20,000' and above. Layer cloud at various levels. Good visibility. S. Germany: broken layer cloud. Wind at 20,000': 310°/50-60 m.p.h.

F. France:- 5/10ths or more cumulus and strato-cumulus in two layers between 1,500 and 8,000'. Good visibility.

	<u>Minelaying. Leaflets</u>	
(a) No. of aircraft despatched.....	39	16
(b) " " " reaching primary area.....	30	16
(c) " " abortive sorties (weather.....5) (technical or (manipulative) (defects.....3) (flak & fighter..1)	9	0
(d) " " aircraft missing.	0	0
(e) " " mines laid.....	77	

Weather Experienced

Bases:- Mainly fit all night.

W. France:- 8/10ths. cloud at Brest from 900-3,000'. Visibility very poor. Elsewhere, little cloud and good visibility.

Paris:- 8-10/10ths. cloud, tops 12,000'. Good visibility.

No moon.

...../Enemy Defences.

Enemy Defences5. (a) Flak and Searchlights

Moderate but accurate flak was reported at several points on the west coast of France, but few searchlights were seen. Slight flak with many searchlights was encountered from Cherbourg. One aircraft sustained minor damage in the Paris area.

6. (b) Fighters

Only two encounters were reported, at Loudeac and St. Ericuc on the outward flight. Our aircraft sustained no damage.

Casualties

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

One aircraft ditched off St. Catharine's Point on return, owing to engine trouble. All but one of the crew were rescued.

MLM/JT.

D./S. 26342/1/ORS.

14th. August, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		..SORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIMARY AREA	ALTERNATIVE AREA	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK	FIGHTER	NOT ENEMY ACTION	ATTACKED	NOT ATTACKED	
MINELAVERS														
LORIENT	1	Well.X	8	6	-	-	2	-	-	-	-	1	-	12 mines
LA PALICE	3	Stir.I	2	2	-	-	-	-	-	-	-	-	-	8 mines
		Stir.III	3	3	-	-	-	-	-	-	-	-	-	12 mines
CIRONDE	3	Stir.I	1	1	-	-	-	-	-	-	-	-	-	3 mines
		Stir.III	9	6	-	-	3	-	-	-	-	-	-	18 mines
ST. NAZAIRE	4	Well.X	8	8	-	-	-	-	-	-	-	-	-	16 mines
BREST	6	Well.X	8	4	-	-	4	-	-	-	-	-	-	8 mines
MINELAVER TOTAL			39	30	-	-	9	-	-	-	-	1	-	77 mines
LE-FLETS	92	Well.III	1	1	-	-	-	-	-	-	-	-	-	
LORIENT	93	Well.X	2	2	-	-	-	-	-	-	-	-	-	
ST. NAZAIRE	92	Well.III	4	4	-	-	-	-	-	-	-	1	-	
BREST	93	Well.III	1	1	-	-	-	-	-	-	-	-	-	
		Well.X	1	1	-	-	-	-	-	-	-	-	-	
PARIS	93	Well.X	1	1	-	-	-	-	-	-	-	-	-	
		Well.III	5	5	-	-	-	1	-	-	-	-	-	
		Well.Ic	1	1	-	-	-	-	-	1E	-	-	-	
LE-FLET TOTAL			16	16	-	-	-	1	-	1E	1	-	-	
TOTAL			55	46	-	-	9	-	1	-	1E	2	-	

COPY NO. 16

BOEBER COMBINED REPORT ON NIGHT OPERATIONS, 5/6th JUNE, 1943.MINELAYING: LEAFLETSSUMMARYPlaying

12 aircraft laid 66 mines off the Frisians without loss.

Leaflets

5 aircraft were detailed to drop leaflets over Vichy. One returned early due to icing, and one, experiencing technical trouble, jettisoned its bundles in the area of Orleans. The remaining 3 accomplished their task. All returned safely.

Metereological Forecast

Midnight frontal positions:- (1) occlusion from S.W. Ireland to S.W. England to Peterhead to 62°N. 05°E. to W. Sweden to Copenhagen to 53½°N. 11°E., bringing warm southwards and cold to 48°N. 05°E. to 46½°N. 02°W. (2) minor cold from 55°N. 06°E. to Ostend to Havre.

Bases:- Fit all night, with cloud decreasing, base not below 1,500'.

Germany:- Much cloud to great heights in frontal belt, with rain.

Frisians:- Cloud base mainly 2,000', possibly very low patches.

W. France:- Much cloud at 1,000' or below S. of St. Nazaire, breaking and clearing (but not above 1,500') further N. Little cloud in extreme S.

Statistics

		<u>Minelaying</u>	<u>Leaflets</u>
(a)	No. of aircraft despatched.....	12	5
(b)	" " " reaching primary area.....	12	3
(c)	" " " alternative area.....	0	1
(d)	" " abortive sorties (icing).....	0	1
(e)	" " aircraft missing.....	0	0
(f)	" " mines laid.....	66	

Weather Experienced

Bases:- Broken cloud, generally above 3,000'. Scattered showers. Fog or patches in N.E. England towards dawn.

Frisians:- Well broken low cloud. Moderate to good visibility. No moon.

Air Defence

No flak was encountered, and no fighters apart from one which followed a leaflet sortie for 20 minutes in the Vichy area.

Remarks

None.

/JT.
S. 26342/1/ORS.
1st August, 1943.

MONDAY. 12. JUNE. (5/6th. JUNE 1943)

SQUAD	GROUP	TYPE	SORTIES	% REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	LOSS			INTERCEPTIONS		RESULTS
				PRIMARY .RE.	INTERCEPTIVE .RE.	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK	FIGHTS	NOT ENEMY ACTION	ATTACKED	NOT ATTACKED	
MIDLANDS PAISLES	3	Lano.II	1	1	-	-	-	-	-	-	-	-	-	6 mines
		Stir.I	6	6	-	-	-	-	-	-	-	-	-	32 mines
		Stir.III	5	5	-	-	-	-	-	-	-	-	-	28 mines
MIDLANDS TOTAL			12	12	-	-	-	-	-	-	-	-	-	66 mines
SOUTHERN VICRY	91	Well.X	3	1	1	-	1	-	-	-	-	-	1	
		Well.III	2	2	-	-	-	-	-	-	-	-	-	1
SOUTHERN TOTAL			5	3	1	-	1	-	-	-	-	-	1	
TOTAL			17	15	1	-	1	-	-	-	-	-	1	66 mines

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 9/10th JUNE, 1943.INCIDENTSSUMMARY

1. 6 aircraft, out of a force of 8, dispersed leaflets over Lille, Tours, Brest and Lorient. All returned safely, one crash-landing after being damaged by a fighter.

Meteorological Forecast

2. Midnight frontal positions:- occlusion from S. Norway to Ruhr to Stuttgart.

Bases:- Fit at dusk, except coastal localities in 4 Group. By 0400, all Groups except 8 will require diversion for most of their aircraft, with visibility below 1,500 yards or low stratus.

Germany:- W. and N.W.: broken layers of cloud, all probably below 15,000'. Ruhr:- rather more than half cover of strato-cumulus, base 2,000' tops 6,000', with very little medium cloud. Visibility very poor, with thick haze.

France:- Little cloud, apart from strato-cumulus in N.W.

Sorties

- | | | |
|----|--------------------------------------------------|---|
| 3. | (a) No. of aircraft despatched..... | 8 |
| | (b) " " " reaching primary area..... | 6 |
| | (c) " " abortive sorties (technical defect)..... | 2 |
| | (d) " " aircraft missing..... | 0 |

Weather Experienced

4. Brest - St. Nazaire: 10/10ths. stratus, 12-17,000'.

Lille: 8/10ths stratus to 10,000'.

Tours: clear, no cloud. Nearly half moon.

Enemy Defences

5. Slight heavy flak was reported at Lille, and a few controlled night fighters were active in Holland and W. France. Only one encounter took place, when a Wellington was damaged by a Ju.88 north of Vannes. It crash-landed at Exeter, where the crew escaped uninjured. All other aircraft returned safely.

MH/JT.
BC/S. 26342/1/ORS.
14th. August, 1943.

LE FLATS. 9/10th. JUNE, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		A/BORTIVE SORTIES		MISSING	DAMAGE			INTERUPTIONS		RESULTS
				PRIMARY AREA	ALTERNATIVE AREA	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAC	FIGHTER	NO. IN SQUADRON	ATTACKED	NOT ATTACKED	
BRIST	91	Woll.III	1	1	-	-	-	-	-	-	-	-	-	-
TOUSS	91	Woll.III	1	1	-	-	-	-	-	-	-	-	-	-
ST. N. LAURE	91	Woll.III	1	1	-	-	-	-	1.C	-	1	-	-	-
LORIENT	91	Woll.III	1	-	-	1	-	-	-	-	-	-	-	-
ELLE	92	Woll.III	4	3	-	-	1	-	-	-	-	-	-	-
TOTAL			8	6	-	1	1	-	-	1.C	-	1	-	-

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 10/11th JUNE, 1943.

LEAFLETS

SUMMARY

1. 4 aircraft, out of a force of 6, dispersed leaflets in the areas of Lorient and Nantes. One aircraft did not return.

Meteorological Forecast

2. Midnight frontal positions:- (1) warm from Orkney to the Wash (2) cold from Faroes to St. Abbs Head to Portland Bill to N.W. France.

Bases:- Thunderstorms, with cloud to over 20,000', breaking and lifting behind the cold front. Low stratus spreading inland from North Sea. Fog in clear areas. Training Groups: varying amounts of low and medium cloud, residual from thundery showers, base 1,200-1,500'; visibility 1-2 miles until 0300-0400.

Germany:- Much low stratus or fog over North Sea. Residual thundery cloud in N.W. Germany with isolated thunderstorms persisting. Much layer cloud in Central and S. Germany.

France:- Much medium cloud in N.W. with poor visibility. Orleans: varying amounts of medium cloud, moderate visibility, slight risk of thundery showers.

Sorties

3. (a) No. of aircraft despatched..... 6
 (b) " " " reaching primary area..... 4
 (c) " " abortive sorties (technical defect)..... 1
 (d) " " aircraft missing..... 1

Weather Experienced

4. Nantes:- Much ground haze.

Lorient:- 8/10ths. strato-cumulus, tops 11,000'. No moon.

Enemy Defences

5. No opposition was encountered from ground defences. One Me.109 was observed over Nantes but no combat developed.

Casualties

6. One Whitley failed to return from Nantes. There is no evidence to suggest the cause or place of loss.

Target	Gp.	Type	Sorties	√C reaching prim. area.	Abortive Sorties (NOT)	Missing	Damage	Interceptions
NANTES	91	Whit.V	5	3	1	1	-	-
LORIENT	91	Well.III	1	1	-	-	-	-
TOTAL			6	4	1	1	-	-

LM/JT.
 EC/S. 26342/1/ORS.
 15th. August, 1943.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 11/12th JUNE 1943.DUSSELDORF: MUNSTER: Duisburg: Cologne: LeafletsSUMMARYDUSSELDORF

1. A very successful raid on Dusseldorf was carried out by a large force of 770 heavy and medium bombers led by 13 Mosquitoes. Despite the low serviceability of the Obce Mosquitoes, only 6 of which attacked, 80% of the 655 aircraft reporting attack are estimated to have bombed within 3 miles of the aiming point. This high degree of concentration was confirmed by the devastation shown on reconnaissance photographs. Two-thirds of the central city area was wholly destroyed, and industrial premises damaged included the heavy machine-tool manufacturers Schicas-Kfricss A.G., and Rheinmetall Bersig A.G. (heavy armaments).

38 aircraft were missing, the losses being almost equally attributable to flak and fighters.

MUNSTER

2. 72 heavy aircraft of 8 Group made a concentrated attack on Munster, which was completed in less than 10 minutes. The target was marked and illuminated by Y-type aircraft, many of which also attacked with the main force. Although only 60 aircraft bombed the target, much damage was caused, especially to railway property.

5 aircraft, 4 of which were Y-type, failed to return.

Duisburg and Cologne

3. 5 Mosquitoes were despatched by 8 Group, 3 to Duisburg and 2 to Cologne. 2 aircraft attacked each target and the fifth returned early. No damage was sustained.

Leaflets

4. 23 aircraft of Training Groups set out to drop leaflets on Orleans, Nantes, Caen and Le Mans. 20 sorties were completed, and all the aircraft returned safely.

5. Estimated midnight position of front: occluded from 60°N 2°E - Yorkshire - Tangmere - Nantes.

Home Bases:- Thunderstorms along the occluded front. Some bases may have thundery rain at take-off especially in Lincolnshire, but not more than 12 bases will be affected at any time. 3 and 8 Groups will be affected by a front running N-S, giving 10/10ths cloud between 2,000 and 15,000 ft. mainly layers with local breaks. Other Groups, broken low cloud, with 10/10ths medium cloud at 10,000-13,000ft. For return, 7-10/10ths cloud at 2,000-3,000 ft. in the S.; 5-8/10ths at 1,500-2,000 ft.; with possibility of rain after 0400 hours, in N. Poor visibility in 6 Group and locally in 4 Group. Fog will follow thundery rain, especially in 5 Group.

Germany: Local thunderstorms and thundery rain; Hamburg, Bremen, Baden areas likely to be least affected.

France: Local thunderstorms.

Route and target: Cloud breaking beyond 1° - 2° E.; only patchy cloud over Eastern North Sea to the enemy coast. Over the continent, large patches of residual cumulo-nimbus at all heights to 20,000 ft, but good chance of little over the target. Visibility hazy over Ruhr. On return, front will be met at 2° - 3° E. with only very few tops above 12,000 ft., base 2-3,000 ft. High icing index above freezing level at 10,000 ft.

Winds:	750 mb.	500 mb.	300 mb.
Bases in N.	$310^{\circ}/40$ m.p.h.	$230^{\circ}/45$ m.p.h.	} $270^{\circ}/50$ m.p.
Bases in S.	$230^{\circ}/25-30$ m.p.h.	$240^{\circ}/30$ m.p.h.	
2° E - 5° E.	Light variable	$270^{\circ}/10$ m.p.h.	
Ruhr	$010^{\circ}/10-15$ m.p.h.	$270^{\circ}/10$ m.p.h.	$310^{\circ}/45$ m.p.

DUSSELDORF

Plan of Attack

6. Zero hour: 0120 Period of attack: 0116-0219 hours

Briefed Route: $51^{\circ}45'N$ $03^{\circ}50'E$ - $50^{\circ}55'N$ $06^{\circ}30'E$ - Dusseldorf - turn wide left - $51^{\circ}17'N$ $06^{\circ}30'E$ - Noordwijk.

En route to the target, yellow warning T.I's were to be dropped by Oboe Mosquitoes at $53^{\circ}40'N$ $06^{\circ}55'E$: this marking was to be maintained by the Lancaster backers-up, aiming yellow T.I's at existing yellows. At the target 13 Oboe Mosquitoes, at five-minute intervals throughout the attack, were to drop two red T.I's (one long burning) in salvo on the aiming point and also release-point flares (red with green stars and white) igniting at 14,000'. The backers-up (34 aircraft) were to aim green T.I's to overshoot by three seconds the red T.I's if possible, but otherwise the centre of all green visible. If the ground markers could not be seen owing to cloud conditions, the backers-up were to become part of the main force and bring their T.I's back. Half the T.I markers were to burst at 3,000' and half at 6,000' and, after 0130 hours, certain markers were to burst at 10,000'.

The main force aircraft were instructed to aim at red T.I's if possible, but otherwise at the centre of greens. The release point flares were to be used, if necessary, on a heading of 042° M. and 165 m.p.h. I.L. with bombsight set for true height, airspeed and zero wind. The main force was divided into 12 waves of about 60 aircraft each and all phases of the attack both incendiary and H.E. loads were to be carried. The first (0120-0124 hours, Lancasters) and fifth (0140-0144 hours, Wellingtons and Halifaxes) were to consist of specially selected crews and the second (Lanc 0125-0129 hours) and sixth (Stirlings, 0145-0149 hours) of the next best crews. Aircraft of 1 Group were to meet at Sheringham (Lancasters at 17-18,000' and Wellingtons at 12,000') and were to climb in order to cross the enemy coast as high as possible. Lancasters were to bomb from over 20,000' and Wellingtons from over 16,000': after bombing, all aircraft were to leave the target area as quickly as possible and climb to a maximum height for the return journey.

The Gee Eastern Chain was to be available on two frequencies between and 0220 hours.

Crews were warned that other aircraft of the P.F.F. would be attacked at Munster.

...../Timing

Timing7. MosquitoesBackers-UpMain Force

0116 & 0120 hours	-	-	0120-24 Sect. 11 (Lancasters)
-	0121-22	2 a/c at 1 min. intervals	-
-	0124	1 a/c	-
0125	-	-	0125-29 Sect. 2 (Lancasters)
-	0126-27	2 a/c at 1 min. intervals	-
-	0129	1 aircraft	-
0130	-	-	0130-34 Sect. 3 (Lancasters & Halifaxes)
-	0131-32	2 a/c at 1 min. intervals	-
-	0134	1 aircraft	-
0235	-	-	0135-39 Sect. 4 (Halifaxes & Wellingtons)
-	0136-37	2 a/c at 1 min. intervals	-
-	0139	1 aircraft	-
0140	-	-	0140-44 Sect. 5 (Halifaxes & Wellingtons)
-	0141-42	2 a/c at 1 min. intervals	-
-	0144	1 aircraft	-
0145	-	-	0145-49 Sect. 6 (Stirlings)
-	0146-47	2 a/c at 1 min. intervals	-
-	0149	1 aircraft	-
0150	-	-	0150-54 Sect. 7 (Stirs. & Wells)
-	0151-52	2 a/c at 1 min. intervals	-
-	0154	1 aircraft	-
0155	-	-	0155-59 Sect. 8 (Wellingtons)
-	0156-57	2 a/c at 1 min. intervals	-
-	0159	1 aircraft	-
0200	-	-	0200-04 Sect. 9. (Halifaxes)
-	0201-02	2 a/c at 1 min. intervals	-
-	0204	1 aircraft	-
0205	-	-	0205-09 Sect. 10. (Lancs. & Hals)
-	0206-07	2 a/c at 1 min. intervals	-
-	0209	1 aircraft	-
0210	-	-	0210-04 Sect. 11 (Lancasters)
-	0211-12	2 a/c at 1 min. intervals	-
-	0213	1 aircraft	-
0215	0215	1 aircraft	0215-19 Sect. 12 (Lancasters)

Bomb Loads - P.F.F.

8.

Mosquitoes 1 T.I. yellow (LB) + 2 T.I. red (1 LB) + 2 flares red/green stars + white
 Halifaxes - 4 T.I. green (2 LB) + 4 x 1000 lb. G.P. + 4 x 500 lb. M.C.
 Lancasters 1 T.I. yellow (LB) + 4 T.I. green (2 LB) + 1 x 4000 lb. H.C. + 4 x 1000 lb. G.P. + 1 x 500 lb. M.C.

...../Sorties

Sorties

9.	No. of aircraft despatched.....	783
	" reporting attack on primary area.....	655 (83.6%)
	" " alternative area.....	5 (0.6%)
	" abortive sorties (technical and manipulative defects.....	56)
	(weather.....	24)
	(illness of crew.....	3) ..85 (10.9%)
	(late take-off.....	1)
	(unknown (crashed).....	1)
	" aircraft missing.....	38 (4.9%)

Weather Experienced

10. Home bases:- Rain and thunderstorms in Lincolnshire during take-off. By return most bases fit, apart from local light rain in E. Anglia.

Route: Over North Sea, frontal conditions were encountered, with multi-layer cloud, cumulo-nimbus, tops to 24,000 ft, and anvils to 28,000 ft. Moderate clear ice formed locally in cloud, with some static. One report of lanes in clouds. Frontal conditions broke over Dutch coast. Remainder of route, only small amounts of cloud.

Target: 2-4/10ths cloud, tops 6-12,000 ft., with small patches of cloud above. Visibility moderate to good, with slight ground haze. Surface wind, light southerly or calm. Wind at 20,000 ft., very variable between 270° and 010°, 15 m.p.h. or less.

Enemy airfields:- Many fit during operational period, with only small amounts of cloud and moderate visibility.

Moon above the horizon during the operations, 50% of full.

Night Photographic Statistics

11.	No. of photographs examined.....	554
	" showing ground detail { plotted within 3 miles..46 " outside 3 miles..28 } ..85 (unplotted.....11)	
	" showing fire-tracks { plotted within 3 miles..411 " outside 3 miles.. 22 } ..469 (unplotted..... 36)	
	" aircraft reporting attack.....	655
	" estimated from the photographic evidence, to have bombed within 3 miles of the aiming point.....	524

Narrative of Attack

12. The target was accurately ground-marked by 6 Oboe Mosquitoes with red T.I's. The failure of the remaining 7 aircraft resulted in gaps in the marking notably from 0123 to 0129, after the first salvo of red T.I's had extinguished. The backers-up were late, and none saw the first salvo. However, in accordance with instructions, those backers-up which arrived during this gap did not release their green T.I's, thus preventing an early scatter. After the second salvo of red T.I. was dropped, continuous marking was maintained by the backers-up and the Oboe aircraft. The attack was exceptionally concentrated; the specially selected crews in the first wave of the main force, which attacked without the aid of groundmarkers, started many fires just S.W. of the aiming point. The later waves, aiming at these fires or at T.I's, also bombed accurately. In all, 524 aircraft (80% of attackers) are estimated to have bombed within 3 miles of the aiming point. This achievement was fully confirmed by reconnaissance photographs.

...../Daylight Reconnaissance

Daylight Reconnaissance

5. Photographic cover for the whole town and most of the surrounding districts was obtained after the raid. These show widespread devastation; at least two-thirds of the town between the Rhine and the main station, which contains the principal business and administrative buildings, was destroyed, and the destruction spread eastwards and southwards to the main industrial areas. It is evident that the fires were wholly out of control, and spread throughout the city. Some buildings were still burning a week after the attack; the main streets and thoroughfares appeared deserted.

About 64 factories or industrial concerns suffered damage. Of these, 23 have been identified, including 5 of the first priority and at least 12 directly concerned with war production. These include the Schiess-Defriess A.G., (leading producers of heavy machine tools) the Rheinmetall Borsig A.G., (one of the most important manufacturers in Germany of all types of heavy armaments), Deutsche Röhrenwerke A.G., Mannesmann Röhrenwerke A.G., Stehloffmangshütte A.G., 7 other important metal works and one factory for railway waggons.

Serious damage in the dock area included about 70 warehouses, sheds and other buildings, and an oil storage plant suffered severely. Several buildings of the main railway station were gutted, and 6 warehouses destroyed. Much damage was caused to 4 railway sidings and 5 goods depots, and 135 goods waggons were destroyed.

Damage to public utilities included the destruction of a gasholder and of several buildings of the power station and the gas-works. 18 state and municipal buildings sustained major damage, and 50 others minor damage.

More than 530 acres of residential and commercial property were devastated, and it is estimated that about 26,000 families were rendered homeless.

Alternative Targets

6. Owing to technical defects, icing or interception by enemy aircraft, bombers attacked alternative targets on Overflakkee Island(3), west of Cologne(1), and near Koernond.

Special Equipment

5. Gee (Dusseldorf and Munster)

The Eastern Chain operated on the Virginia frequency throughout and on the target frequency from 0050 hours to 0220 hours. Analysis of reports from 623 aircraft, 10% of which had difficulties with their equipment, gave an average range of 255 miles. 11 aircraft received Gee over the target, at a distance of 34.5 miles. There was heavy jamming at the enemy coast; several aircraft reported signal inversion.

6. Oboe

13 Mosquitoes equipped with Oboe were despatched to ground-mark the target, but serviceability was very low, and only 6 aircraft attacked. 6 failures were due to defects in the special equipment, evenly divided between each pair of control stations, and one aircraft returned early owing to a mechanical defect. The performance of the attacking aircraft was good, but their marking was necessarily discontinuous; there was a gap of 6 minutes after the first markers extinguished, and 3 subsequent gaps, while the last red T.I's went out 7 minutes before the end of the raid. Yellow T.I's were correctly released by the same 6 Mosquitoes, en route.

17. H2S

Three Y-type Halifaxes were included in the backera-up, using H2S for navigational purposes only. 2 of these identified the target by H2S as well as by red F.I's while the third attacked an alternative target after interception by 2 enemy aircraft.

Enemy Defences18. Flak and Searchlights

With cloud varying from nil to 10/10ths over the target area, and heavy smoke in the later stages of the attack, ground defences were less accurate and intense than usual. About 100 searchlights were reported, principally on and outside the western half of the target perimeter, and these succeeded several times in "coning" aircraft with up to 25 beams, but co-operation with flak was generally ineffective. The main defence over the centre of the target was heavy flak in barrage form which appeared to increase in intensity as the attack developed. At least six balloons were reported at heights of 6-10,000 feet. Elsewhere, accurate heavy flak was reported over the Schelde Basin and in the Amsterdam area co-operating with many searchlights. However, the flak in this area appears to have been responsible for only 10% of the damage caused to aircraft by ground defences, the remaining 90% being sustained in the target area. 83 aircraft were damaged by flak, Halifaxes suffering most with 35 aircraft (17% damaged.

19. Fighters (Dusseldorf and Munster)

Since the route to both targets coincided over the North Sea and the Low Countries, fighter opposition to both raids has been considered as a whole.

Enemy wireless traffic revealed 14 patrols operating against our bombers. 24 pursuits were undertaken, and of those the 6 that established contact all claimed victories, the claims apparently being justified. Both enemy reports and those of our crews indicate that fighters were slightly more active on the outward journey. Dusseldorf crews reported 79 interceptions, including 12 attacks and 21 other combats, while the Munster raiders reported 11 interceptions, with 2 attacks and 5 other combats. Most of the controlled night fighters were encountered over the Scheldt Estuary and in the Gilze Rijen/ Eindhoven area. Several crews reported fighters cooperating with searchlights near Xrefeld. Enemy aircraft damaged 2 bombers en route for Dusseldorf and another over Munster. 2 enemy aircraft were destroyed, 3 probably destroyed and 6 damaged. Of these, one was destroyed and one probably destroyed in combat with a single Halifax.

Casualties

		Dusseldorf	Munster		
20.	No. of aircraft missing.....	38	5		
	" " damaged (a) flak.....83	93	2		
	(b) fighter..... 2).....			1	4
	(c) other causes... 8)			1	

During the period of the raids there were almost 200 reports of aircraft seen falling. Consideration of these reports and of the claims by German fighter pilots indicated that of the 43 aircraft missing, at least 17 were lost to fighters and 19 to flak. Most of these losses occurred over Holland and N.W. Germany, but one aircraft was shot down by flak from a ship off the Dutch coast, 7 by flak and 1 by fighters over Dusseldorf, and one by flak over Munster. Of the 7 remaining missing aircraft, one came down in the sea 20 miles off Mandelaisy. Nothing is known of the fate of the others. In addition to aircraft damaged by enemy action, 2 were reported damaged by British incendiary bombs and 4 by M.G. fire from British planes, while one was shot down by a British Convoy, 6 of the crew being rescued. Landing accidents destroyed two more aircraft.

..../MUNSTER

MUNSTERPeriod of Attack

21. Zero hour: 0200 hours. Period of Attack: 0200-0203 hours.

Briefed route: 52°23'N 01°43'E - 51°23'N 05°00'E - 51°57'N 06°20'E - Munster - turn right - 51°50'N 05°20'E - 52°40'N 03°30'E.

At 0200 hours, the aiming point was to be marked with yellow T.I's dropped by 22 aircraft ("blind illuminators") and 10 seconds later on the same heading, these aircraft were to release sticks of flares in bundles at 5-second intervals. At 0202 hours, 11 "visual markers" after positive identification of the aiming point in the light of flares, were to drop red T.I's on it.

At 0203 hours, crews of the main force might identify the aiming point visually, or were to aim their bombs at the estimated centre of all the red T.I's. As a last resort they could aim to overshoot by 2 seconds the centre of all yellow T.I's seen. Crews of Y aircraft were to bomb blindly on H2B.

Bombs Loads

22. Blind Illuminators:

Stirlings:	5 T.I. yellow (3 LB) + 4 (3 flares white) + 2 x 2000 lb. H.C. + 2 x 500 lb. I.C.
Halifaxes:	5 T.I. yellow (3LB) + 4(4 flares white) + 6 x 1000 lb. G.P. or H.C.
Lancasters:	5 T.I. yellow(3LB) + 4 (4 flares white) + 1 x 4000 lb. H.C. + 3 x 1000 lb. H.C.

Visual Markers:

Stirlings:	4 T.I. red (2LB) + 5 x 1000 lb. H.C.
Halifaxes:	4 T.I. red (2LB) + 6 x 1000 lb. H.C.
Lancasters:	4 T.I. red (2LB) + 1 x 4000 lb. H.C. + 4 x 1000 lb. H.C. + 2 x 500 lb. H.C.

Main Force

Stirlings:	2 x 500 lb. H.C. + 160 x 30 lb. I.B.
Halifaxes:	1 x 2000 lb. H.C. + 2 x 1000 lb. G.P. + 88 x 30 lb. I.B.
Lancasters:	1 x 4000 lb. H.C. + 96 x 30 lb. I.B.

(I.B. = long burning)

Sorties

23. x No. of aircraft despatched.....72
 " reporting attack on prin. area.....60(83.4%)
 " abortive sorties (technical and manipulative defects.....4)..... 7(6.9%)
 (weather.....3)
 " aircraft missing..... 5(6.9%)

Weather Experienced

24. Home bases and route:- as for Dusseldorf.

.../Target

Target:- Occasional patches of 7-10/10ths cloud, tops 12,000 ft. towards end of attack. Otherwise small amounts of cloud with moderate visibility. Half moon.

Night Photographic Statistics

25.	No. of photographs with bombing examined.....	58
"	showing ground detail { plotted within 3 miles..31	}..40
"	" " outside 3 miles. 3) (unplotted..... 6)	
"	showing fire tracks (unplotted).....	18
"	aircraft reporting attack.....	60
"	estimated from the photographic evidence, to have bombed within 3 miles of the aiming point.....	43

Narrative of Attack

26. The target was ground-marked and illuminated by 13 Y type aircraft bombing blind, followed by 8 visual markers; the blind-markers attacked within 4 minutes of zero hour, and the visual markers within 5 minutes of 0202 (time scheduled). Both green and red T.I.'s were accurately placed, and the target was so well illuminated that no difficulty was found in identifying the aiming point. The whole effort, which lasted only 9 minutes, was well concentrated, about 80% of the aircraft reporting attack bombing within the 3 mile circle. For so small a number of aircraft the damage caused was considerable.

Daylight Reconnaissance

27. The whole of the town and most of the surrounding districts were covered on prints which are marred in the main area of damage by smoke from burning buildings.

Considerable damage was revealed, almost entirely in the area near the main passenger and goods stations, stretching from the centre of the town to the port and industrial area to the south-east. 4 unidentified industrial premises sustained damage, and about 20 commercial buildings, including the Halle Munsterland and Peters warehouse, in the canal harbour area were destroyed or are still burning. Severe damage to railway property included hits on platforms and railway tracks in the main passenger station, and the partial destruction of the main building of the goods station, which was still burning at the time of photography. Railway repair shops were also damaged. One gas holder was severely damaged and 4 buildings of the town gasworks were affected.

Damage to residential and business property included 29 buildings destroyed and 10 severely damaged.

Alternative Targets

28. No alternative target was attacked.

Special Equipment

29. Gos See para. 15.

30. H2S

A total of 47 Y-type aircraft were despatched, 22 as blind-markers, 9 as visual markers and 16 to bomb with the main force. Only one aircraft
.../returned

turned early owing to unserviceable equipment, but 6 reported difficulties with H2S over the target. . . . 4 of these were blind-markers, but the illumination of the target was so efficient that visual identification of the aiming point was possible. . . . 6 Y-aircraft returned early owing to icing or mechanical effects, and 4 were missing. . . .

Air Defences

1. Flak and Searchlights

The defences of Munster appear to have been similar to those at Dusseldorf, with searchlights operating in cones up to 25 beams, and barrage flak. One aircraft was shot down by flak, over the target, while 2 sustained flak damage. . . .

2. Fighters

See para. 19.

Casualties

33. See para. 20.

Duisburg and Cologne

34. 3 Mosquitoes were despatched to attack Duisburg and 2 to Cologne. One Duisburg sortie was abortive, owing to the illness of one of the crew. All the other aircraft bombed from very high level; 3 fires were seen to start in Cologne, but no other results were observed. No opposition was encountered, and all the Mosquitoes returned safely.

Leaflets

35. Training Groups despatched 23 aircraft to drop leaflets; 5 to Orleans, 8 to Nantes, 7 to Caen and 3 to Le Mans. 20 aircraft completed the task successfully, and one other released its leaflets near Bayval, owing to lack of oxygen. One Le Mans sortie was abortive owing to a technical defect, and the remaining aircraft (on Nantes) was missing without trace. Flak from Bayeux damaged one Wellington, and 3 interceptions were reported, from which no combats developed.

APPENDIX

DUSSELDORF

Timing of Attack

I. (a) Pathfinder Force

(i) 6 Mosquitoes attacked at 0116, 0130, 0138, 0146, 0151 and 0205 hours.

(ii) 29 Backers-up attacked at 0120x, 0127(2x), 0128x, 0131x, 0132x, 0134, 0136(2x), 0139(2x), 0142, 0143x, 0144, 0147, 0149(2), 0151(2x), 0154, 0158x, 0159(2), 0203x, 0206, 0207x, 0212, 0213 (2x), plus one at an unstated time.

x T.I's not dropped.

...../(b) Main Force

(b) Main Force

Attacked 2 minutes early.....	1
" between 0120 and 0124.....	27
" " 0125 and 0129.....	52
" " 0130 and 0134.....	70
" " 0135 and 0139.....	69
" " 0140 and 0144.....	54
" " 0145 and 0149.....	50
" " 0150 and 0154.....	71
" " 0155 and 0159.....	46
" " 0200 and 0204.....	45
" " 0205 and 0209.....	56
" " 0210 and 0214.....	43
" " 0215 and 0219.....	31
" 1 to 5 minutes late.....	4
	<u>619</u>

Bomb Load CarriedII. (a) Pathfinder Force

T.I. + flares.....	6
T.I. + H.E.....	30

(b) Main Force

H.E. + 30 lb. inc. + 4 lb. inc.....	372
H.E. + 30 lb. inc.....	75
H.E. + 4 lb. inc.....	85
H.E. only.....	31
30 lb. inc. + 4 lb. inc.....	56
	<u>619</u>

MUNSTERTiming of AttackIII. (a) Pathfinder Force

(i) 12 blind-markers attacked at 0159(3), 0200(6), 0201(2), 0202	
1 " " " 0204, flares not dropped	
2 " " " 0200, 0202, T.I.'s not dropped	
2 " " " 0202, 0204, T.I.'s and flares not dropped	

(ii) 8 visual markers attacked at 0201, 0203, 0204(2), 0207.	
1 " " " 0202, T.I.'s not dropped	

(b) Main Force

34 aircraft attacked at 0201(2), 0202(3), 0203(14), 0204(8), 0205(4), 0206, 0207, 0208.

Bomb Loads CarriedIV. (a) Pathfinder Force

T.I. + flares + H.E.....	17
T.I. + H.E.....	9

(b) Main Force

H.E. + 30 lb. inc.....	34
------------------------	----

EMO/VP.

BC/S. 26342/2/CRS.

15th August, 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 R/A	att-acked	not attacked	Tons of Bombs	H.E.	Inc.
DUSSELDORF	P.F.F.	Mosq. IV	13	5	-	2	5	-	-	-	-	-	-	-	(P) 1018.8	1001.0
		Hal. II-LA	1	2	1	-	-	1	-	1AC	-	1	-	-	(A) 7.6	6.1
		Hal. IIZ	5	5	-	-	-	-	1	-	-	-	3	-	(H) 44.6	37.0
		Lano. I	8	8	-	-	-	-	1	-	-	-	-	-	-	-
		Lano. III	15	15	-	-	-	-	1	-	-	-	1	-	-	-
		Lano. I	43	38	-	-	6	5	5	-	-	-	1	5	-	-
	1	Lano. III	85	71	1	-	9	4	2+1AC	-	-	2	10	-	(P) 10	289
		Well. X	50	37	-	-	12	1	2+1AC	-	-	-	6	-	(A) -	1
		Lano. I	13	11	-	-	1	1	-	-	-	-	-	-	(H) 1	13
	3	Stir. I	18	15	1	-	2	-	1	-	-	1	1	-	-	-
		Stir. III	81	71	1	-	7	2	11	-	-	2	1	7	-	-
		Hal. II-L	32	27	-	-	2	3	0	-	1B+1B	-	3	5	-	-
	4	Hal. VE	110	91	1	-	12	6	19+1AC+1B	-	-	-	5	-	-	-
		Well. X	44	37	-	-	3	4	3	-	2B	-	1	-	-	-
	5	Lano. I	54	49	-	-	2	3	6	1AC	-	2	1	5	-	-
		Lano. III	108	98	-	-	3	6	1	11	-	-	2	12	-	-
	6	Hal. IIZ	51	41	-	-	0	2	4+1B	-	-	-	1	5	-	-
		Well. X	49	39	-	-	5	5	2+1AC	-	-	-	1	3	-	-
	DUSSELDORF	TOTAL		783	655	5	5	80	38	77+4AC+2B	2AC	3B+1B+4	11	60		

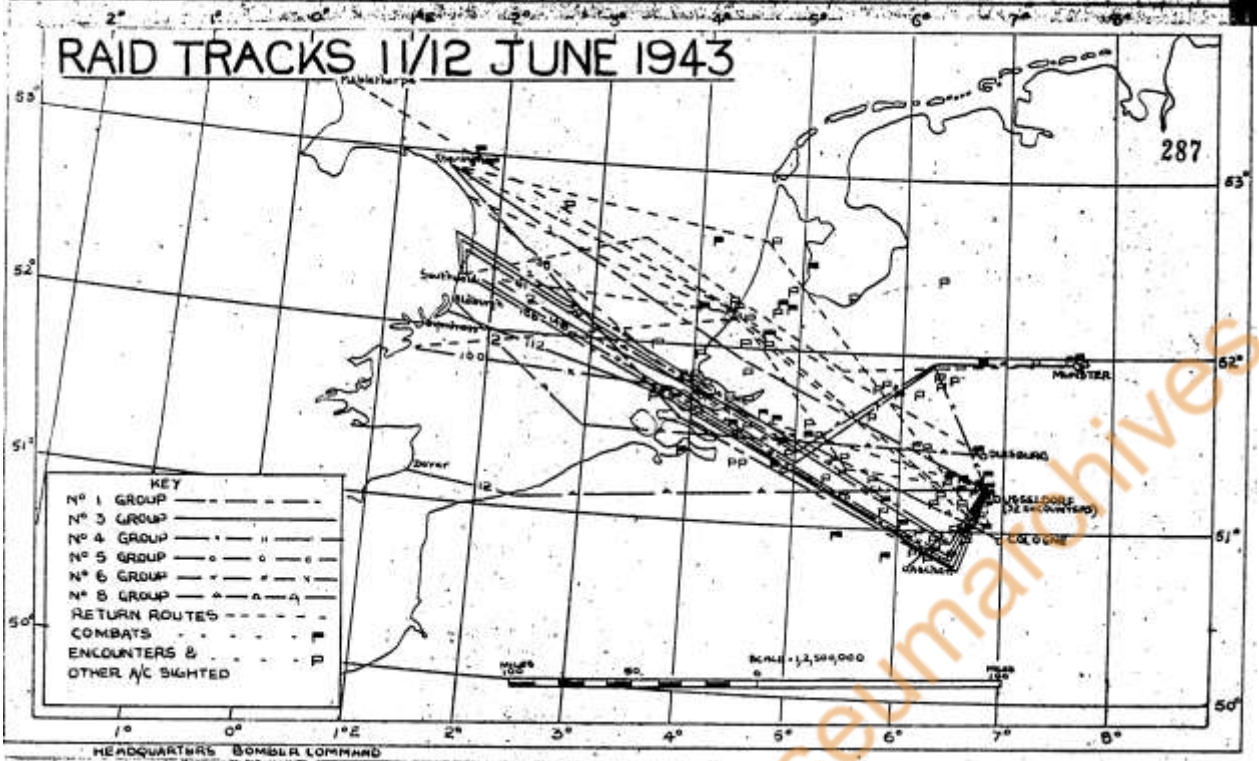
...../Contd.

...../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 R/A	att-acked	not attacked	Tons of Bombs	H.E.	Inc.
DUSSELDORF	TOTAL		783	655	5	5	80	38	77+4AC+2B	2AC	3B+1B+4	11	60	(P) 1018.8	1001.0
COLOGNE	P.F.F.	Mosq. IV	2	2	-	-	-	-	-	-	-	-	-	(A) -	-
DUISBURG	P.F.F.	Mosq. IV	3	2	-	1	-	-	-	-	-	-	-	(H) -	-
MINISTER	P.F.F.	Stir. I	11	9	-	-	1	1	-	-	1AC	1	1	(P) 116.7	66.8
		Lano. I	1	1	-	-	-	1	1	1AC	-	1	2	(A) -	-
		Lano. III	10	9	-	-	-	1	1	-	-	-	-	(H) 10.7	3.5
		Hal. IIZ	8	6	-	-	1	1	-	-	-	-	-	-	-
		Hal. II-LA	3	1	-	-	2	-	-	-	-	-	-	-	-
		Stir. I	10	10	-	-	-	1	1	-	-	-	-	-	-
	B	Lano. I	4	3	-	-	-	1	-	-	-	-	-	-	-
		Lano. III	14	13	-	-	1	-	-	-	-	-	5	5	(P) -	25
MINISTER	TOTAL		72	60	-	-	5	2	1AC	1AC	2	8			
		BOHNING	TOTAL	860	719	5	6	87	43	79+4AC+2B	3AC	3B+1B+1AC+4	13	77	
LEAFLETS	91	Whit. V	1	1	-	-	-	-	-	-	-	-	-	-	-
ORLEANS	92	Well. III	4	4	-	-	-	-	-	-	-	-	2	-	-
LEZENS	93	Well. Ic	3	2	-	1	-	-	-	-	-	-	-	-	-
MANZES	93	Well. III	6	4	1	-	1	1	-	-	-	-	1	-	-
LARN	93	Well. X	3	2	-	-	-	-	-	-	-	-	-	-	-
		Whit. V	7	7	-	-	-	-	-	-	-	-	-	-	-
LEAFLETS	TOTAL		23	20	1	1	1	1	-	-	-	3			
T O T A L			883	739	6	6	88	44	80+4AC+2B	3AC	3B+1B+1AC+4	13	80		

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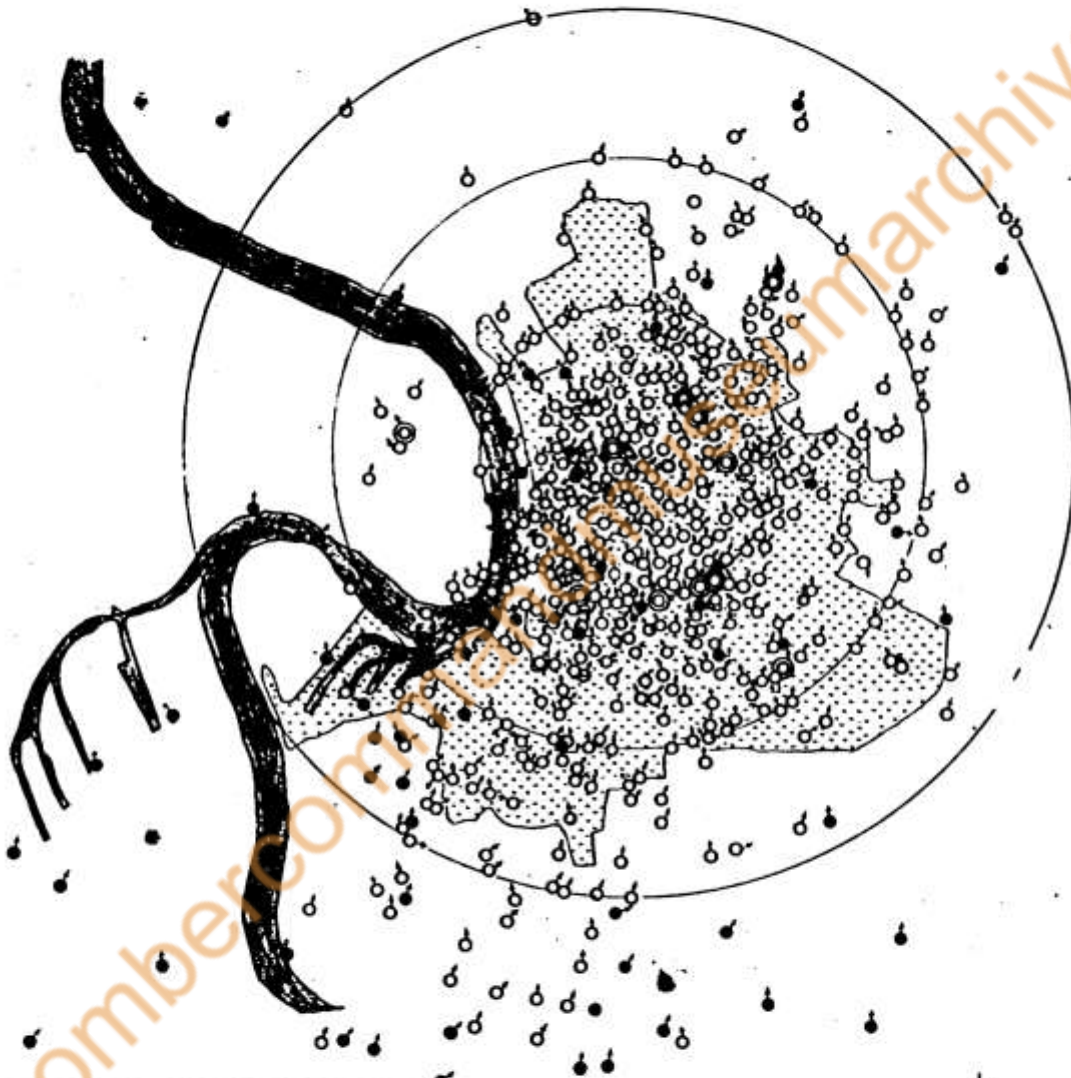
RAID TRACKS 11/12 JUNE 1943



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FINAL PLOT OF NIGHT PHOTOGRAPHS TAKEN 11/12th JUNE 1943. TARGET DUSSELDORF

285



Photographs taken with Bombing		
	PIF Marker A/C	Plainfont A/C
Plotted by Ground Detail	⊙	⊙
Plotted by fires	⊙	⊙
PLOTTED	By Ground Detail	By Fires
Within 3 miles	46	411
Outside 3 miles	28	22
UNPLOTTED	11	36
No: of prints (with bombing) examined		554

Aircraft has been plotted outside the area covered by this map

SECRET

Scale: 1 inch = 1 mile

...ORS BC 313A
Date 10 8 43 - Jenson, L 50
Ref N/C 344 Chkd LCC

BOEMER COMMAND REPORT ON NIGHT OPERATIONS 12/13th JUNE, 1943.BOEMER: Minelaying.SUMMARY

1. Bochum 430 heavy aircraft, out of a force of 503, effectively attacked Bochum, despite a quantity of layer cloud and the dropping of a salvo of red T.I's 14 miles from the aiming point. Much destruction was caused in the centre of the town, where 130 acres were devastated and 9 industries (3 of the first priority) sustained considerable damage. Military installations and transport facilities also suffered. 24 aircraft failed to return and 5 enemy fighters were destroyed.
2. Minelaying 30 aircraft, out of a force of 34, laid 59 mines off the Frisians and the French Atlantic coast. All returned undamaged.

Meteorological Forecast

3. Midnight frontal positions:- (1) occlusion from 60°N. 16°E. to 55°N. 14°E. to Frankfurt (2) occlusion from 60°N. 12½°E. to 55°N. 12°E. to Hanover, becoming warm to 48°N. 07°E. and cold to 49°N. 05°E. to La Pallice.

Bases:- Fit all night, with skies clearing at dusk and visibility always more than 2 miles.

Germany:- North Sea and N.W. coastal strip: broken convection cloud, good visibility. Good clearances between coast and front over N. Germany. Cloud to great heights in frontal zone, with icing above to 10,000'. S. and S.E. of frontal zone: residual cloud with local thunderstorms. Ruhr: probably cloudless by 0100, at worst 8-10/10ths layer cloud, tops 8-9,000' with broken strato-cumulus at 14,000'. Cloud should definitely break by 0200 to small amounts. Visibility good. Little cloud en route, base not below 2,000'.

W. France:- Convection cloud, becoming well broken S. of La Pallice.

Winds:- 750 mb. 500mb. 350mb.

Bases, N. of Bristol to Humber:	250°/40m.p.h.	260°/50-55m.p.h.	260°/80m.p.h.
" S. " " " " :	"	" /60-65m.p.h.	" /95m.p.h.
01° E. to Den Helder :	-	" /75m.p.h.	" /115m.p.h.
Den Helder to Ruhr :	260°/35m.p.h.	" /50m.p.h.	280°/60-65m.p.h.

BOCHUMPlan of Attack

4. Zero hour: 0115 hours. Period of Attack: 0111-0154 hours.

The first two Oboe Mosquitoes only were to drop yellow T.I's as warning markers, 16 miles short of the aiming point on track, at 51°42'N. 07°12'E. The aiming point was to be marked by 9 Mosquitoes, each dropping 3 red T.I's in salvo between 0111 and 0150 hours. This marking was to be backed up by 25 aircraft aiming green T.I's to overshoot, by 3 seconds, red if visible, but otherwise the centre of all greens seen. Before 0125, one of the T.I's dropped by each Mosquito and each backed up was to burst at 6,000': after 0125 hours one was to burst at 10,000'. All other T.I's were to burst at 3,000'.

...../The main

The main force, consisting of Lancasters and Halifaxes carrying mixed loads, was to be divided into 8 sections, with Lancasters opening and ending the attack, and with the best crews in the first two waves. All crews were ordered to fly at maximum height on the return journey, after leaving the target area as quickly as possible, in order to reduce the effectiveness of controlled fighters.

Timing

5. Mosquitoes*	Backers-up	Main Force
0111 & 0115	-	Sect.1 Lancasters 0115-0118
-	2 at 0116	-
-	2 at 0117	-
-	2 at 1 min.intervals 0118-19	-
0120	-	Sect.2 Lancasters 0120-0124
-	4 at 1 min.intervals 0121-24	-
0125	-	Sect.3 Lancasters 0125-0129
-	2 at 1 min.intervals 0126-27	-
-	1 at 0129	-
0130	-	Sect.4 Halifaxes 0130-0134
-	2 at 1 min.intervals 0131-32	-
-	1 at 0134	-
0135	-	Sect.5 Halifaxes 0135-0139
-	2 at 1 min.intervals 0136-37	-
-	1 at 0139	-
0140	-	Sect.6 Lancaster & Halifaxes 0140-0144
-	2 at 1 min.intervals 0141-42	-
-	1 at 0144	-
0145	-	Sect.7 Lancasters 0145-0149
-	2 at 1 min.intervals 0146-47	-
-	1 at 0149	-
0150	-	Sect.8 Lancasters 0150-0154

* Plus 2 reserves.

Bomb Loads - (Markers)

6. 2 Mosquitoes: 1 T.I. yellow (LB) + 3 T.I. red (1 LB)
 9 Mosquitoes: 4 T.I. red (2 LB)
 16 Lancasters: 4 T.I. green (1 LB, 1LD) + 1 x 4000 HC + 4 x 1000 GP + 4 x 500 MC
 9 Lancasters: 4 T.I. green (1 LB) + 1 x 4000 HC + 4 x 1000 GP + 4 x 500
- (L.B. = long burning. L.D. = long delay: 5 minutes)

Route Briefed

7. All Groups: N. of Texel - 52°00'N. 07°11'E. - BOCHUM - turn left - 52°10'N. 07°30'E. - N. of Texel.

Sorties

8. (a) No. of aircraft despatched..... 503
 (b) " " " reporting attack on primary area..... 430
 (c) " " " " " alternative area..... 61
 (d) " " abortive sorties (technical or manipulative defect..... 35)
 (sickness of crew..... 4)
 (equipment left behind..... 1) .. 43
 (attacked by fighter..... 1)
 (reserve marker -not required.. 1)
 (T.I.'s wrongly dropped..... 1)
 (e) " " aircraft missing..... 24
- * (This aircraft also attacked the primary)./Weather Exp

Weather Experienced

Bases:- Fit all night.

Route:- Little cloud, increasing towards target. Moderate visibility.

Half moon. Surface wind: light W.N.W.

Wind at 18,000': 260°/45 n.p.h.

Wind at 23,000': 260°/60 n.p.h.

Flight Photographic Statistics

Of 400 photographs returned, only 26 showed traces of ground detail, and only half of these could be plotted. Most of the remainder recorded scattered incendiary and fire-tracks beneath haze and thin cloud, without any evidence of concentrated fires. No plot has been issued in view of the inadequacy of the sample.

Narrative of Attack

The first 2 Mosquitoes dropped their yellow T.I's on track 16 miles short of the target at zero - 3½ and zero - 3, and 4 minutes later marked the aiming-point with red T.I's. These primary markers were photographed on the aiming-point at zero + 3 by a main force aircraft. The marking was renewed at zero + 11½, zero + 19, zero + 23, zero + 38 and zero + 41, so that except for a gap of 6 minutes from zero + 32 to zero + 38, the aiming-point was continuously illuminated by red T.I's. No P.P.P. photos were plotted, so that, apart from the above-mentioned instance, there is no positive evidence of the accuracy of the marking.

At zero + 25, a most unusual incident occurred. A salvo of red T.I's was dropped in error by a Mosquito about 14 miles N.N.E. of the aiming-point. 2 minutes later, these were backed up with green T.I's and about 50 aircraft contributed to this diversion. Nevertheless 75% of the backers-up and 65% of the main force bobbed the correct concentration of markers; but from the start there was serious undershooting, and by zero + 12, the attack had drifted back 6 to 9 miles. This was due partly to an unexpectedly strong cross-wind, which would have blown aircraft on a curved course, and partly perhaps to dummy T.I's.

Flight Reconnaissance

Heavy destruction was revealed in the centre of the town, and to the E and S of industrial establishments, 3 of them of the first priority, were affected by the attack. Very severe devastation was caused in the Eisen-und Hüttenwerke A.G., manufacturers of sheet metal and steels, where a number of important buildings were put out of action. Residential and business properties suffered widespread damage, especially in the centre of the city, where 130 acres were laid waste and 700 buildings rendered uninhabitable. More than 14,000 square yards of the upper storeys of barrack buildings at a large new military camp N.W. of Kornharpen were destroyed, and several relevant buildings destroyed or severely damaged. The Bahnhof Nord (station buildings) were gutted, and nearby sheds demolished. A large railway depot suffered heavily from H.E. blast, and several adjacent subsidiary buildings were partly destroyed.

Damage Assessment

It is estimated that:-

- (i) 134 tons of bombs fell on the built up area of the target.
- (ii) 3.18 million sq. feet of the target were visibly damaged.
- (iii) 6,000 housing units were rendered uninhabitable.
- (iv) 21,000 people were unhoused.
- (v) 400 people were killed.
- (vi) 400 people were seriously injured.

.... / Special Equipment.

Special Equipment

14. (a) Oboe 11 Oboe Mosquitos (including 2 reserves) were despatched. 7 marked the target according to plan, and 3 returned early (one reserve which was not required, and 2 for technical reasons). Owing to an error in setting up the ground station, one aircraft dropped T.I's 14 miles N.N.E. of the aiming point. All Oboe aircraft returned safely.

15. (b) Gee The Eastern chain operated on the Virginia frequency throughout the raid. No separate target frequency was used, owing to work on the transmitters. Jamming was intense at Texel, and could be felt at about 2° E. The average range obtained on the outward journey was 230 miles and on the way home 240 miles, while the maximum range recorded was 340 miles. A comparison of these ranges with those obtained on this route before the introduction of a separate target frequency show that there has been a definite improvement in the ability of navigators to read through jamming.

Alternative Targets

16. 7 aircraft (including one which had already visited the primary) attacked alternative targets, in the areas of Rheine, Essen, Dorsten, Ahlms, Bochum (2) and Herne.

Enemy Defences

17. (a) Flak and Searchlights Flak was first encountered from the islands of Texel, Vlieland and Terschelling and, to a small extent, from the towns of Zwolle and Hengelo. Heavier opposition was met at Munster and Dulmen, where predicted heavy flak was accurate and intense, co-operating at Munster with 90 searchlights. Increased cloud over the target area hampered the effective use of searchlights which were mostly situated in a belt to the N. and W. of the town, but heavy flak (both predicted and barrage) was reported as unusually intense. Severe opposition was also encountered at Essen, Dortmund and Gladbeck.

43 returning aircraft were damaged by flak, including 35 (10.7%) of the Lancasters and 8 (4.8%) of the Halifaxes.

18. (b) Fighters Intercepted wireless traffic revealed the presence of 14 patrols in the area of operations. The greatest activity was apparently over the Zuyder Zee, by aircraft based on Bergen/Alkmaar. 24 pursuits were undertaken, and 8 definite and 3 doubtful victories were claimed. 4 of these were confirmed by our crews.

Returning bombers reported 74 interceptions, including 16 attacks. Half of all these occurred on the return journey, and quarter each on the outward journey and in the target area. Bright moonlight and good visibility assisted the fighters, 5 of which were claimed as destroyed, (2 Ju.88's, 2 He.109's, and one unidentified single-engined aircraft). All these claims were substantiated by other crews. Only 4 of the bombers reported fighter damage.

Casualties

19.	No. of aircraft missing.....	24 (4.8%)
	" " " damaged (a) flak.....	43
	(b) fighters.....	4
	(c) other causes.....	2
		49

22 of our losses were observed by British crews. 6 were probably lost to flak (2 outbound over Enschede and Munster, 3 in the target area and one homebound over Munster), and at least 11 to fighters (4 outbound, 2 in the target area, 3 homebound and 2 of doubtful location). The remaining 5 aircraft were seen to go down over the target, 2 collided, but the cause of the other 3 losses is unknown. The loss rate of 4.8% is about average for the Ruhr in good weather conditions.

..../Minclaying.

MINELAYING

34 Wellingtons of 1, 4 and 6 Groups were detailed to lay mines off the coasts of the British and the French Atlantic coast. In good weather conditions, with little wind and bright moonlight, 30 reached their targets, laying 59 mines. The other 4 were grounded for technical reasons. One aircraft was attacked by a fighter in the British area, but took successful evasive action, and all our aircraft returned safely.

APPENDIXTiming of AttackPathfinder Force

7 Mosquitoes attacked, at: 0115½, 0116, 0126½, 0134, 0138, 0153, and 0156.

24 backers-up attacked, at: 0120(2), 0121, 0122, 0123, 0124, 0127, 0129(2), 0130(2), 0132, 0133, 0135, 0136 (2), 0137, 0138, 0143(3), 0144, 0148, and 0154.

= 31 aircraft

Main Force

132 aircraft attacked from 0115 - 0130

116 " " " 0130 - 0140

149 " " " 0140 - 0200

2 " " after 0200

399 aircraft.

Loads

(of aircraft reporting attack)

Pathfinder Force

7 Mosquitoes carried T.I. only

24 backers-up " T.I. + H.E.

31 aircraft.

Main Force

231 aircraft carried H.E. + 40lb. + 30-lb. incendiaries.

86 " " H.E. + 30-lb. incendiaries

82 " " H.E. + 40lb. incendiaries.

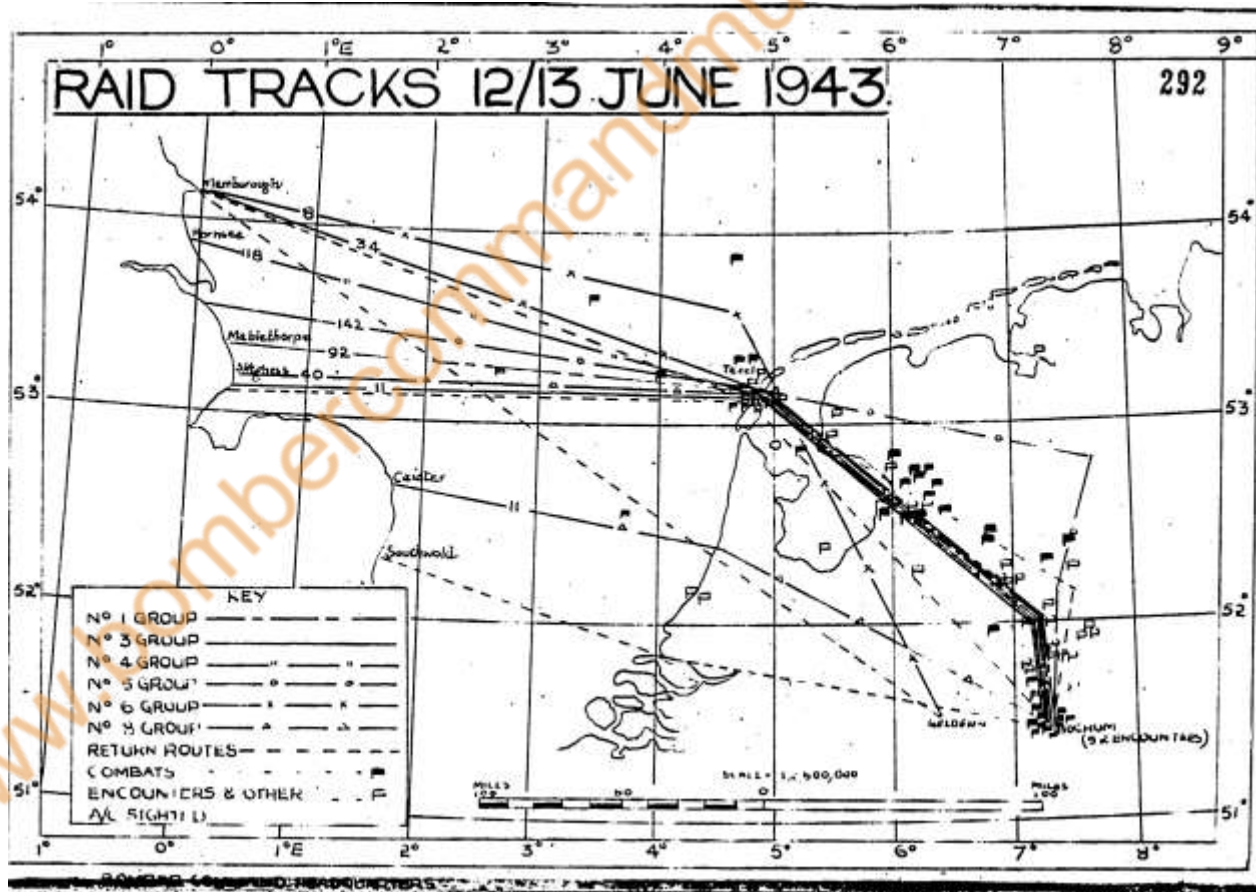
299 aircraft.

J.
2632/1/ORS.
August, 1943.

THEATRE	GROUP	TYPE	COORDS	ATTACK ON				MISSING	Damage			UNDESIRABLES		RESULTS			
				PRIM. AREA	ALT. AREA	OVER ENERGY TESS.	NOT OVER ENERGY TESS.		FLAK	FIGHTER	NOT ENEMY ACTION	ATTACK-ED	NOT ATTACK-ED	Tons of bombs	H.E. Inc.		
BOCHUM	8 P.F.F.	Moq. IV	11	7	-	4	-	-	-	-	-	-	-	-	P. 827.8	679.0	
		Lanc. I.	8	7	-	-	-	1	-	-	-	-	-	-	1	10.6	10.1
		Lanc. III	17	17	1*	-	-	-	2	-	-	-	-	-	9	50.0	39.1
	8 MAIN FORCE	Hal. II, III, V2	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hal. L.	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
		Lanc. I	4	3	1	-	-	-	-	-	-	-	1	-	-	-	-
	1	Lanc. I	35	27	-	1	3	2	2	1,0	1,0	2	2	2	2	8000	4000
		Lanc. III	72	66	1	-	-	-	7	-	-	2	10	10	P. 8	273	
	3	Lanc. II	13	10	-	-	2	1	-	-	-	-	-	-	1	-	3
		Hal. II, III, V2	52	77	1	1	0	5	6	1,0	-	2	7	7	-	-	14
5	Hal. L.	26	23	1	-	-	2	1	-	1,0	2	2	2	-	-	-	
	Lanc. I	65	57	-	1	7	-	9	1	-	2	5	5	2	2	2	
6	Lanc. III	100	84	1	-	9	6	6	1,0	1	-	2	15	15	15	15	
	II, Hal. I, III, V2	37	28	1	-	5	3	1	-	-	-	3	5	5	5	5	
BOCHUM TOTAL			503	430	6+1*	7	36	24	42+ 1,0	2,0 +2	2,0	16	58	-	-	-	-
MINELAYING	1	Well. X	10	10	-	-	-	-	-	-	-	1	-	-	20	20	20
		Well. X	8	4	-	-	4	-	-	-	-	-	-	-	8	8	8
ST. M. L. IRE	4	Well. X	8	8	-	-	-	-	-	-	-	-	-	16	16	16	
LORIENT	4	Well. X	8	8	-	-	-	-	-	-	-	-	-	15	15	15	
MINELAYING TOTAL			34	30	-	-	4	-	-	-	-	1	-	-	59	59	59
TOTAL			537	460	6+1*	7	40	24	42+ 1,0	2,0 +2	2,0	17	58	-	-	-	-

* This aircraft also attacked Primary

291



BOMB PLOTS NOT PRODUCED FOR THIS RAID

COPY NO. 16

MEMBER COMMAND REPORT ON NIGHT OPERATIONS, 13/14th JUNE, 1943.BERLIN: Dusseldorf: Cologne: Minelaying: LeafletsSUMMARY

Berlin: Dusseldorf: Cologne 6 Mosquitoes were despatched on a harassing night raid on Berlin, 4 to Dusseldorf and 3 to Cologne. 11 attacked their targets. Good observed results. All returned safely.

Minelaying 24 aircraft, out of a force of 30, laid 65 mines off the Atlantic coast. One aircraft was lost.

Leaflets 6 aircraft, out of a force of 8, dispersed leaflets over Paris without loss.

Metological Forecast

Frontal positions: occlusion from Danzig to Breslau to Lyons.

Weather: - Fine all night, apart from isolated showers, with dispersing clouds. Moderate to good visibility.

Germany: - W. of the occlusion, residual convection and layer cloud will persist to small amounts after midnight, though drifting patches of strato-cumulus may persist, especially over N. W. coastal strip. Ruhr: probably less clouds. Berlin: small amounts of strato-cumulus.

France: - Broken cloud in N., decreasing southwards to small amounts. Good visibility. Wind at 15,000', 250°/50 m.p.h., increasing considerably at lower heights.

	<u>Bombing</u>	<u>Minelaying</u>	<u>Leaflets</u>
1) No. of aircraft despatched.....	13	30	8
2) " " " " reaching primary.....	11	24	6
3) " " abortive sorties (technical defect....2)	2	2) 5	2) 2
(weather.....0)		3) 1	0
4) " " aircraft missing.....	0	1	0

Experienced

Weather: - Fine all night, apart from scattered showers in S.

Berlin: - 10/10ths cloud, tops 18,000'. Three-quarters moon. Excellent visibility.

Dusseldorf-Cologne: - 10/10ths cloud, tops 15-18,000'. Three-quarters moon. Excellent visibility.

Route to W. France: - Scattered showers over England and Channel. 10/10ths. Layer cloud, with convection protruding, some tops above 13,000'. No rain S. of 50°N. Heavy rime in cloud.

..../Brest:-

Brest:- Frequent showers. Cloud broken at times, base 2,000'.

Lorient:- 10/10ths. layer cloud, base 4000'. Rain.

La Pallice and S'wards:- Small amounts of convection, base 3-4,000'.
Good visibility.

Paris-Lille:- 10/10ths light stratus, tops 21,000'.

Enemy Defences

7. Moderate to intense heavy flak was experienced over Munchen-Gladbach, Cologne and Dusseldorf at 28,000', accurately predicted as well as barrage. Opposition at Berlin was very slight, although 4 Mosquitoes sustained slight damage. No flak opposition was reported over France.

58 sorties by controlled fighters were overheard, 12 of which were active against British aircraft. No claims were heard, and no interceptions were reported apart from 3 approaches.

Casualties

8. One minelayer did not return from Lorient. There is no evidence of how or where it was lost.

HLM/JT.

BC/S. 26342/1/ORS.

22nd. August, 1943.

TARGET	GROUP	TYPE	SORTIES	% REPORTING ATTACK ON		ADVERSIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS H.E. Inc
				PRIM. ..RE.	ALT. ..REA.	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	PIUMTER	NOT ENEMY TERR.	ATTACK- ED	NOT ATTACK- ED	
BERLIN	8 P.F.F.	Mosq.IV	6	5	-	-	1	-	2	-	-	-	-	BERLIN (P) 3.9 -
DUSSELDORF	8 P.F.F.	Mosq.IV	4	3	-	-	1	-	1	-	-	-	1	DUSSELDORF (P) 2.3 -
COLOGNE	8 P.F.F.	Mosq.IV	3	3	-	-	-	-	1	-	-	-	-	COLOGNE (P) 2.3 -
BOMBING TOTAL			13	11	-	-	2	-	4	-	-	-	1	P = on Primary
MINELAYING														
LORIENT	1	Well.X	6	4	-	-	1	1	-	-	-	-	-	8 mines
ST. NAZAIRE	1	Well.X	6	3	-	-	3	-	-	-	-	-	-	6 mines
LA PALLICE	3	Stir.III	6	5	-	-	1	-	-	-	-	-	-	16 mines
CHERBOURG	3	Stir.I	2	2	-	-	-	-	-	-	-	-	-	8 mines
		Stir.III	4	4	-	-	-	-	-	-	-	-	-	15 mines
BREST	6	Well.X	6	6	-	-	-	-	-	-	-	-	-	12 mines
MINELAYING TOTAL			30	24	-	-	5	1	-	-	-	-	-	65 mines
LEAFLETS														
PARIS	93	Well.III	2	1	-	1	-	-	-	-	-	-	-	
LILLE	93	Well.Ic.	4	3	-	-	1	-	-	-	-	-	1	
		Well.V	2	2	-	-	-	-	-	-	-	-	1	
LEAFLET TOTAL			8	6	-	1	1	-	-	-	-	-	2	
TOTAL			51	41	-	1	8	1	4	-	-	-	3	

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

OBERHAUSEN : Cologne : Minelaying.

SUMMARY.

OBERHAUSEN

197 heavy bombers and 6 Mosquitoes were detailed against the manufacturing centre of Oberhausen. The target was partially obscured by cloud, but an accurate sky-marking attack was delivered, causing much damage to industrial concerns and devastating the centre of the town. 17 aircraft were lost. 4 enemy fighters were destroyed.

Cologne.

2 Mosquitoes carried out a harassing raid on Cologne without loss.

Minelaying

25 aircraft, out of a force of 29, laid 59 mines in the Bay of Biscay. One aircraft did not return.

Metereological Forecast

Bases:- Fit all night, with variable cumulus and cumulo-nimbus cloud at 1000' and good visibility except in showers. Rain may begin in the N. by 0400.

Germany:- 10/10ths medium and low cloud in N. and N.W., tops 20,000' with cumulo-nimbus cloud above, and outbreaks of thundery rain. The main mass of cloud should have moved N.E., of the Ruhr by midnight, leaving 6-9/10ths residual cumulus and cumulo-nimbus cloud in layers, with isolated tops to 10,000'. Good visibility. Route: fairly well-broken cumulus and cumulo-nimbus cloud, tops 20-25,000'. Drifting thunderstorms over North Sea.

Denmark and Kattegat:- Variable convection cloud, with showers.

W. France:- Much convection cloud, with showers.

Winds:- W. of 04°E.

E. of 04°E.

at 500 mb: 290°/25-30 m.p.h.

260°/40 m.p.h.

at 350 mb: 300°/35-40 m.p.h.

240°/95 m.p.h.

OBERHAUSEN.

Time of Attack.

Zero Hour:- 0115 hrs.

Period of Attack: 0115-0134 hrs.

At five minute intervals between 0115 and 0130 hrs., 4 Oboe Mosquitoes were to release point flares (red with green stars + one white flare for longer burning) at the centre of which crews of the main force were to aim their bombs heading of 028°M and at 165 m.p.h. I.S. with bombsights set for true heights of 10,000 ft and zero wind. The Lancasters, carrying mixed loads, were to attack in four waves (0115-19, 0120-24, 0125-29 and 0130-34 hrs). If no sky-markers were visible on arrival, crews were to bomb on E.T.

As an aid to navigation en route to the target, the Mosquitoes were to release steady flares at 51°07'N. 06°34'E., 28 miles short of the release-point. In warning of the sky-marking, green steady flares were to be released, 14½ miles from the target at 51°17'N. 06°42'E.

Two other

Two other Oboe Mosquitoes were detailed as reserves.

Flare Loads.

6. Each Mosquito was to carry 1 (3 flares red) + 1 (3 flares green) + 2 (3 flares red with green stars + 1 white flare).

All flares fused to ignite at 18,000'.

Routes

7. Base - 51°40'N. 03°30'E - 51°02'N. 06°30'E - Oberhausen - turn left - 51°50'N. 06°55'E - 52°45'N. 04°40'E - base.

Sorties

8.	(a)	No. of aircraft despatched.....	203	
	(b)	" " " reporting attack on primary area.....	146	(71.4%)
	(c)	" " " " alternative area.....	6	(2.9%)
	(d)	" " abortive sorties: { technical or manipulative defect. 29		
		{ icing..... 5	36	(17.7%)
		{ reserve markers(not required) 2		
	(e)	" " aircraft missing.....	17	(8.4%)

Weather Experienced

9. Bases:- Fit all night, apart from a few local showers.

Route:- Well broken cloud, tops below 14,000'; but 7-10/10ths over Dutch Coast, with occasional tops to 25,000' and lightning. Good visibility. Persistent contrails over England and North Sea between 15,000' and 21,000'.

Oberhausen:- 5-8/10ths cloud, tops generally 15,900', with occasional cumulus, tops to 25,000'. Good visibility. Intermittent contrails, ceasing above 24,000'. Half moon.

Wind at 20,000':- 270°/40 m.p.h.

at 25,000':- 260°/60 m.p.h.

Surface wind at target:- light W.S.W.

Night Photographic Statistics.

10. Only 9 photographs showed ground detail. 3 of these were plotted within 3 miles and 2 outside 3 miles. The remaining 4 are unplotted.

Narrative of Attack.

11. Each of the 4 Mosquitoes marked within two minutes of its appointed time so that except for a slight gap from zero + 3 to zero + 5½, owing to the first Mosquito being early, flares were burning over the aiming point from zero - 2 until zero + 19. Only 11 aircraft attacked during the gap, and 36 after the flare had died out, 15 of which claimed to have bombed on release-point flares suggesting that the enemy again fired up effective dummies. The timing of the main force was good, 123 out of 142 aircraft attacking within the planned period from zero to zero + 19.

Reconnaissance

12. Reconnaissance sorties flown on 18th and 20th June covered the whole of Oberhausen for the first time since 7th June 1942. The present report therefore deals with all damage caused in the intervening twelve months by various attacks on the neighbouring areas of Duisburg and Mülheim. Oberhausen itself had not

/..... previously

previously been the target for any major operation.

Damage is shown to have been heavy and well concentrated, especially in the central area of the town. In the important Gutehoffnungshutte Iron and Steel works (priority 1+), 5 buildings were affected, 3 of them seriously, while the shells of 2 cooling-towers were demolished. Deutsche Babcock und Wilcox, boiler makers (priority 1) suffered heavily, with several direct hits on the great main building and a number of smaller shops partially destroyed. The Concordia Bergbau A.G. coal-mine and by-products plant sustained severe damage to 13 buildings, 3 cooling-towers, the power-house and transport and conveyor facilities and was apparently inactive at the time of photography 3½ days after the attack. Other industries affected include factories for making chemicals, glass, zinc and tar, 2 more coal mines, the marshalling yards at Oberhausen and Osterfeld (priority 1), railway repair shops, the tram depot, the municipal electricity works, a gasholder and several warehouses. At least 7 direct hits were scored on railway tracks and a bridge carrying the branch line over a road in the eastern district was demolished and had already been cleared. The main post office, the Reichsbank and the Rathaus were severely damaged, several buildings belonging to hatted camps were gutted and nearly 1700 houses were destroyed or badly damaged. The most notable area of devastation, S. and W. of the Hauptbahnhof, covers 35 acres.

2 direct hits were also observed on the August Thyssen steelworks at Dillenburg.

Intelligence Information

A report from a secret source stated that output in the Babcock boiler-works was reduced by 30-35 per cent.

Special Equipment

(a) Oboe All 4 Oboe Mosquitoes attacked within 2 minutes of their planned times. The marking is believed to have been accurate, although there is no photographic confirmation. The 2 reserves reached the target, but were not required. All returned safely.

(b) GEE. The Eastern chain operated on the Virginia frequency throughout the raid and on the Zanesville (Target) frequency between 00.30 and 01.45 hours. Average range obtained on the outward route was 250 miles and on the homeward route 245 miles. Only one navigator got a fix to the target. This was due to the weakness of the A-signal on the target frequency, and partly to the increased amount of jamming on this frequency. The jamming was of the same type that reported on recent previous raids.

Alternative Targets

4 aircraft bombed alternative targets, 2 in the area of Oberhausen and one at Krefeld and Duisburg.

Air Defences

(a) Flak and Searchlights. The only defences operating outside the Ruhr on the night were at Antwerp, where heavy flak and 20 searchlights went into action against outbound raiders. In the Ruhr, intense predicted heavy flak supported by numerous searchlights was reported at Krefeld, Lusseldorf and Grevenbroich, as well as over Oberhausen itself, where the defences, though slow to open up, ceased throughout the first part of the attack. Barrage fire was also presently in action over the target; little light flak was observed.

37 aircraft, or 10% of the total force, were damaged by flak. No less than 10 of these were bombers of 5 Group, 27% out of a total of 103 for that group. The noticeably large percentages were probably due to the use of only one type of aircraft bombing from a narrow height band, and to the sky-marking technique which probably induced barrage fire round the markers.

18. (b) Fighters. Intercepted wireless traffic suggests that visibility and cloud level was sufficiently good for enemy fighters to obtain visual contact easily. This explains the comparative success of the few patrols operating. Of the 13 patrols active against the raid, 5 made 14 attempts to intercept but 5 victories were claimed, and a further 3 were indirectly reported.

48 interceptions were reported by returning bombers. 12 of these developed into attacks, and a further 11 into combats in which the bombers alone fired. There was one following. 52% of the interceptions were on outbound aircraft. This unusually large proportion was probably due to the routing, which brought the raiders back over areas where ground controlled fighters were less active.

4 of our bombers received damage in fighter attacks.

Casualties

19.	No. of aircraft missing.....	17 (3)
	" " " damaged (a) flak.....	37
	(b) fighters.....	43
	(c) other causes.....	2

Observations by crews suggest that 5 of the missing aircraft were shot down by flak and 9 by fighters. The flak losses were probably incurred at Antwerp, Oberhausen (2) and Amsterdam, and the fighter losses at Gilze, Weert and Roer (2) on the outward journey, Oberhausen area (3), and Emerich and Erkdenz on return. Our crews reported the destruction of 3 Ju.88's and one Me.110 and damage to 2 Ju.88's. One aircraft was damaged by British ammunition.

COLOGNE

20. 2 Mosquitoes of 8 Group, equipped with Obse, carried out a harassing raid on Cologne. One attacked according to plan, and the other visually due to failure of the precision device. No incidents were reported, and both returned undamaged.

MINELAYING

21. 29 Stirlings and Wellingtons of 3, 4 and 6 Groups were detailed to lay off the French Atlantic coast, from Brest to the Gironde Estuary. Weather conditions were good, with 5-8/10ths cumulus (base 2,000') and clear visibility despite showers. 25 aircraft reached their targets, laying 59 mines. Intense flak was reported from several points, and 4 aircraft were damaged, 2 of them seriously. Enemy aircraft confined their activity to 1 approach.

One Stirling did not return from the Gironde, but there is no evidence to account for its loss.

APPENDIX

Timing of Attack

I. Pathfinder Force

◆ Mosquitoes attacked at: 0113, 0120½, 0125½ and 0128½.

Main Force

123 aircraft attacked within planned period (0115-0134).

19 aircraft attacked from 0134-0146.

142 aircraft

/Bomb Loads.....

Load

(of aircraft reporting attack).

Pathfinder Force

4 Mosquitoes carried flares only.

Main Force

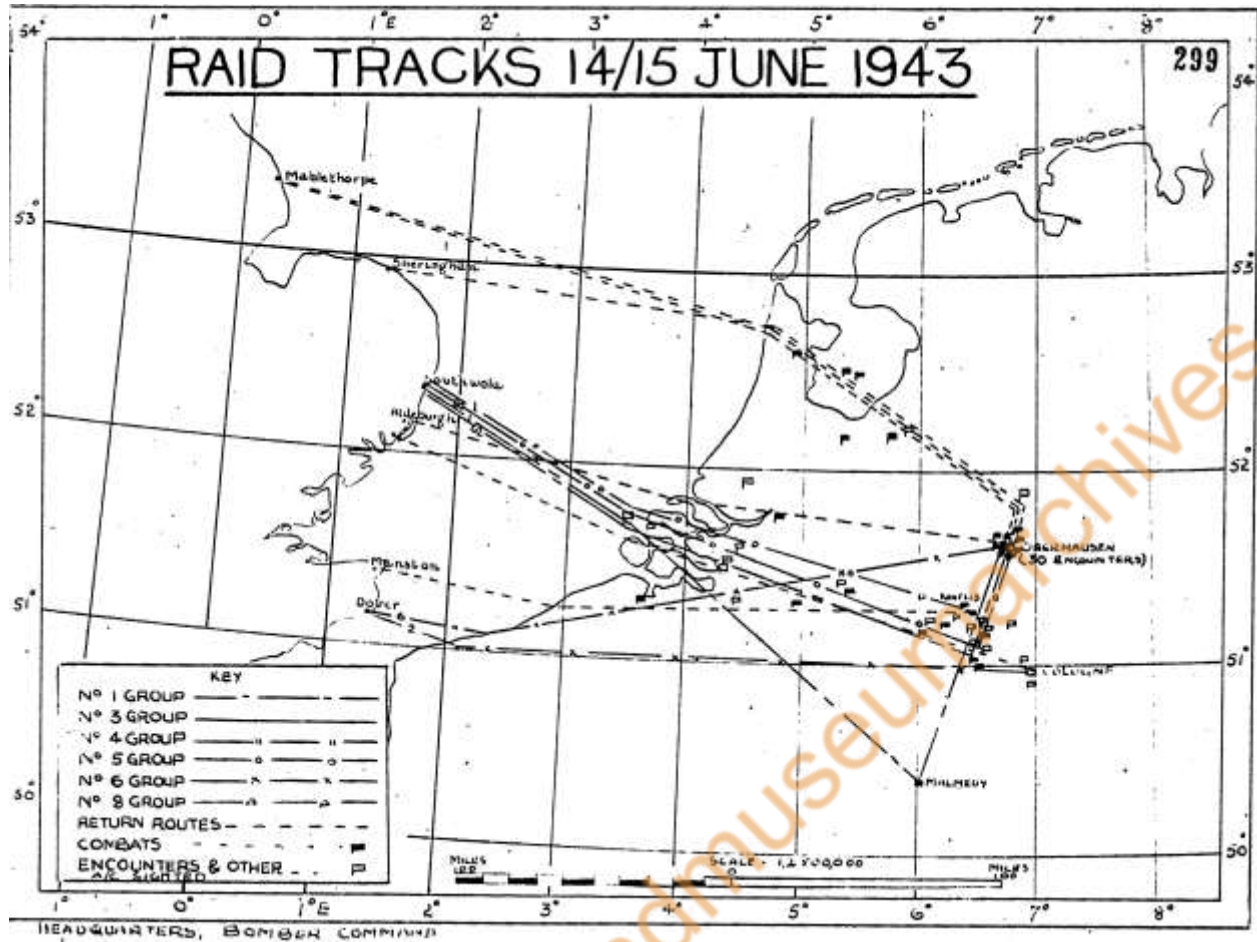
142 aircraft carried H.E. + 4lb. + 30lb. incendiaries.

/JT/
S. 26342/6/ORS.
September, 1943.

BASE	GROUP	TYPE	SERIES	ATTACK ON				FLUX	FIGHTER	NOT R/A	ATTACKED	NOT ATTACKED	H.E.	Inc.
				PRIM. AREA	ALY. AREA	OVER STUDY TERR.	NOT OVER STUDY TERR.							
OSCHHAUSEN	8 FFF.	Mosq. IV	6	4	-	2*	-	-	-	-	-	-	P. 319.2	257.0
		Lano. I	24	19	1	3	1	2*	-	-	1	6	M. 9.8	6.7
		Lano. III	65	43	-	15	6	3AC 2+ 1AC	1	1AC	5	8	M. 37.5	31.3
		Lano. I	44	35	1	7	3	8+2B	-	-	-	9		
		Lano. III	64	47	2	8	7	18+ 1AC	3AC	1AC	6	13		
OSCHHAUSEN TOTAL			203	146	4	1+ 2*	33	17	30+ 5AC +2B	1+ 3AC	2AC	12	36	
COLOGNE	8 FFF	Mosq. IV	2	2	-	-	-	-	-	-	-	-	-	
BOMBING TOTAL			205	148	4	1+ 2*	33	17	30+ 5AC +2B	1+ 3AC	2AC	12	36	
MINELAYING	3	Stir. I	5	5	-	-	-	1	-	-	-	-	-	
GYRONDE		Stir. III	7	4	-	2	-	1	-	-	-	1	-	
ST. NAZAIRE	4	Well. X	6	6	-	-	-	1B	-	-	-	-	-	12 mines
LORIENT	4	Well. X	5	5	-	-	-	1B	-	-	-	-	-	9 mines
BRIST	6	Well. X	6	5	-	1	-	1	-	-	-	-	-	9 mines
MINELAYING TOTAL			29	25	-	1	2	1	2+ 2B	-	-	-	1	59 mines
TOTAL			234	173	4	2+ 2*	35	18	32+ 5AC +4B	1+ 3AC	2AC	12	37	

* Reserve aircraft.

www.bombingcommandmuseumarchives.ca



BOMB PLOTS NOT AVAILABLE

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 15/16th JUNE, 1943.ECRLH.SUMMARY.

6 Mosquitoes were sent on a harassing raid to Berlin. 5 attacked the target under good weather conditions from 24-28,000'. The other aircraft returned early for technical reasons. No casualties were sustained, apart from 2 minor instances of engine damage.

Weather Forecast.

Midnight frontal positions:- occlusion from 59°N.02½°E. to 55°N.02½°E to E. England to N.W. France.

Bases:- Frequent thundery showers over N.W. England and Welsh mountains all night, over East Anglia till midnight (with local thunder) and over S. North Sea till 10. Cloud amount is uncertain, but good breaks to less than 4/10ths are expected in N.E. and Midlands. Visibility mainly good, but less than 2,000 yards towards dawn in smoky localities.

Germany:- Thundery cloud in N.W. with tops above 20,000'. Probably some good breaks. Central Germany: broken convection and layer cloud. S. Germany: variable amounts of layer cloud. Berlin: 4-7/10ths cloud, good visibility. 8/10ths cumulo-nimbus en route over North Sea and Holland, some tops above 20,000'.

N.W. France:- Heavy showers. Good visibility.

<u>Winds to Berlin:</u>	<u>at 500 mb.</u>	<u>at 300 mb.</u>
Bases to 02°E	290°/30 n.p.h.	300°/40 n.p.h.
02°E to 10°E	230°/30 n.p.h.	270°/40-45 n.p.h.
10°E, to Berlin	230°/35 n.p.h.	230°/70 n.p.h.

Statistics.

(a) No. of aircraft despatched	6
(b) " " reporting attack on primary area	5
(c) " " abortive sorties (technical defect).	1
(d) " " aircraft missing.	0

Weather Experienced.

Berlin:- 7/10ths layer cloud, tops 15,000'. Good visibility. Three-quarters moon.

Enemy Defences.

Very slight opposition was encountered from light flak and a few searchlights. No fighters were observed.

....Casualties

Casualties.

6. 2 aircraft sustained minor damage from flak en route. All returned safely.

Target	Group	Type	Sorties	/C reach- ing P.L.	Abort. Sorties (NOET)	Miss- ing.	Dan- age. (flak)	Inter- ceptions	To o Bo H. 3.
BERLIN	8 P.F.P.	Hosq. IV	6	5	1	-	2	-	

MLI/IV.
EG/S.26342/1/ORS.
16th August, 1943.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 16/17th JUNE, 1943.COLOGNE : Berlin : Leaflets.SUMMARYCOLOGNE

1. A force of 212 heavy bombers attacked Cologne, which was sky-marked by Y-type aircraft. The raid was scattered, and the resulting damage not great, although it included the destruction by fire of buildings of the Chemische Fabrik Kalk A.G. 14 bombers failed to return, probably about two-thirds being lost to enemy fighters.

Berlin

2. Berlin was attacked by 3 Mosquitoes which returned undamaged.

Leaflets

3. Training Groups despatched 4 Wellingtons to drop leaflets on Paris. 3 completed the task, and all returned safely.

Meteorological Forecast.

4. Bases:- A warm front approaching W. Ireland is not expected to affect home bases tonight. Convection cloud will disperse steadily after dusk, and weather will become fine, with moderate to good visibility.

Germany:- North Sea coastal strip: cloudy, with a few breaks. Inland from 5-20° E. and N. of 50° N: well broken layer cloud formed from dispersing convection cloud. Ruhr: 7-9/10ths convection cloud persisting well into the night, with peaks to 20,000'. Broken low cloud, 8/10ths in Dortmund area, 5/10ths at Cologne. Route to Ruhr: thundery showers, convection cloud with tops to over 20,000' locally. E. and S. Germany: much convection cloud, with local thunderstorms.

France:- Broken layer cloud, thickening to 10/10ths in Brest-Lorient area.

COLOGNE.Plan of Attack

5. Zero Hour 0100 hours. Period of attack 0100 - 0116 hours.

17 Y aircraft were to drop green steady warning flares at 51°05'N, 06°20'E 29 miles short of the release point. Release point flares (red with green stars and one white for longer burning) were to be dropped by 3 Y aircraft at zero hour and thereafter by single Y aircraft at regular intervals between 0102 and 0113 hours. The main force was instructed to aim their bombs at the centre of the release point flares on a heading of 117°M and at an I.A.S. 165 m.p.h. with bombsight set for true height, airspeed and zero wind. Main force crews in Y aircraft might bomb on H2S for practice purposes. All flares were to ignite at 18,000'. The Y aircraft were also to mark the aiming point with green T.Is; if these proved visible through the cloud they were to be aimed at in preference to the sky markers.

The Main Force carrying mixed loads, was to be divided into four sections (0100-04, 0404-8, 0808-12, 1212-16) with specially selected crews leading the attack. It was impossible to use OBOE on this night as the system was in course of being modified to Mk.I.K.

/..... Bomb Loads.

Bomb Loads - (Markers).

- 6. 10 Halifax (Y) : 4 T.I. green (2LB) + 1 (3 flares red/green + 1 white) + 4 flares green + 6 x 500 MC.
- 6 Lancasters (Y) : 4 T.I. green (2LB) + 1 (3 flares red/green + 1 white) + 4 flares green + 1 x 1000 MC + 3 x 1000 GP. + 3 x 500 MC.

Route

- 7. Base - 51°40'N 03°40'E - TARGET - right turn - 50°45'N 06°50'E - 51°35'N - 03°35'E - Base.

Sorties

8.	(a)	No. of aircraft despatched.....	212
	(b)	" " " reporting attack on primary area.....	165(77)
	(c)	" " " " " alternative area.....	6(2)
	(d)	" " abortive sorties (technical or manipulative defect.....	18)
		(icing.....	6)
		(sickness of crew.....	2)
		(attacked by fighter.....	1)
	(e)	" " aircraft missing.....	14(6)

Weather Experienced

- 9. Bases:- Broken cloud dispersed gradually after dark. Visibility moderate poor very locally towards dawn.

Cologne and route:- Much layer and convection cloud with breaks; 7-10/10 layer cloud, tops about 15,000', some cumulo-nimbus, tops to 25,000'. A few reports of dense and persistent trails above 20,000'. Slight to moderate icing was encountered on route in cloud (which dispersed on the way home over the North Sea) with occasional thunderstorms. Visibility over target: good. Full moon.

Wind at 20,000': 300°/60 m.p.h. near target.
300°/20 m.p.h. over North Sea.

Surface wind at target: W.S.W., 5 m.p.h.

Night Photographic Statistics

- 10. No photographs with ground detail were returned on this night.

Narrative of Attack

11. The green warning flares released by the Y aircraft apparently were widely spaced, and some were reported in the target area. The subsequently inaccurate release of the sky-markers and green T.I's resulted in scattered bombing, which may have been aggravated by one marker aircraft which accidentally released all markers with its warning flares, and by decoys resembling red T.I's which were ignited in the presumed target area. In addition, many of the Y type aircraft had unserviceable special equipment, and the marking was consequently inadequate throughout the raid. The scatter of the raid was confirmed by daylight reconnaissance, although the photographic cover was incomplete.

Daylight Reconnaissance

12. Photographs taken after the raid covered only the eastern bank of the Rhine and the N.W. part of the town. Scattered incidents of damage to industrial and residential property were seen throughout the area covered. One large building and six smaller buildings of the Chemische Fabrik A.G. were/guttet, and a

guttled, and a new building adjoining the factory, and covering about 2½ acres, was also burnt out. On the site of the Kolnische Gummi-faden, which was completely destroyed in an earlier raid, a large new building was gutted.

Alternative Targets

13. 6 aircraft attacked alternative targets in the areas of Munchen-Gladbach (3), Antwerp, the Hague and Haamstede.

Special Equipment

14. (a) H2S 21 Y-type aircraft took part in this raid, 16 being detailed as markers. One marker aircraft returned early, another released its load of markers and bombs with its green steady warning flares owing to the distributor not being modified, and a third jettisoned its bombs before reaching the target owing to flak damage. Of the remaining 13 aircraft, all of which attacked the target, 7 released skymarkers blindly on H2S, one dropped H.E. only, having been hit by flak, and 5 bombed visually, but did not drop sky-markers, owing to unserviceable equipment. Green T.I's were released by 6 aircraft on H2S and one visually. In consequence the marking, which did not begin until zero + 6 minutes, was neither adequate nor continuous. One of the 8 Y-type aircraft which attacked with the main force, bombed blindly on H2S as no markers were visible.

15. (b) Gee The Eastern Chain operated on the Virginia frequency throughout the raid and on the Zanesville (target) frequency from 0030 to 0130 hours. The average range on the outward route was 245 miles and on the homeward route 255 miles. The ranges on the Virginia frequency have increased, while those on the target frequency have decreased, the two best fixes being obtained on the Virginia frequency. The B and C signals were sufficiently strong to be seen over the target by many navigators, but the A signal was lost much earlier. It is not known whether the limiting factor to reception on this occasion was signal weakness or jamming.

Enemy Defences

16. (a) Flak and Searchlights The target defences fired mainly barrage, but some unseen predicted fire up to 22,500 feet was also reported, and there was a little light flak to the south of the town. Owing to cloud, which was 7/10-10/10 over Cologne, searchlights were ineffective. On the route, moderate heavy flak with a few searchlights was experienced at Antwerp, Neustadt, Aachen, Ulzen and Schouwen. 15 aircraft were damaged by flak, mostly over the target.

17. (b) Fighters Intercepted wireless traffic indicated that the main fighter defences were centred on Gilze and over the Scheldt estuary. Patrols were airborne during the outward journey, but the majority of pursuits were against returning bombers. During the night 7 patrols operated, undertaking 16 pursuits, and claiming 6 victories. Two of these claims agree with crew observations of aircraft shot down over Antwerp.

Returning aircraft reported 40 interceptions by enemy fighters. 11 bombers were attacked, 6 more fired on fighters, a further 22 were approached, and one reported a following. It is significant that on the outward journey, the 6 interceptions included only 2 attacks, whereas returning bombers were attacked 13 times in 13 interceptions. This extremely high attack/interception rate in the later stages of the raid was probably due to improved visibility during the return when cloud was dispersing and the moon was fully risen.

8 aircraft were damaged by fighter attack, 7 while home-bound. The eighth crashed after sending out a wireless message, and the crew were killed; no further details are known.

Casualties

18.	No. of aircraft missing.....	14 (6.6%)
	" " " damaged. (a) flak.....15)	
	(b) fighter..... 8)	24 (11.3%)
	(c) other causes..... 1)	

...../Observations

Observations by crews suggest that 4 of the missing aircraft were shot down by flak, one outbound at Aachen, one over Cologne, and 2 homebound over Duren and Antwerp. Fighters destroyed at least 6 aircraft; one outbound over Antwerp, one over Cologne, and 4 homebound over Venlo, St. Trond, Antwerp and Waloheren. In view of the relatively large proportion of fighter damage and interceptions it is likely that the other 4 missing bombers were also destroyed by enemy aircraft.

One Lancaster shot down a Ju.88 over Schouwen, the report being confirmed by observations of other crews.

One aircraft was seriously damaged on landing.

BERLIN

19. 3 Mosquitoes bombed Berlin from high level, on E.T. A. owing to cloud. Each load contained one delayed-action bomb. No results were observed, and all the aircraft returned without incident, although one interception was attempted.

LEAFLETS

20. Leaflets were scattered over Paris by 3 of 4 Wellingtons of Training Groups despatched on this mission. The fourth aircraft returned early owing to a technical defect. One Wellington sustained minor flak damage.

APPENDIX

Timing of Attack

I. (a) Pathfinder Force

13 Y-type aircraft attacked at 0105, 0106, 0107, 0109(4), 0110, 0114, 0115(2), 0118, 0119.

(b) Main Force

Attacked one minute early.....	1
" within planned period (0100-0116).....	132
" 1-8 minutes late.....	18
	<u>151</u>

One main force aircraft crashed on the return, and the time of attack is unknown.

Bomb Loads

II. (a) Pathfinder Force

T. E. + flares + H. E. 13

(b) Main Force

H. E. + 30-lb. inc. + 4-lb. inc.....	120
H. E. + 30-lb. inc.....	7
H. E. + 4-lb. inc.....	15
H. E. only.....	10
	<u>152</u>

MM/
EMO/JT.

DC/S. 26342/1/ORSJ.
4th. September, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			DIVERSECTIONS		RESULTS			
				PRIME AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	Tons of Bombs H.E. Inc.			
COLOGNE	8 FFP	Hal.S	4	3	1	-	-	-	1	-	-	-	-	-	-	-	P. 425.2 237.7 A. 13.2 5.5 M. 32.6 22.4
		Hal.IA	6	6	-	-	-	-	2	-	-	-	1	-	-	-	
		Lanc.III	6	4	1	-	1	-	-	1	1AC	-	-	1	-	-	
	8 MAIN FORCE	Lanc.I	11	9	1	-	-	-	1	3	-	-	-	1	-	-	Heavy Bombs 8000 4000 P. 2 154 A. 5 M. 14
		Lanc.III	29	23	2	-	1	-	3	24 1AC	2AC	-	4	2	-	-	
1	Lanc.I	18	13	-	-	1	2	2	1	1B	-	-	1	2	-	Pewee Primary Aeron Alternative Wearried by missing a/c.	
	Lanc.III	58	45	-	-	-	10	3	1	1B+ 1E	1AC	1	2	8	-		
5	Lanc.I	36	29	1	-	1	4	1	3	1AC	-	3	4	-	-		
	Lanc.III	44	33	-	-	-	7	4	1	1AC	-	1	10	-	-		
COLOGNE TOTAL			212	165	6	2	25	14	14+ 1AC	5AC+ 2B+ 1E	1AC	11	29	-	-	-	
BRUNNEN	8 FFP	Mosq.IV	3	3	-	-	-	-	-	-	-	-	1	-	-	Tons of Bombs H.E. 2.3 Inc. 10	
BOMBING TOTAL			215	168	6	2	25	14	14+ 1AC	5AC+ 2B+ 1E	1AC	11	30	-	-	-	
LE PLAGE PARTS	92	Well.III	2	1	-	-	1	-	1	-	-	-	-	-	-	-	
		Well.I	2	2	-	-	-	-	-	-	-	-	-	-	-	-	
LEPLAGE TOTAL			4	3	-	-	1	-	1	-	-	-	-	-	-	-	
TOTAL			219	171	6	2	26	14	15+ 1AC	5AC+ 2B+ 1E	1AC	11	30	-	-	-	

RAID TRACKS AND BOMB PLOTS NOT AVAILABLE

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BOMBER COMMAND REPORT OF NIGHT OPERATIONS, 17/18th. JUNE, 1943.Berlin: Ruhr: Cologne.SUMMARY

1. 4 Mosquitoes of 8 Group were despatched on a harassing raid against Berlin, and one each to Duisburg, Dusseldorf and Cologne. 4 aircraft attacked their targets, while a fifth, experiencing technical trouble, bombed Gustrow airfield. Results were unobserved. All returned undamaged.

Meteorological Forecast

2. Midnight frontal position :- occlusion from 56° N. 10° W. to Cork to Brest to Le Havre to 49° N. 06° E., becoming warm to 46° N. 10° E. and cold to Dijon to Bordeaux.

Bases:- 4-8/10ths convection at dusk, base 2-3,000', tops 10-12,000', soon dispersing to nil except in N. Wales. Local smoke. Moderate visibility.

Germany:- N.W. coastal strip: convection with a few breaks. Ruhr: 10/10ths frontal medium cloud, with broken convection below. W. of 51° N. and E of 09° E.: broken convection and layer cloud. S. Germany, E. of main front: low cloud and rain.

France:- Belt of cloud and rain in N. along occluded front. Much low cloud in warm sector in S.W. Broken layer cloud between fronts.

Sorties

3.	(a)	No. of aircraft despatched.....	7
	(b)	" " " reporting attack on primary area.....	4
	(c)	" " " " " alternative area.....	1
	(d)	" " abortive sorties (technical defect.....2).....	2
	(e)	" " aircraft missing.....	0

Weather Experienced

4. Berlin:- 6-8/10ths strato-cumulus, tops 12-15,000'. Excellent visibility.

Ruhr - Cologne:- 4/10ths cloud, tops 7-8,000'. Excellent visibility.

Full moon.

Enemy Defences

5. Considerable but inaccurate heavy flak, co-operating with searchlights, was encountered from the N. and S.W. outskirts of Berlin. No opposition was met from the Ruhr or Cologne.

50 sorties by controlled enemy fighters were heard, 6 of which mentioned British aircraft. They operated in the areas of Woensdrecht, Alkmaar/Zwolle, Tezel and the Dutch islands. No interceptions were reported by our aircraft, apart from one approach.

Casualties

6. All our aircraft returned undamaged.

MLJ/JT.
EC/S. 263.2/2/ORS.
21st. August, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTED ATTACK ON		ABORTIVE SORTIES		MISSING	LOSS			INTERCEPTIONS		RESULTS	
				PRIMARY AREA	ALTERNATIVE AREA	OVER ENERGY THREAT	NOT OVER ENERGY THREAT		FLAK FIGHTER	NOT ENERGY ACTION	ATTACK- ED	NOT ATTACK- ED	H.E.	Tons of Bomb	
BERLIN	8 P.F.F.	Mosq. IV	4	2	1	-	1	-	-	-	-	1	-	P 1.6 A .8	-
COLOGNE	8 P.F.F.	Mosq. IV	1	1	-	-	-	-	-	-	-	-	-	P .8	-
DUISBURG	8 P.F.F.	Mosq. IV	1	1	-	-	-	-	-	-	-	-	-	P .8	-
DUSSELDORF	8 P.F.F.	Mosq. IV	1	-	-	1	-	-	-	-	-	-	-	-	-
TOTAL			7	4	1	1	1	-	-	-	-	1	-	P 3.2 A .8	-

P = on Primary

A = on Alternative

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 19/20th. JUNE, 1943.LE CREUSOT and MONTCHANIN: Ruhr: Minelaying:SUMMARYLE CREUSOT AND MONTCHANIN

1. A force of 316 heavy bombers set out to attack the Schneider Works and the Breuil Steel Works at Le Creusot and the transformer station at Montchanin. Both targets at Le Creusot were successfully illuminated by Y-type aircraft, but glare and smoke from the flares obscured the aiming-points after 10 minutes, making accurate bomb-aiming impossible. Severe damage was caused to the Le Creusot Steel and Processing Works, the Locomotive and Armament Works and the Breuil Steel Works, but nearby residential property was also badly damaged. The Henri Paul et Cie Iron and Bronze Works at Montchanin, which were illuminated and ground marked in error for the transformer station, sustained considerable damage.

2 aircraft failed to return.

Ruhr

2. Dusseldorf, Duisburg, and Cologne were the targets for 6 Mosquitoes, 5 of which completed the task successfully. One Cologne sortie returned early; none of the bombers was damaged.

Minelaying

3. 55 mines were laid in the Gironde Estuary and off La Pallice by 11 of 12 Lancasters despatched. The twelfth aircraft failed to return.

Meteorological Forecast

4. Midnight frontal positions:- occlusion from Oslo to 58°N. 16°E., becoming warm to 55°N. 20°E. to 50°N. 21°E. and cold to 56°N. 11°E., then warm to 55°N. 01°E (tip of warm section), then cold to Spurn to Exeter and S.W'wards.

Bases:- A belt of rain and low cloud will lie along the cold front, the cloud lifting and breaking to the N.W. Bases will be in the warm sector for most of the night, with strato-cumulus forming (base 1,000-1,500'). Visibility will be moderate to good at dusk. For return (from Le Creusot), 4 and 6 Groups may meet frontal conditions in the neighbourhood of S. Yorkshire, with rain and 10/10ths. cloud, base 800' and tops 15,000', freezing level 6,000', visibility 1-3 miles. 3 and 8 Groups will have 7-10/10ths. stratus at 1,000' - 1,500', apart from a few lower patches over high ground. Diversions to 5 Group, N. of 92 Group and W. of 93 Group.

Germany:- Well broken layer cloud in N.W., dispersing towards S. and E.
Ruhr:- 4-7/10ths. broken strato-cumulus, base 1,500'-2,000', tops 4,000', with medium cloud layers above. Winds, 45-50 m.p.h.

France:- Much strato-cumulus in N., base below 1,000'. Good clearances in Central France, well broken medium and low cloud in S. Le Creusot:- little or no low cloud, chance of broken medium and high cloud above 10,000'; visibility moderate to good. Route: variable broken strato-cumulus at 1,500-2,000', increasing and lowering to 8-10/10ths. stratus at 1,000' or below over Channel, but lifting and breaking towards the target. W. France:- 10/10ths. stratus at 600-1,000' in N., with coastal drizzle. Well broken strato-cumulus above 1,500' S. of La Pallice, with moderate visibility.

...../Winds:

<u>Winds:</u>	<u>750 mbs:</u>	<u>500 mbs:</u>
N. of 53°N.	230°/55 m.p.h.	230°/60-65 m.p.h.
S. of 53°N.	240°/45 m.p.h.	240°/50-55 m.p.h.
51°N - 49°N.	250°/35 m.p.h.	260°/45 m.p.h.
49°N - Le Creusot	270°/20 m.p.h.	280°/25 m.p.h.
Le Creusot	270°/10 m.p.h.	280°/25 m.p.h.

LE CREUSOT - MONTCHANIN

Plan of Attack

5. Zero hour - 0145 hours

As navigational aids en route to the targets, 24 Y aircraft were to drop green steady flares at 49°20'N. 00°45'E., yellow T.I.'s at 47°30'N. 01°10'E., and red T.I.'s at 47°05'N. 03°10'E. On the return trip, the same aircraft were to drop red T.I.'s at 48°00'N. 02°02'E.

At 0144 hours 6 Y aircraft were to release long sticks of white flares (6 bundles at 6 second intervals) blindly on H2S over the Schneider Works at LE CREUSOT. This illumination was to be continued by 20 more Y aircraft, 2 at zero hour and 1 per minute thereafter until 0203 hours, also releasing white flares similarly but after definite identification of the aiming point, and dropping their bombs on it. There were two aiming points for the main force, and crews were to find their own specific aiming-points in the light of flares and to attack from as low a height as possible above 4,000ft. Emphasis was laid on the need for hitting the target and not the nearby residential area.

The Y aircraft were, after illuminating Le Creusot, to proceed to MONTCHANIN, where they were again to release bundles of white flares at 6 second intervals along the southern edge of the power-station while in a left turn of 3° per second. At 0147 hours, 6 Lancasters, after definite identification of the aiming point, were to drop green T.I.'s on it. The illuminators, markers and main force crews were to aim their bombs accurately at the aiming point, using the green T.I.'s as a guide.

Two or more bombing runs were to be made by crews at each target, in order to reduce the length of the stick of bombs. All aircraft were to turn for home by 0215 hours whether they had bombed or not. Fighter cover was to be provided over the Channel on return.

Bomb Loads - P.F.P.

6. Illuminators - 14 Stirlings: 10 x 3 flares white + 1 T.I. yellow (LB) + 2 T.I. red (LB) + 8x500 MC + 1 flare green.
- 10 Halifaxes: 9 x 4 flares white + 1 T.I. yellow (LB) + 2 T.I. red (LB) + 3 x 1000 MC + 1 flare green.
- 2 Halifaxes: - 10 x 4 flares white + 6 x 1000 MC.
- Markers - 6 Lancasters: 1 T.I. green (LB) + 8 x 1000 MC.

Route

7. Base - 49°20'N. 00°45'W. - 47°30'N. 01°10'E - Le Creusot/Montchanin - turn left - 49°20'N. 00°45'W - base.

Sorties.

3.	(a)	No. of aircraft despatched	{ Le Creusot only . . . 264 Montchanin only . . . 26 Both targets . . . 26 }	. . . . .	316
	(b)	" " " reporting attack on primary area	{ Le Creusot . 275 ^M Montchanin . 45 ^M} }	. . . . .	300 ^M (95.0%)
	(c)	" " " " " alternative area			2 (0.6%)
	(d)	" " abortive sorties	{ technical or manipulative defect . . . 9 hit by flak 1 target hidden by smoke 1 crashed on take-off 1 }	. . . . .	12 (3.8%)
	(e)	" " aircraft missing			2 (0.6%)

(^M including 20 aircraft which attacked both targets)

Weather Experienced.

3. Bases:- Variable amounts of layer cloud, base 1,500-2,500'. Patches of stratus below 1,000' affected S. Midlands after midnight. Local fog or mist patches in London area. Otherwise, moderate visibility.

Route:- 8-10/10ths layer cloud over S. England, breaking up over Channel and N. France. Moderate visibility.

Le Creusot - Montchanin:- No cloud. Moderate visibility. Moon nearly full. Wind at 4-6,000' = 230°/20 m.p.h. Surface calm.

Flight Photographic Statistics.

0.	No. of photographs examined	260
	No. of photographs showing ground detail	{ plotted within 3 miles . . . 201 " outside 3 miles . . . Nil (unplotted 5) }
	" " " showing fire-tracks	{ plotted within 3 miles . . . 4 " outside 3 miles . . . Nil (unplotted 50) }
	" " aircraft reporting attack	300
I.	" " estimated, from the photographic evidence, to have bombed within 3 miles of the aiming point	252

Narrative of Attack.

At Le Creusot both targets were successfully illuminated by Y-type aircraft, but the attack progressed glare and smoke from flares obscured the aiming points, making accurate bomb-aiming impossible. Several aircraft wrongly identified the target, aiming at the Steel and Processing Works, which were at one time believed to be inactive, but which may have been operating at the time of the attack. All the photographs plotted were within 3 miles of the target, but owing to the smallness of the target it was estimated that only about 21% of the bombs fell within the perimeter of the works.

The markers and illuminators appear to have mistaken the Iron and Bronze Works Henri Paul et Cie at Montchanin for the transformer station, and this was bombed by a majority of the Montchanin sorties. The few aircraft which did correctly identify the target, apparently failed to hit it. As at Le Creusot smoke and flare from the flares obscured the target area.

.../Daylight

Daylight Reconnaissance.

12. Much damage was seen in all parts of the Schneider Works and the Brouil Works at Le Creusot and at the Henri Paul Works at Montchanin. Damage was fairly evenly distributed over the whole area, and in consequence there were no large areas of devastation.

7 buildings of the Le Creusot Steel and Processing Works were destroyed, 4 seriously damaged and 7 others damaged. These included the Steel Foundry, which was almost entirely destroyed by H.E. and fire, and the building containing the electric furnaces, which was damaged by H.E. over an area of 4,000 square yards. The Locomotive and Armament section of the works, 31 buildings were involved, of which 4 were destroyed and 9 severely damaged, including the shop for autogenous welding, the turbine machine shop, and the rolling mills.

In the Brouil Steel Works, 4 main shops were affected, 6½ acres of the roof of the general machine shop being damaged by blast. The main building of Henri Paul et Cie at Montchanin was seriously damaged and several smaller buildings were affected. No damage to the Montchanin Transformer Station could be seen.

Considerable damage was caused to residential property both east and west of the Le Creusot Works: this included 11 large buildings and about 130 business or residential buildings destroyed or damaged.

Alternative Targets.

13. Two aircraft were unable to identify their targets at Le Creusot owing to fog. One attacked Montchanin and the other an unspecified target near Briare.

Special Equipment.

14. (a) H2S. 44 Y-type aircraft took part in the attacks on Le Creusot and Montchanin. H2S was used mainly as a navigational aid, but 6 aircraft were detailed to drop illuminating flares blindly across the Schneider Works at the beginning of the attack. Only 3 aircraft, however, used H2S for this purpose, while the others, together with all other illuminators and markers, identified the target visually, both at Le Creusot and at Montchanin.

15. (b) GEE. The Eastern Chain operated on the Virginia frequency throughout the raid. There was no interference, and signals were visible at all stages of the raid. 72% of the force obtained fixes at the target, 415 miles from the Master Station. This route was last used, during the raid on Spezia on 18/19th April, considerable interference was reported, the average range being only 200 miles. It therefore seems probable that the jammers had been moved to strengthen the defences on the route to the Ruhr.

Enemy Defences.

16. (a) Flak and Searchlights. Apart from the target areas the most severe opposition was encountered over the French Coastal area bounded by Le Havre, Pointe la Percee and Argentan. Light flak was reported from these 3 places, from Flers, Mans, and South of Orleans and from Caen, where heavy flak and searchlights were also in action. At Le Creusot the defences were even less than expected, being only about 12 light guns and 6 medium guns, with the occasional ineffective co-operation of one searchlight. 2 or 3 light flak guns were in action at Montchanin. 9 aircraft (2 on Le Creusot) were damaged by flak and one of the 26 Lancasters which attacked Montchanin was also hit.

17. (b) Fighters. Intercepted wireless traffic indicated that 2 unlocated patrols which were operating undertook 4 pursuits. There was one doubtful claim of a victory. Returning aircraft reported 24 interceptions, including 12 combats (2 attacks). These appear to have been distributed evenly between the Caen, Chartres and Le Creusot areas. No bomber was damaged by fighter attack.

.../Casualties.

Casualties.

18.	No. of aircraft missing	.	.	.	.	.	.	.	2 (0.6%)
	" " " damaged	(a)	flak	.	.	10	.	.	13 (4.1%)
		(b)	fighters	.	.	Nil	.	.	
		(c)	other causes	.	.	3	.	.	

Observations by air suggest that one missing aircraft was shot down by light flak at Caen and the other came down near Chartres, the cause being unknown. A third aircraft crashed near York soon after take-off; all the crew were killed. A Stirling was damaged by fire from a British aircraft, and another by incendiary bombs.

An Me.109F was shot down in mid-Channel by a Halifax on the outward flight.

Dusseldorf, Duisburg and Cologne.

19. 2 Mosquitoes, each carrying one delayed action bomb in its load, were despatched to each of the 3 cities of Dusseldorf, Duisburg and Cologne. 5 aircraft attacked from high level, but one Cologne sortie was abortive owing to a technical defect. No results were observed. All the Mosquitoes returned undamaged.

Minelaying.

20. 9 Lancasters of 3 Group laid 45 mines in the Gironde Estuary, and 2 of 3 Lancasters despatched to La Pallice laid 10 mines. One aircraft was seriously damaged in combat with an enemy aircraft; 2 other interceptions were reported. One Lancaster was missing without trace.

APPENDIX.Timing of Attack.(a) Pathfinder Force.

(i) Illuminators:- 5 attacked Le Crouzet at 0148 (2), 0149 (2), 0150 (3), 0151, 0152 (2), 0153, 0154, 0159, 0200 (3), 0201, 0202 (3), 0203, 0205 (2), 0212, 0215.

20 attacked Montchanin at 0150, 0151, 0153, 0157, 0158 (2), 0159 (2), 0202 (2), 0203, 0204, 0205 (3), 0207, 0208 (2), 0214, 0216.

(ii) Ground Markers:- 5 Lancasters attacked Montchanin at 0156 (2), 0159, 0200, 0201.

(b) Main Force (both targets)

Attacked within planned period (0145-0215) 265

" " 4-6 minutes late 5

270

Loads Carried.(a) Pathfinder Force.

Flares + T.I. + H.E. 21 illuminators.

Flares + H.P. 4 "

T.I. + H.E. 5 ground markers

30 aircraft

(b) Main Force.

H.E. only 248

30 lb. inc. + 1 lb. inc. 22

270.

26342/6/ORS.
September, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS			
				PRIM. AREA	ALL. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	H.E.	Inc.		
LE CREUSOT AND MONTCHANDIN (ILLUMINATORS)	8 PFF	Hal. IIAV	5	5	-	-	-	-	-	-	-	-	-	-	-	-	
		Hal. II-IA	7	6	-	1	-	-	-	-	-	-	-	-	-	-	-
		Stir. I	12	12	-	-	-	-	-	-	-	-	1	-	-	-	-
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
		Lanc. III	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL (ILLUMINATORS)			26	25	-	1	-	-	-	-	-	1	-	-	-	-	
LE CREUSOT ONLY	8 MAIN FORCE	Hal. IIAV	8	8	-	-	-	-	-	-	-	1	1	P 694.9	50.1		
		Hal. II-LI	7	6	-	1	-	-	-	-	-	-	1	A 3.5	2.3		
		Stir. I	6	6	-	-	-	-	-	-	-	-	-	M 6.3	-		
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	-	-		
	Lanc. III	1	1	-	-	-	-	-	-	-	-	-	-	-			
	3	Stir. I	3	3	-	-	-	-	-	-	-	-	-	-	-		
	4	Stir. III	84	80	1	1	2	-	104	-	200	-	6	-	-		
MONTCHANDIN ONLY	8 PFF MAIN FORCE	Hal. IIAV	90	85	-	2	2	1	2	-	1E	-	9	-	-		
		Hal. II-IA	22	22	-	-	-	-	1	-	-	-	-	-	-		
		Hal. IIAV	42	38	1	-	2	1	1	-	-	-	4	P 103.6	2.8		
8	Lanc. I	11	11	-	-	-	-	-	1	-	-	-	A 1.8	-			
9	Lanc. III	9	9	-	-	-	-	-	-	-	-	-	-	-			
TOTAL LE CREUSOT			290	275	2	5	6	2	140	-	1E+8	2	9	-	-		
TOTAL MONTCHANDIN			52	45	-	1	1	-	1	-	-	1	1	-	-		
TOTAL BOTH TARGETS			316	300	2	5	7	2	140	-	1E+2AC	2	22	-	-		

■ Did not attack Montchandin.
* Included in both Le Creusot and Montchandin Totals.

...../(Contd:)

309

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS	
				PRIM. AREA	ALL. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	H.E.	Inc.
TOTAL LE CREUSOT AND MONTCHANDIN			316	300	3	5	7	2	9+140	-	1E+2AC	2	22	-	-
DUSSELDORF	8 PFF	Moaq. IV	2	2	-	-	-	-	-	-	-	-	-	P 1.6	-
DUISBURG	8 PFF	Moaq. IV	2	2	-	-	-	-	-	-	-	-	-	P 1.6	-
COLOGNE	8 PFF	Moaq. IV	2	1	-	1	-	-	-	-	-	-	-	P 0.8	-
BOMBING TOTAL			322	305	3	5	8	2	9+140	-	1E+2AC	2	22	-	-
MINELAYING															
LA PALlice	3	Lanc. II	3	2	-	-	-	1	-	-	-	-	-	10 mines	-
GIRONDE	3	Lanc. II	9	9	-	-	-	-	140	-	1	2	45 mines	-	
MINELAYING TOTAL			12	11	-	-	-	1	-	140	-	1	2	55 mines	-
TOTAL			334	316	3	5	8	3	9+140	140	1E+2AC	3	24	-	-

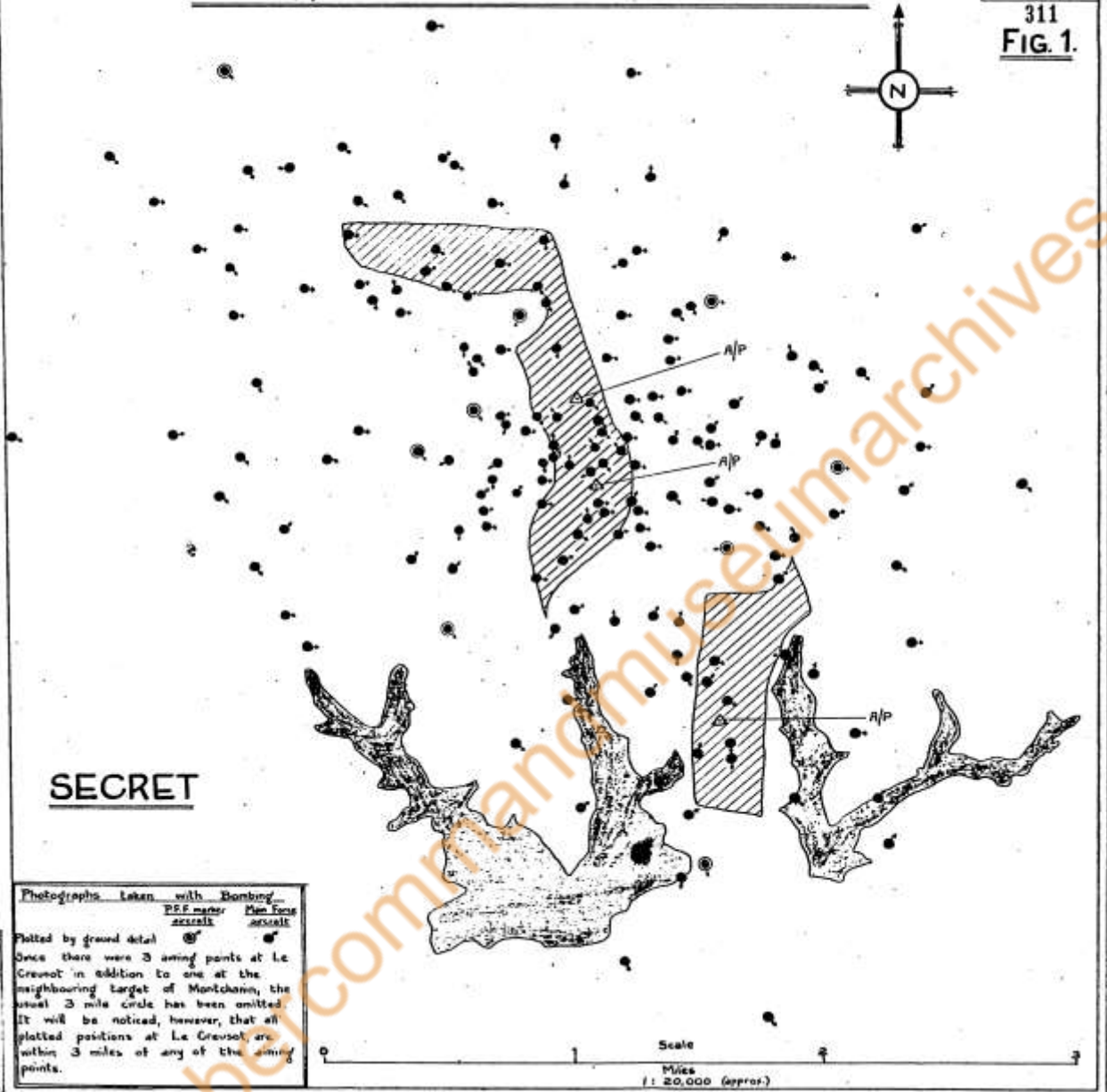
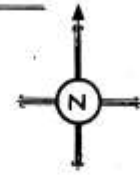
P = Primary

RAID TRACK NOT AVAILABLE

FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 19/20 JUNE 1943 TARGET: LE CREUSOT

O.P. 3	No. 222 B
B.C.	Tracer 30
Date: 19 8 43	CD: M.C.
Unit: NA 355	

311
 FIG. 1.



SECRET

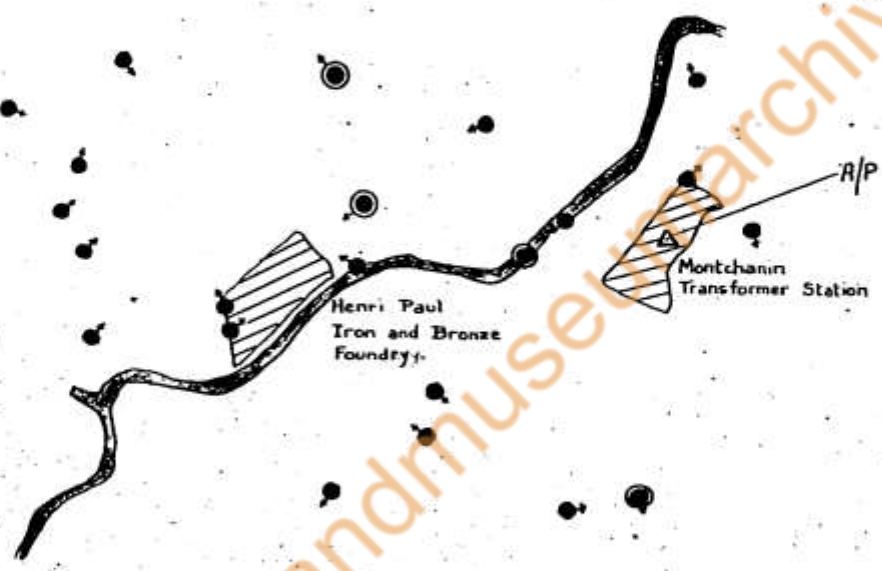
Photographs taken with Bombing
 P.F. marker aerials Pen Force
 aerials
 Plotted by ground detail ● ●
 Once there were 3 aiming points at Le
 Creusot in addition to one at the
 neighbouring target of Montcharin, the
 usual 3 mile circle has been omitted.
 It will be noticed, however, that all
 plotted positions at Le Creusot are
 within 3 miles of any of the aiming
 points.

Scale
 Miles
 1 : 20,000 (approx.)

www.bombercommandmuseumarchives.ca

FINAL PLOT OF NIGHT PHOTOGRAPHS
 TAKEN 19/20 JUNE 1949. TARGET: MONTCHANIN

312
FIG. 2.



SECRET

Scale 0 1 Mile
 1:20,000 (approx.)

Photographs taken with Bombing
 P.F.F. marker aircraft Main force aircraft
 Plotted by ground detail

ORS BC	No:- 223B
Date: 19.8.43	Tracer:- JD
Ref:- M/355	Cmd:- ACC

www.bombingcommandmuseumarchives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 20/21st JUNE, 1943.FRIEDRICHSHAFEN : Berlin : Dusseldorf : Minelaying : Leaflets.SUMMARY.FRIEDRICHSHAFEN.

1. A force of 60 Lancasters made a successful attack on the Zeppelin factory at Friedrichshafen, which was producing mechanical parts for German R.D.F. and also acoustic and magnetic mines. All the target buildings were damaged, several very severely. Controlled bombing was found to produce a good concentration and despite the smallness of the target about 9% of the bombs dropped fell within its limits; the bombing would probably have been even more accurate if the defences had not been heavier than expected, thus compelling the leader to order the aircraft to attack from a higher level, in a zone where the wind was increasing.

2. For the first time the whole force was ordered to land in North Africa, a ruse which was highly successful, none of the aircraft being lost. Most of the Lancasters returned on 23/24th June, attacking Spezia on the way. (See report No. 359).

Berlin and Dusseldorf.

3. Harassing raids on Berlin and Dusseldorf were carried out by a total of 5 Mosquitoes, all of which completed the mission and returned undamaged.

Minelaying

4. 13 of the 15 aircraft despatched laid a total of 69 mines off the west coast of France. All the aircraft returned safely.

Leaflets

5. 3 Wellingtons of Training Groups dispersed leaflets in Northern France without incident.

FRIEDRICHSHAFEN.Target

6. The Zeppelin Factory at Friedrichshafen, on the northern shore of Lake Constance, was the largest production centre in Germany for mechanical parts of R.D.F. This is the most difficult part of the industrial program for the mass production of German R.D.F., since the electrical installation is comparatively small and does not offer any very serious production problem. The elimination of the Friedrichshafen Works would therefore be the greatest single blow which could be given to German R.D.F. The target however was only 500 yards by 350 yards and defended by heavy and light flak batteries and by searchlights, so that special training to ensure accurate bombing was essential.

Training

7. Crews were selected from all squadrons of No. 5 Group, and given as much training as possible in the few days before the operation. Since the attack was to be controlled by the leading aircraft, or by the deputy leader, R/T and W/T control was practised thoroughly. As in the training for the attack on the Ruhr and Weser Dams it was found that W/T was entirely satisfactory but there was much interference with T.R.1196. There was no time, however, to change over to V.H.F.

8. Continuous accurate marking of so small a target would be almost impossible;

/..... therefore

therefore, when a target indicator was accurately placed, the maximum number of crews should attack immediately. To achieve this, crews were trained to orbit the target at a distance of 4-6 miles, not more than two aircraft flying at the same height, and to attack immediately on receipt of the special signal which would be given by the leader when a T.I. was dropped near or on the target.

9. It was realised that the target would quickly become obscured by smoke, so an alternative, indirect method of attack was developed. Crews practised making a run from a well defined point, sighting on a second point but delaying the release of their bombs for the time taken by the aircraft to fly from the second point to the target (2,000 yards.)

Plan of Attack.

10. The force is to consist of a leader, deputy leader, 2 controllers, 4 P.F.F. aircraft and Lancaster III's with picked crews drawn from all squadrons of 5 Group. All aircraft are to follow the route shown on the attached map and are to land at Algiers/Maison Blanche or Blida Airfield. The return is to be made as soon as the majority of aircraft are fit, and on the homeward route an attack is to be made on Spozic. (See report No. 359).

11. The Channel is to be crossed at maximum height, after which height is to be lost to reach Orleans at 10,000 ft. and 05°00'E at 2,500 to 3,000 feet. The remainder of the route is to be flown at this height until the aircraft reach the Rhine, which is not to be crossed before the specified time. From the Rhine to the rendezvous on the northwestern leg of Lake Constance (see inset to Route Map) aircraft are to climb to their allotted heights (between 5,000 and 10,000 feet) and on arrival there are to make left-handed orbits until told to move on to the target, which is also to be orbited at specified heights until the aircraft are ordered to bomb.

12. The attack is to be controlled by the leader, or, in his absence, the deputy leader or one of the 2 controllers. The leader is to give orders for the method of attack and any changes of height dictated by the situation.

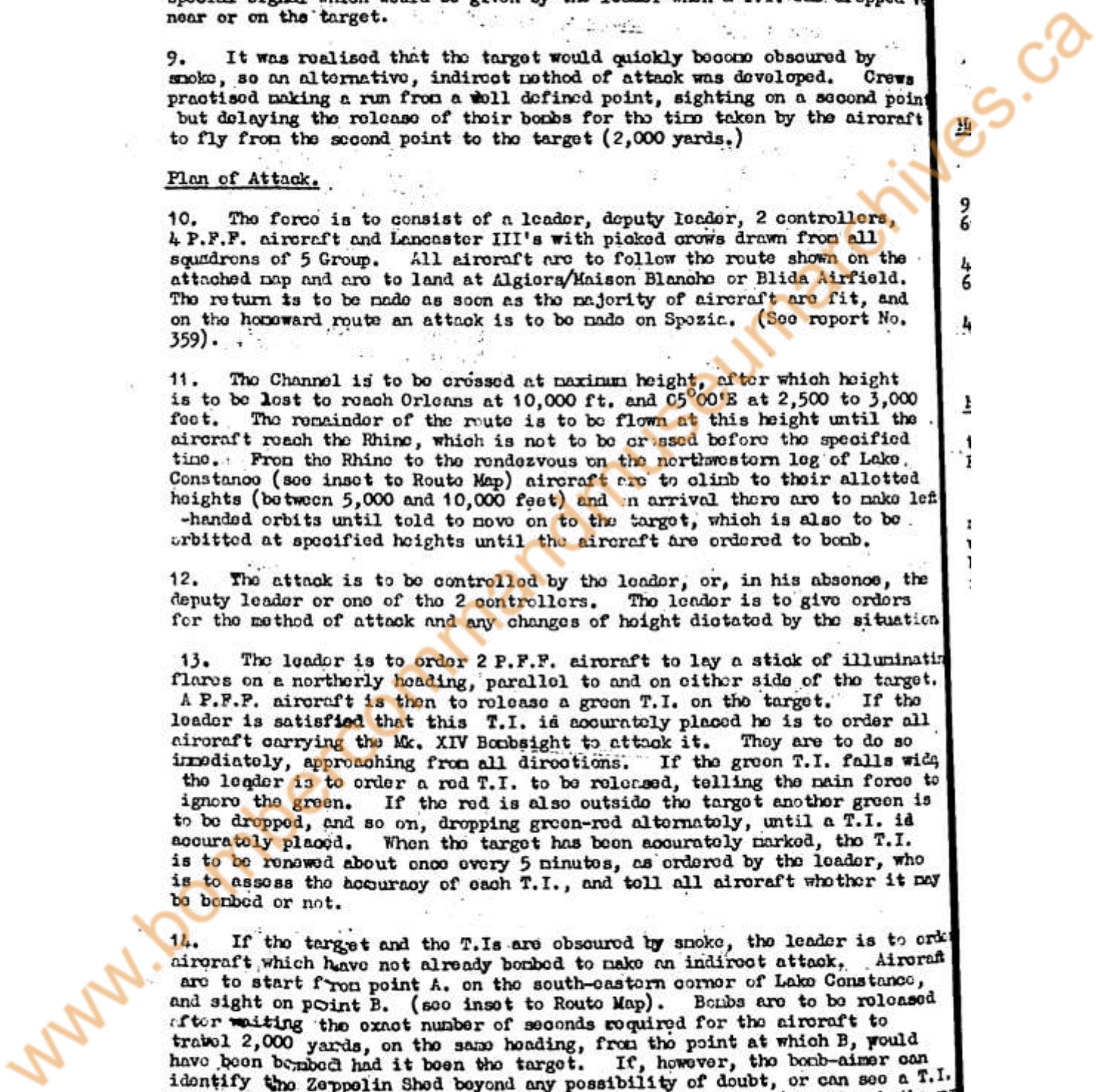
13. The leader is to order 2 P.F.F. aircraft to lay a stick of illuminating flares on a northerly heading, parallel to and on either side of the target. A P.F.F. aircraft is then to release a green T.I. on the target. If the leader is satisfied that this T.I. is accurately placed he is to order all aircraft carrying the Mk. XIV Bombsight to attack it. They are to do so immediately, approaching from all directions. If the green T.I. falls wide the leader is to order a red T.I. to be released, telling the main force to ignore the green. If the red is also outside the target another green is to be dropped, and so on, dropping green-red alternately, until a T.I. is accurately placed. When the target has been accurately marked, the T.I. is to be renewed about once every 5 minutes, as ordered by the leader, who is to assess the accuracy of each T.I., and tell all aircraft whether it may be bombed or not.

14. If the target and the T.Is are obscured by smoke, the leader is to order aircraft which have not already bombed to make an indirect attack. Aircraft are to start from point A. on the south-eastern corner of Lake Constance, and sight on point B. (see inset to Route Map). Bombs are to be released after waiting the exact number of seconds required for the aircraft to travel 2,000 yards, on the same heading, from the point at which B. would have been bombed had it been the target. If, however, the bomb-aimer can identify the Zeppelin Shed beyond any possibility of doubt, or can see a T.I. broadcast by the leader as accurate, he can bomb visually, even though the run from A. to B. has been made.

15. All aircraft dropping T.Is are to approach the target from point A. to B. and then make a timed run, as a safeguard against failure to identify the target.

/..... Bomb Loads

B3
16
9
6
4
6
4
1
1
1
1



Bomb Loads.

16. Leader and deputy Leader. 1x4,000 lb. H.C. Load to be made up with 500 lb. H.C. T.D. 0.025 sec.
- 2 P.P.F. aircraft 3 T.I. Red + 3 T.I. Green + 16 Flares White + 2 x 500 lb. H.C. T.D. 0.025 sec.
- 2 P.P.F. aircraft. 2 T.I. Red + 2 T.I. Green + 32 flares white + 2 x 500 H.C. T.D. 0.025 sec.

Main Force

<u>Squadron.</u>		<u>Load.</u>
9, 49, 50, 57, 61, 106	} all aircraft	1 x 4,000 lb. H.C. + 7 x 500 lb. H.C. T.D. 0.025 sec.
44, 207, 467, 619	} aircraft fitted with Mk.XIV Bombsight.	14 x 500 lb. M.C. T.D. 0.025 sec.
44, 207.	) aircraft not fitted with Mk.XIV Bombsight	Full incendiary load - 50% of S.B.C's to be fitted with 30lb. and 50% with 4lb. incendiaries.

Metecrological Forecast

17. Estimated midnight position of fronts: (1) cold from S.W. Norway to Felixstowe to Thorney Island to Lorient, (2) cold from 60°N. 01°E. to Valley.

Bases:- Fit at dusk, and at least 50% will be fit all night. A fairly narrow belt of medium and low cloud will lie along front (1), mainly layered, with isolated cumulo-nimbus cloud penetrating the layers. Behind the front, broken low cloud above 1,000 ft. Periods of rain. Winds will reach gale force at 20,000 ft.

Germany:- Much high cloud in the Ruhr, with increasing medium cloud. Less than 4/10ths well broken medium and high cloud in extreme south. Friedrichshafen cloudless. Berlin: Cloudless.

France:- W. Coast: showery conditions, cloud not below 1,500 feet, decreasing to nil S. of Nantes. Paris: much medium cloud, at least 7-10/10ths by 0245, with 5/10ths low cloud below. Possibly thunderstorms.

North Africa:- Fine.

Weather Experienced

18. Bases:- Fair. Moderate to good visibility.

Route:- Thunderstorms over northern France, clearing south of Orleans.

Friedrichshafen:- No cloud. Excellent visibility. Moon above the horizon during the attack, 80% of full. Wind: 5-10,000 feet, light; 10-15,000 feet, south-easterly, increasing.

Sorties

19.	No. of aircraft despatched.....	60
	" " " reporting attack in primary area.....	59 (98.3%)
	" " " " " alternative area.....	1 (1.7%)
	" " abortive sorties.....	Nil
	" " aircraft missing.....	Nil

Night Photographic Statistics.

20. No. of photographs with bombing examined.....
- | | | |
|---------------|---|----------------------------------|
| " " " showing | { | (plotted within 3 miles..... 44) |
| ground detail | | " outside 3 miles..... Nil |
| | | (unplotted..... Nil) |
-
- " " photographs showing (plotted within 3 miles..... 2)
- | | | |
|-------------|---|----------------------------|
| fire tracks | { | " outside 3 miles..... Nil |
| | | (unplotted..... Nil) |
-
- " " aircraft estimated from the photographic evidence to have bombed within 3 miles of the aiming point.....

Narrative of Attack.

21. 59 of the force of 60 Lancasters reached the rendezvous without incident but at that point the leader was obliged to hand over control of the operation to the deputy leader owing to failure of one engine. The target was clearly visible on arrival, but the defences were heavier than was expected, and the deputy leader ordered all aircraft to climb 5,000 feet. This unfortunately brought the force out of the area of light winds into a zone where the wind from southwest was increasing, and also made it difficult for the P.F.F. aircraft to start the attack on time.

22. The illuminating flares and the first T.I. fell northeast of the target, probably owing to the wind, but the third T.I. (green) was dropped accurately. The deputy leader immediately ordered all aircraft fitted with the Mk.XIV Bombsight to bomb this T.I. Orders were then given to P.F.F. aircraft to drop flares along the coast to assist the later aircraft to bomb indirectly, and an attempt was made to renew the accurately placed T.I. The renewal was unsuccessful owing to flak, and the remaining aircraft were ordered to bomb indirectly.

23. After bombing each aircraft orbited the target until the whole force of 59 Lancasters had attacked, when they flew in company to North Africa, landing safely at Algiers/Maison Blanche and Blida Airfields.

24. The sixtieth Lancaster, which was driven off track by the thunderstorms in Northern France, lost the main formation, and jettisoned its bombs on an unidentified town, after being held in searchlights for 3/2 minutes. Friedrichshafen was reached about 1/2 hour after the attack had ended, and this aircraft also proceeded to North Africa.

Daylight Reconnaissance.

25. Photographs taken on the day following the attack show considerable damage to the target. The roof of the large Zeppelin hanger, which was probably used as a workshop, showed only minor damage, but part of the south wall was destroyed by blast from a bomb exploding either internally or immediately outside, where large crater was seen. In addition two large workshops were damaged and 4 smaller buildings were partially demolished. 14,000 square yards of the roof of a large building under construction were destroyed, 2 small buildings were almost completely wrecked and 2 others were damaged. Nothing was known of the exact function of each of these buildings, but stocks of identified types of radio-communication apparatus had previously been seen in the store yards.

26. Damage was also caused to buildings of 2 other factories of the first priority, namely the Maybach Motorenbau G.m.b.h., manufacturing diesel and internal combustion engines and aero-engines, and the Zahnrad Fabrik Friedrichshafen A.G. producing gears, axles and brakes. At the airfield a large hangar was damaged and a barracks building partially destroyed. 2 dockside warehouses were demolished and a shed at the goods station half destroyed, and a passenger coach at the main railway station was gutted. 25 houses were wrecked and 9 severely damaged.

/..... Accuracy of Bombing

Accuracy of Bombing.

27. A detailed analysis has been made of the positions of craters seen on reconnaissance photographs, in relation to the target and to the estimated position of the T.I. which was assessed by the leader as accurate. The average radial error about the centre of the target was approximately 400 yards, and about the T.I., which was itself 200 yards from the centre of the target (or about 20 yards from the edge), was 200 yards. This indicates a systematic error, which was in fact down-wind, and may therefore have been caused by the increase in height of the attack, which brought the aircraft into a region of stronger wind than was anticipated. The smallness of the average error about the T.I. demonstrates clearly the success of the control exercised by the bombing leader, and also indicates that few of the main force used the indirect bombing method.

28. It is estimated that 9% of the total weight of bombs dropped fell on the target itself.

Get

29. The Southern Chain operated on the Carolina frequency and the Eastern Chain on the Virginia frequency throughout the raid; there was no separate target frequency. The average range obtained was 230 miles. Some interference was reported at the French coast, but the poor ranges were chiefly due to atmospheric conditions and not to jamming.

Enemy Defences

30. Flak. The Lancasters were engaged by moderate heavy flak and much light flak, and a ring of searchlights round the target was very active. 6 aircraft were damaged by flak, one seriously.

31. Fighters. 3 Ju.88's seen in the target area made no attack. Intercepted wireless traffic revealed late patrols in the Florennes / Juvin-court area, presumably waiting for the returning bombers, which, however, flew on safely to Africa.

Casualties.

32.	No. of aircraft missing.....	Nil
	" " " damaged (flak..... 6)	
	(fighters.....nil).....	6 (10%)
	(other causes.....nil)	

Berlin and Dusseldorf.

33. No. 8 Group despatched 4 Mosquitos to Berlin and one to Dusseldorf. All aircraft completed the task and returned without damage, although heavy flak and searchlights were reported at both targets and at Hanover. Heavy guns at Krefeld and Wittenzon also opened fire. Results of the bombing were not observed.

Mine-laying.

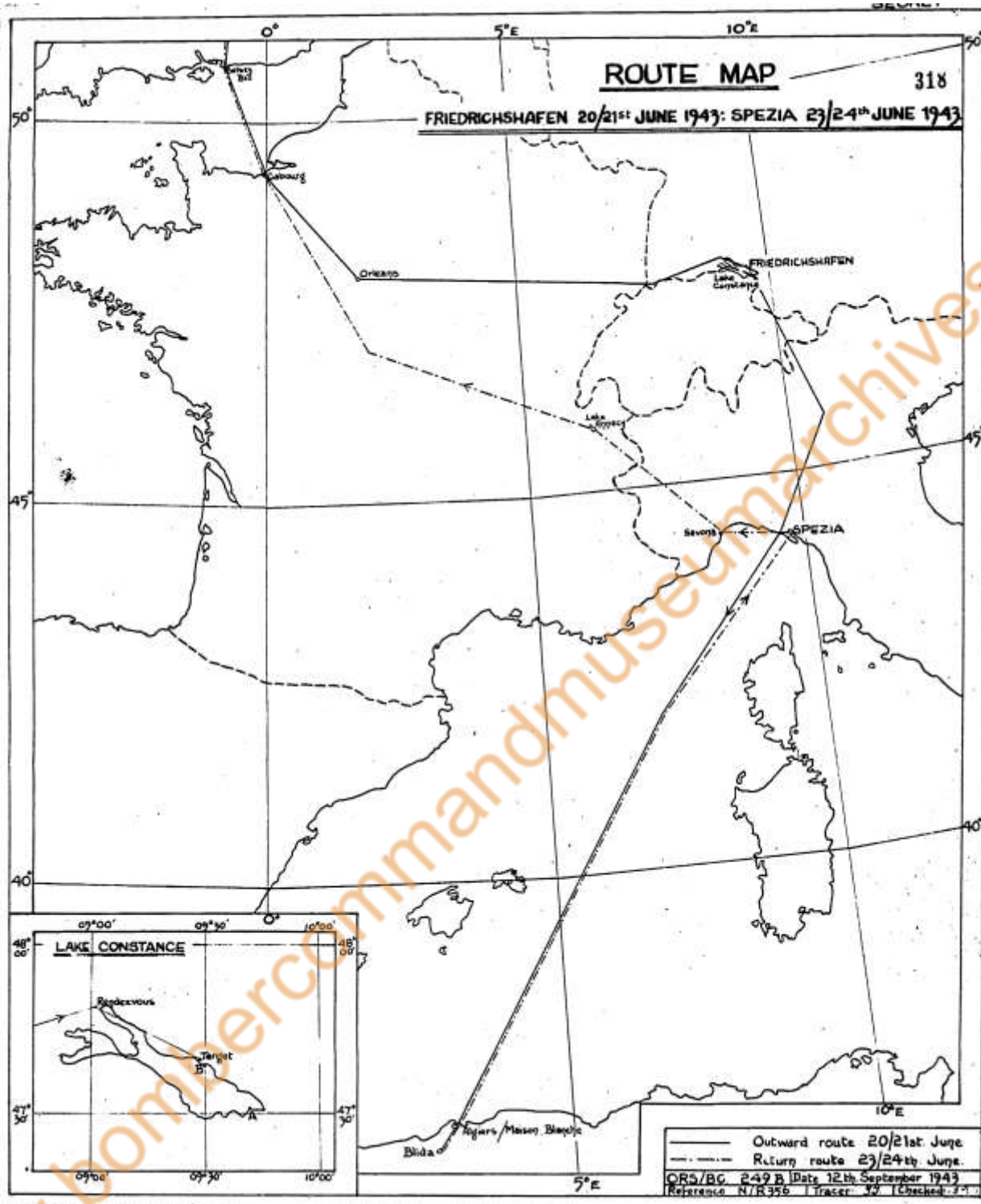
34. 11 Lancasters and Stirlings were detailed to lay mines in the Gironde Estuary and 4 Lancasters off La Pallice. 13 aircraft completed the operation successfully laying a total of 69 mines, and 2 Gironde sorties were abortive, being unable to pinpoint. One Stirling was seriously damaged in combat but all the aircraft returned safely.

Leaflets.

35. Leaflets were dispersed by 3 Wellingtons of Training Groups in the areas of Reims, Rouen and Amiens, and Rennes without incident.

KMO/PVD.
BC/s.26342/5 /ORS.
11th September, 1943.

FRIEDRICHSHAVEN. BERLIN. DUSSELDORF. MINDLAYING. LEAFLETS. (20/21st. JULY, 1943.)																
TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MIS. DZ	DAMAGE			INTERCEPTIONS		RESULTS		
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	Tons of Bombs		
											H.E.	Inc.				
FRIEDRICHSHAVEN	8 PFF.	Lanc. III	4	4	-	-	-	-	-	-	-	-	-	P. 154.9	19.9	-
	5	Lanc. III	56	55	1	-	-	-	5+	-	-	-	1	A. 3.3	-	-
FRIEDRICHSHAVEN TOTAL			60	59	1	-	-	-	5+	-	-	-	1	Heavy Bombs	33	-
											1000lb.	14000lb.				
BERLIN	8 PFF.	Mosq. IV	4	4	-	-	-	-	-	-	-	-	-	P. 3.1 tons.H.E.	1	-
DUSSELDORF	8 PFF.	Mosq. IV	1	1	-	-	-	-	-	-	-	-	-	P. 0.8 tons.H.E.	1	-
BOMBING TOTAL			65	64	1	-	-	-	5+	-	-	-	1			
MINDLAYING	1	Lanc. I	1	1	-	-	-	-	-	-	-	-	-	6 mines	-	-
GIRONDE R.	3	Lanc. III	7	5	-	-	-	-	-	-	-	-	-	30 mines	-	-
	3	Star. III	3	3	-	-	-	-	-	1,0	-	-	-	5 mines	-	-
LA PALICE	1	Lanc. III	4	4	-	-	-	-	-	-	-	-	-	24 mines	-	-
MINDLAYING TOTAL			15	13	-	-	-	-	-	1,0	-	-	1	69 mines	-	-
LEAFLETS REIMS	93	Well. III	1	1	-	-	-	-	-	-	-	-	-	-	-	-
ROUEN AND AMIENS	93	Well. III	1	1	-	-	-	-	-	-	-	-	-	-	-	-
RENNES	93	Well. III	1	1	-	-	-	-	-	-	-	-	-	-	-	-
LEAFLET TOTAL			3	3	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			83	80	1	-	-	-	5+	1,0	-	-	1	1	-	-



www.bombercommandmuseumarchives.ca

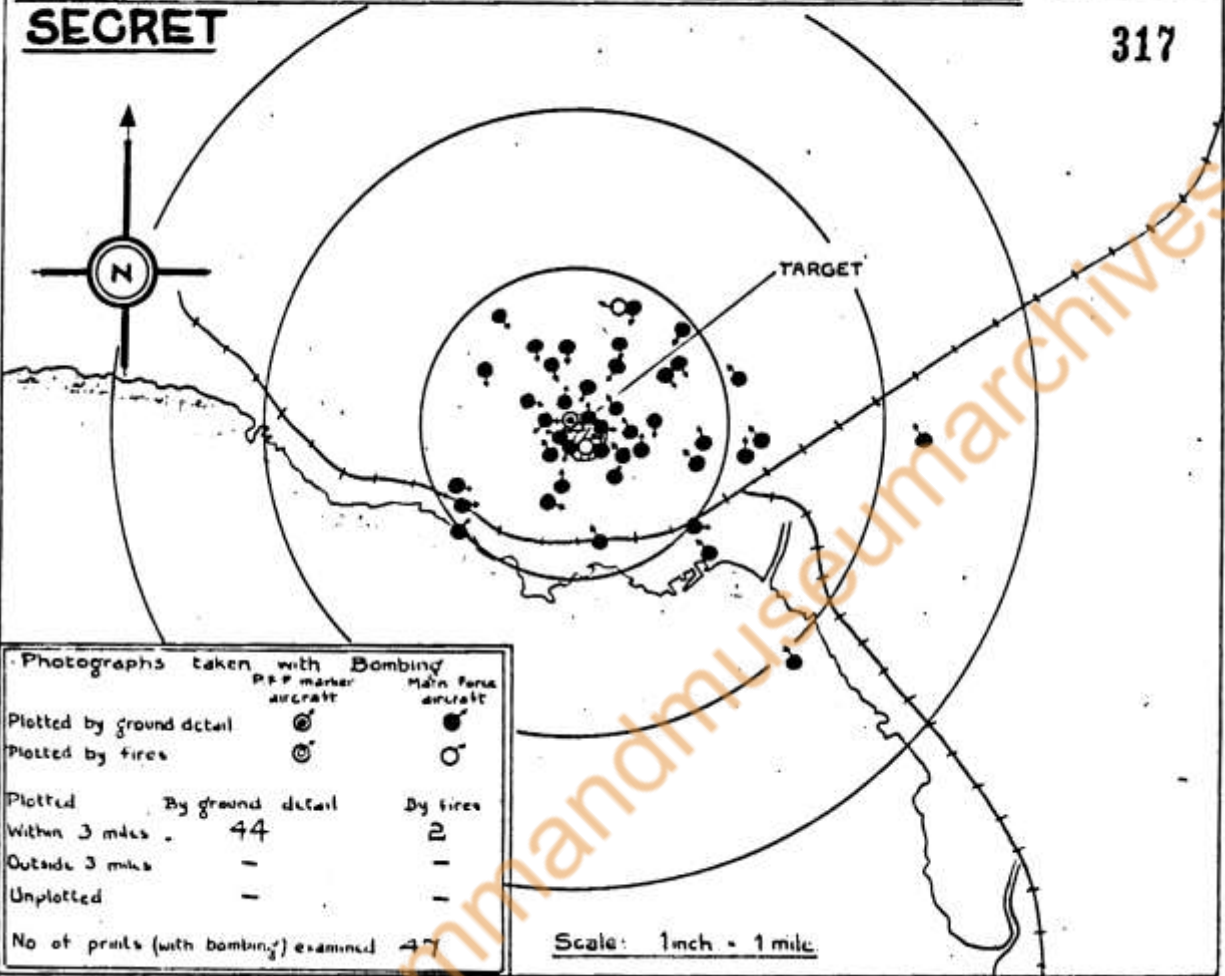
FINAL PLOT OF NIGHT PHOTOGRAPHS

TAKEN 20/21 JUNE 1943 TARGET: FRIEDRICHSHAFEN

O.R.S. B.C.	No. - 2258
Date: 19.8.43	Tracer: J.J.
Ref: M/S 55a	Cmd: J.C.

SECRET

317



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BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 21/22nd. JUNE, 1943.KREFELD: Hamborn: LeafletsSUMMARYKREFELD

1. A force of 705 bombers carried out a devastating attack on the town of Krefeld, which was accurately ground-marked by Oboe Mosquitoes. More than half the town was destroyed, mainly by fire which spread, apparently unchecked, through its northern part. Enemy aircraft were very active, and at least 30 of the 42 missing bombers are believed to have fallen to fighters.

Hamborn

2. An Oboe Mosquito attacked Hamborn using its precision device, and returned undamaged.

Leaflets

3. 15 Wellingtons dispersed leaflets over Northern France without loss.

Meteorological Forecast

4. Midnight frontal positions:- (1) cold from 62°N.12°E. to 57°N.15°E. to 50°N.12°E. to N. Italy (2) warm, approaching W. Ireland.

Bases:- Fine. Small amounts of strato-cumulus at 2-3,000'. Good visibility.

Germany:- Well broken layer cloud along N.W. coast. Little cloud N. of a line Dijon-Hamburg; thence, residual thundery cloud, with thunderstorms near cold front. Ruhr: very thin layer of medium cloud between 15,000' and 20,000', probably clearing by 0100. Chance of small amounts of strato-cumulus at 2-3,000'; moderate visibility.

France: Fine. Moderate visibility. Well broken layer cloud in N.W.

<u>Winds:</u>	<u>750 mbs.</u>	<u>500 mbs.</u>
N. of 53°N.	280°/20-25 m.p.h.	270°/25 m.p.h.
S. of 53°N.	280°/10 m.p.h.	270°/15 m.p.h.
02°E - Ruhr.	300°/10-15 m.p.h.	300°/20-25 m.p.h.
Ruhr.	-	240°/25-30 m.p.h.

At 300 mb: base - 04°E., 280°/25-30 m.p.h. 04°E - Ruhr, 200°/50-55 m.p.h.

KREFELDPlan of Attack

5. Zero hour - 0130 hours. Period of attack 0127 - 0220 hours.

Between 0127 and 0219 hours, 10 Oboe Mosquitoes were to mark the aiming point by releasing red T.I's in salvo. To guard against failure of the Mosquitoes, two waves of Y aircraft (18 at 0132 and 13 at 0157 hours) were

...../detailed to drop

detailed to drop yellow T.I's blindly on H2S if no red T.I's were seen on arrival. Between 0132 and 0218 hours, 37 backers-up were to aim green T.I's at red if seen, but otherwise at the estimated centre of the concentration of yellows; if neither red nor yellow T.I's were seen, green T.I's were to be aimed at the estimated centre of the existing pattern of green. All T.I's dropped after 0145 hours were to cascade from 10,00': before that time all were to cascade from 3,000'.

Timing

<u>Mosquitoes*</u> (Red T.I's)	<u>Backers-up</u> (green T.I's)	<u>Y a/c.</u> (yellow T.I's if necessary.)	<u>Main Force</u>
0127 & 0131	3 at 1 min.intervals	0132-34	18 at 0132
-	1 at	0136	-
0137	-	-	-
-	2 at 1 min.intervals	0133-39	-
-	2 at 1 min.intervals	0141-42	-
0143	-	-	-
-	5 at 1 min.intervals	0144-48	-
0149	-	-	-
-	5 at 1 min.intervals	0150-54	-
0155	-	-	-
-	5 at 1 min.intervals	0156-0200	13 at 0157
0201	-	-	-
-	5 at 1 min.intervals	0202-06	-
0207	-	-	-
-	4 at 1 min.intervals	0208-11	-
0213	-	-	-
-	5 at 1 min.intervals	0214-28	-
0219	-	-	-

* Plus two reserves.

Bomb Loads - Marker Aircraft

7.

4 Mosquitoes - 2 T.I. red + 1 T.I. red LB. + 1 T.I. red 5 mins. delay.
 8 Mosquitoes - 3 T.I. red + 1 T.I. red LB.
 Backers-up - 6 Stirlings - 5 T.I. green (2 LB) + 4 x 2000 H.C.
 6 Halifaxes - 5 T.I. green (2 LB) + 7 x 500 H.C. + 3 x 1000 GP (LB)
 26 Lancasters - 5 T.I. green (2 LB) + 1 x 4000 H.C. + 6 x 1000 G.P.

Y aircraft (1st.wave) 5 Stirs. - 2 T.I. yellow (LB) + 4 x 2000 H.C.
 8 Hals. - 2 T.I. yellow (LB) + 10 x 500 MC + 3 x 1000 GP (LB)
 5 Lanos. - 2 T.I. yellow (LB) + 1 x 4000 HC + 6 x 1000 MC.
 (2nd.wave) 4 Stirs. - 4 T.I. yellow (3 LB) + 4 x 2000 HC.
 5 Hals. - 4 T.I. yellow (3 LB) + 8 x 500 MC + 3 x 1000 GP (LB)
 3 Lanos. - 5 T.I. yellow (3 LB) + 1 x 4000 HC + 6 x 1000 GP.

Routes

8. P.P.F. - Aldeburgh - TARGET - turn left - Noordwijk - Happisburgh.
 1 Gp. - Southwold - 51°48'N. 03°50'E - TARGET - turn left - Noordwijk - Mablethorpe.
 3 Gp. - Aldeburgh - 51°48'N. 03°50'E - TARGET - turn left Noordwijk - Southwold
 4 Gp. - Southwold - 51°48'N. 03°50'E - TARGET - turn left Noordwijk - Southwold.
 5 Gp. - as passed verbally.
 6 Gp. - Base - 51°48'N. 03°50'E - TARGET - turn left - Noordwijk - Base.

...../Sorties.

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Sorties

9.	(a)	No. of aircraft despatched.....	705
	(b)	" " " reporting attack on primary area.....	619 (87.8%)
	(c)	" " " " " alternative area.....	2 (0.2%)
	(d)	" " abortive sorties (technical or	
		{ manipulative defect.....34	
		{ equipment left behind.... 2	
		{ reserve marker - not reqd. 2	..... 42 (6.0%)
		{ attacked by fighter..... 1	
		{ hit by flak..... 1	
		{ sickness of crew..... 1	
		{ cause unknown -crashed... 1	
	(e)	" " aircraft missing.....	42 (6.0%)

Weather Experienced

10. Bases:- Fit all night.

Route:- Very small patches of cloud, otherwise clear, with moderate to good visibility.

Target:- 4-6/10ths. thin patches of strato-cumulus at first, tops 8-10,000ft. with occasional patches of 8/10ths. thin cloud through which markers could be seen plainly. Cloud cleared to 0-3/10ths. during the attack. Visibility, moderate to good, with slight ground haze.

surface wind: Very light, southwesterly.

Moon, 75% of full, up during the attack, rising about 0030 hours at the target.

Night Photographic Evidence

11.	No. of photographs with bombing examined.....	547
	" " " showing (plotted within 3 miles.....)	52
	ground detail { " outside 3 miles.....23	.....116
	{ unplotted.....41	
	" of photographs (plotted within 3 miles.....)	308
	showing fire-tracks { " outside 3 miles..... 23	..... 431
	{ unplotted.....100	
	No. of aircraft estimated from the photographic evidence to have	
	bombed within 3 miles of the aiming point.....	457

Narrative of Attack

12. 9 of the 10 Oboe Mosquitoes detailed to mark the target dropped their red T.I.'s accurately but at irregular intervals. Since, however, 4 Mosquitoes carried one 5 minute delay T.I. the marking was almost continuous. The backing up was excellent, and a concentrated attack was delivered on the centre of Krefeld. Although there was a tendency for the attack to drift backwards along the line of approach, night photographs indicate that about 75% of the force bombed within 3 miles of the aiming point, a high proportion being on the built-up area. The raid was tactically successful and caused exceptionally heavy damage.

Daylight Reconnaissance

13. Reconnaissance photographs show that more than half the town of Krefeld was destroyed. Most of the damage was concentrated in the centre, and spread northwards and eastwards to the industrial district, where the damage is particularly severe, but there were also scattered incidents in the south of the town. Little damage was caused in suburban areas. The large areas of devastation were mainly caused by fires which appear to have spread unchecked through the northern part of the town, but within these areas there is abundant evidence of demolition caused by H.E.

14. Although no industrial targets to which priority ratings are given appeared to have been affected, 11 identified factories and 12 other small industrial concerns were destroyed or severely damaged. These include 8 textile factories, some of which were engaged in weaving parachute silk, and a factory making machinery.

15. The gas works was very severely damaged, 2 main buildings being partially demolished, and 2 gasholders damaged by fire. The old buildings of the municipal power-station were damaged and the administrative offices gutted. 2 fire stations, 2 police stations, 2 post offices and 2 tramway depots were destroyed or damaged in the general conflagration, and many military barrack buildings were partially wholly wrecked.

16. The greatest damage, however, was to business and residential property, including many public buildings such as the district courts, the town assembly hall, the town theatre and the market hall. It is estimated that almost 60% of the buildings in the fully built-up area of Krefeld were completely destroyed, and that altogether 25,000 housing units were rendered uninhabitable.

Alternative areas

17. One aircraft dropped its load on a searchlight concentration at Overflak and another on an unspecified target east of Eindhoven, both owing to fighter attack.

Special Equipment

18. Oboe This was the first operation after the introduction of K. Oboe. The target was accurately ground marked by 9 of the 10 Oboe Mosquitoes despatched and neither of the 2 reserves was called. The irregularity of the marking was almost nullified by including one 5 minute delay red T.I. in the load of 4 of the Mosquitoes. One aircraft returned early owing to engine failure. It is noteworthy that there were no failures of Oboe equipment on the first night that the new system was used on operations.

19. H2S To guard against failure of K-Oboe on its first operational trial 31 H2S aircraft were despatched to mark the target blindly, if no red T.I's dropped by Oboe Mosquitoes were visible. 25 of these bombed (only 3 on H2S), and the single load of markers which was released was aimed at red T.I's. The remaining 6 aircraft were missing.

20. H2S was carried by 18 more aircraft as a navigational aid, and one used it to check the accuracy of the red T.I's, which it bombed. 6 of these aircraft also failed to return; thus, of a total of 49 Y-type aircraft despatched, 12 (2.5%) were lost.

21. Gea. The Eastern Chain operated on the Virginia frequency throughout the raid, and on the Zanesville (target) frequency between 0130 and 0239 hours. The average ranges obtained were 225 and 220 miles on the outward and homeward routes, respectively. Interference of the frequency modulated type was heavy over enemy territory, and obscured the A. signal at an early stage; as a result the average ranges were the poorest obtained for some time. The number of jamming on this route had apparently been increased.

Enemy Defences

22. Flak and Searchlights Ground defences at Krefeld consisted of modern heavy flak and a very little light flak. Predicted heavy flak decreased in intensity as the attack proceeded and in the later stages some barrage fire was reported. Only a small number of searchlights exposed and these operated at times in 2 cones to the N. and S. of the target. They were hampered by the smoke and moonlight and gave little assistance to the flak. En route, heavy flak was reported at Eindhoven, Rotterdam, Amsterdam, Utrecht and Leyden and from the Dutch Islands and a ship off Noordwijk, and some intense light flak was reported from Katwijk. In all 28 aircraft were damaged by flak, two being totally destroyed and five others seriously damaged.

...../Fighters.

23. Fighters Intercepted enemy wireless traffic disclosed 12 patrols, of which were located. 25 pursuits were overheard and 21 claims in all were made in the following areas:- Flushing (2), Haamstede (2), Rotterdam (6), N.E. of Gilze (5), Noordwijk (1), St. Fort (1), Florennes (3) and an unidentified area (1). Crews reported 27 attacks and 60 other interceptions. Half of the attacks were on the outward journey, near the Dutch Islands and the coast of Holland (8), Hertogenbosch (1), Eindhoven (2), and Venlo (3), 7 more attacks occurred in the target area and 6 on the homeward route, near Venlo (1), Utrecht (1) and the Dutch Coast and out to sea (4). 3 aircraft were damaged by fighters, one outbound at Eindhoven, and one outbound and one homebound near the Dutch coast.

Casualties

24. No. of aircraft missing..... 42 (6.0%)
 " " " damaged (a) flak.....28
 (b) fighter..... 3 }..... 37 (5.2%)
 (c) other causes..... 6

It has been estimated from reports of returning crews that 8 aircraft were shot down by flak and 30 by fighters. Of the 4 other aircraft lost, one was seen to crash near the Dutch Island, the cause being unknown. In the target area 3 losses were probably due to flak and 4 to fighters. Other flak losses probably occurred at Breda, Woensdrecht/Tilburg, Noordwijk, Eindhoven and Rotterdam while fighters are reported to have shot down aircraft at Breda (1), the Dutch Islands (3), Tilburg/Hertogenbosch area (5), Utrecht (3), Geldern (1), Rotterdam (2), Eindhoven (2), Venlo (1), Roermond (1), Noordwijk (2), Deelen (1), IJmuiden (1) and at sea off the Dutch coast on the return (3). The conditions of moonlight probably contributed considerably to the success of fighters on this night.

Three enemy fighters were probably destroyed, 2 at Krefeld and one near Venlo.

The crews of the two aircraft which crashed in the North Sea were picked up by air Sea Rescue service. Both aircraft had been damaged by flak. One of the aircraft shot down by fighter over the North Sea was probably 35 J from which S.O.S. calls were obtained at 0322 and 0328.

6 aircraft were damaged by British incendiary bombs.

HAMBORN

25. A single Oboe Mosquito bombed Hamborn using its special equipment. Results were unobserved, and the aircraft returned without incident.

Leaflets

26. 15 Wellingtons of Training Groups scattered leaflets at many places in northern France, all returning unharmed. Little ground opposition was met at Cherbourg and Lille and one interception was reported.

APPENDIX.

Timing of Attack

I. Pathfinder Force

(1) 9 Oboe Mosquitoes attacked at:- 0127, 0134, 0137, 0148(2), 0159, 0209, 0239.

(11) 36 bombers-4 attacked at:- 0135, 0136(2), 0137, 0139, 0140, 0145(2), 0147(2), 0148(3), 0151(3), 0152, 0156, 0159, 0202(4), 0203, 0204, 0205, 0207, 0208(2), 0211, 0212(3), 0214, 0216, 0218, 0220.

...../(111)

(iii) 25 reserve markers attacked at:- 0130, 0132(6), 0133, 0134, 0135, 0136(2), 0150, 0152, 0153, 0154(2), 0156(2), 0157(2), 0158(3), 0201. (Not required as markers).

Main Force

Section I. (Lancasters with selected crews)

Attacked 2 minutes early.....	1
" within prescribed period (0132-0141)....	85
" 1-11 minutes late.....	18
	<u>104</u>

Section II. (Wellingtons)

Attacked 1-10 minutes early.....	2
" within prescribed period (0141-0149)....	65
" 1-11 minutes late.....	21
	<u>88</u>

Section III. (Stirlings)

Attacked 1-10 minutes early.....	3
" within prescribed period (0149-0157)....	70
" 1-10 minutes late.....	22
	<u>95</u>

Section IV & V. (Halifaxes)

Attacked 1-10 minutes early.....	7
" within prescribed period (0157-0211)....	120
" 1-10 minutes late.....	27
" time unknown.....	1
	<u>155</u>

Section VI. (Remaining Lancasters)

Attacked 1-11 minutes early.....	21
" within prescribed period (0211-0220)....	86
" 1-5 minutes late.....	0
	<u>107</u>

Bomb Loads

II. Pathfinder Force

T.I. only.....	9	Markitoes.
H.E. + T.I.....	58	
H.E. + T.I. + 30lb.inc.		
+ 4lb. inc.....	3	
	<u>70</u>	

Main Force

H.E. + 30lb. + 4lb.inc.....	383
H.E. + 30lb.inc.....	12
H.E. only.....	30
30lb. inc. + 4lb. inc.....	124
	<u>549</u>

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		AGGRESSIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS		
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACKED	NOT ATTACKED	Tons of Bombs H.E. Inc.		
BREMEN	8 PFF	Mosq-IV.	12	9	-	2*	1	-	-	-	-	-	-	-	P. 954.5	993.4
		Stir-I	13	9	-	-	-	4	-	-	-	3	-	A. 5.8	1.8	
		Stir-III	1	1	-	-	-	-	-	-	-	-	-	M. 73.2	46.7	
		Hal-III	11	8	-	-	-	3	1+1E	-	-	-	-	-	-	-
		Hal-IV	14	12	-	-	-	2	1	-	-	-	-	-	-	-
	8 MAIN FORCE	Lanc-I	9	9	-	-	-	-	1	-	-	1	-	-	-	-
		Lanc-III	25	22	-	-	1	2	-	-	-	1	2	-	-	-
		Stir-I	5	5	-	-	-	-	-	-	-	-	-	-	-	-
		Hal-III	4	3	-	-	-	1	-	1+0	-	1	1	-	-	-
		Hal-IV	4	4	-	-	-	-	-	-	-	-	-	-	-	-
	1	Lanc-I	6	6	-	-	-	-	-	-	-	-	-	1	-	-
		Lanc-III	9	8	-	-	-	1	1	-	-	-	-	-	-	-
		Well-X	30	28	-	-	-	2	2	-	-	1	4	-	-	-
	3	Lanc-III	80	73	-	-	-	6	1	3+	-	1	9	-	-	-
		Stir-I	7	6	-	-	-	1	4	1B	-	-	3	-	-	-
		Stir-III	91	84	-	1	1	5	5+	-	-	3	8	-	-	-
	4	Lanc-II	11	10	-	-	1	-	1	1+0	-	-	1	-	-	-
		Hal-III	105	89	-	1	11	4	3+	-	1	6	10	-	-	-
		Hal-IV	27	22	1	1	2	1	1+0	1+0	-	2	2	-	-	-
	5	Well-X	40	36	-	1	2	1	-	1	-	3	2	-	-	-
Lanc-I		48	44	-	-	1	3	-	-	1	1	1	-	-	-	
6	Lanc-III	44	42	1	-	1	-	2	-	2+0	3	3	-	-	-	
	Hal-III	44	37	-	-	3	4	-	-	-	2	6	-	-	-	
6	Hal-IV	28	20	-	-	4	4	-	-	-	-	1	-	-	-	
	Well-X	28	20	-	-	4	4	-	-	-	-	1	-	-	-	
BREMEN TOTAL			705	619	2	4+2*	36	42	21+	1+	2+0	27	60	-	-	
									4+0	2+0	+	-	-	-	-	
									+1B	-	-	-	-	-	-	
									+2E	-	-	-	-	-	-	

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		AGGRESSIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACKED	NOT ATTACKED	
BREMEN TOTAL			705	619	2	4+2*	36	42	21+	1+	2+0	27	60	-
									4+0	2+0	+	-	-	-
									+1B	-	-	-	-	-
									+2E	-	-	-	-	-
HAMBURG	8 PFF	Mosq-IV.	1	1	-	-	-	-	-	-	-	-	-	P.O. Stone. H.E.
BOMBING TOTAL			706	620	2	4+2*	36	42	21+	1+	2+0	27	60	-
									4+0	2+0	+	-	-	-
									+1B	-	-	-	-	-
									+2E	-	-	-	-	-
LE FLANDRES	91	Well-III	5	5	-	-	-	-	-	-	-	-	-	-
ORLEANS	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
PARIS	91	Well-X	2	2	-	-	-	-	-	-	-	-	-	-
ALBERT	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
LILLE	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
BOULOGNE	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
TOURNAI	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
NANTES	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
ANGERS	92	Well-III	1	1	-	-	-	-	-	-	-	-	-	-
LE HANS	92	Well-III	1	1	-	-	-	-	-	-	-	-	1	-
LE FLANDRES TOTAL			15	15	-	-	-	-	-	-	-	-	-	-
TOTAL			721	635	2	4+2*	36	42	21+	1+	2+0	27	61	-
									4+0	2+0	+	-	-	-
									+1B	-	-	-	-	-
									+2E	-	-	-	-	-

* Reserve aircraft - not required.

RAID TRACK NOT AVAILABLE

www.bombercommandmuseumarchives.ca

FINAL PLOT OF NIGHT PHOTOGRAPHS

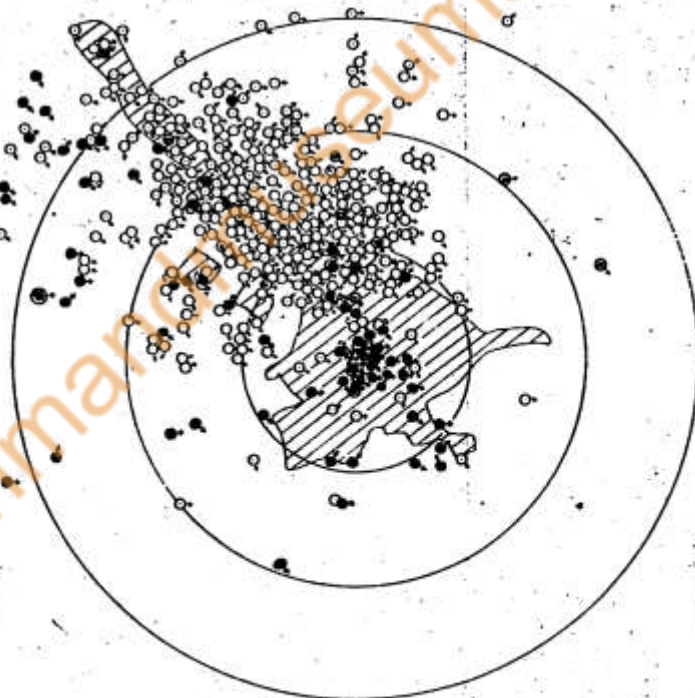
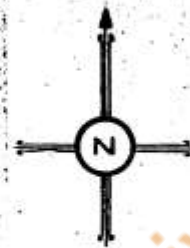
TAKEN 21/22 JUNE 1943

TARGET: KREFELD.

O.R.S B.C	No.- 224B
Date: 18.8.43	Type: J.J.
Ref: NA 357	Cmd: I.C.C.

SECRET

324



Photographs taken with Bombing		
	PFF marker aircraft	Main Force aircraft
Plotted by ground detail	●	○
Plotted by fires	⊙	⊚
Plotted	By ground detail	By fires
Within 3 miles	72	308
Outside 3 miles	23	23
Unplotted	41	100
Total prints (with bombing) examined	551	

Scale: 1 inch = 1 mile

www.bombardier.com archives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 22/23rd JUNE, 1943MULHEIM: Berlin: Cologne: Minelaying: Leaflets.SUMMARY.MULHEIM.

A large force of 557 aircraft made a successful attack on the city of Mulheim, which was accurately groundmarked by Oboc Mosquitoes. The city centre and the industrial area to the North suffered severely, major damage being caused to the Vereinigte Stahlwerke A.G., August Thyssen Hütte and 2 other large steelworks. The main railway station was almost destroyed, and many public buildings damaged. About one fifth of the residential property of the city was rendered uninhabitable.

35 aircraft failed to return, at least 16 being lost to fighters and 9 to flak. Berlin and Cologne.

Berlin and Cologne were each attacked by 4 Mosquitoes of No. 8 Group; all the aircraft returned undamaged.

Minelaying.

52 aircraft were despatched to lay mines off the Frisian Islands. 47 completed the task, laying a total of 173 mines, and the remainder returned early. No aircraft were lost.

Leaflets.

Leaflets were dispersed in many areas of Northern France by 23 of a force of 100 aircraft. 2 Wellingtons returned early and one is missing.

Metereological Forecast.

Estimated midnight position of fronts (1) occluded front: Yorkshire - S.W. England, with narrow belt of rain along it. S.E. of this occlusion, much medium cloud and broken low cloud, with moderate visibility.

Home bases:- generally fit for take-off, with small amounts of low cloud at 1,000 ft. and broken high and medium cloud in layers over Lincolnshire and East Anglia. Yorkshire 5-8/10ths cloud at 2,000 ft. with 8-10/10ths medium and high cloud in several layers, mainly below 12,000 ft. with light rain locally. For return in Northern bases, well layered cloud, base 1,500 ft. or above, with layers of medium cloud up to 14,000 ft. and patchy cirrus above. Northern bases, broken low cloud not below 2,000 ft. and layers of medium and high cloud. Visibility throughout operational area moderate in most areas. Training groups; fit at most bases, except possibly the higher stations in 91 Group.

France:- Low stratus with base below 1,000 ft., decreasing to a small amount of Nantes.

Low Countries:- Thick medium cloud.

Germany:- Thin broken medium cloud N. of 50°N., much medium cloud probable in extreme E. Central Germany, fine. S. Germany, much medium cloud.

Route to Ruhr:- patches of low cloud and layers of medium and high cloud, thickening eastwards, and thinning appreciably over the continent.

.... / Ruhr

Ruhr:- small amounts of very thin medium cloud between 15 and 18,000 ft. as expected, but up to 7/10ths thin cloud may drift over the target at the time of the attack. Visibility moderate apart from industrial haze.

Frisians:- good visibility, patchy low cloud, less than 3/10ths, and possibly up to 7/10ths high and medium cloud.

Berlin:- clear sky, moderate to good visibility.

Winds:-	750 mb.	500 mb.	300 mb.
N. of 53°N	220°/50 m.p.h.	230°/65 m.p.h.	250°/100 m.p.h.
S. of 53°N	230°/35-40 m.p.h.	240°/50 m.p.h.	260°/75 m.p.h.
2°E - 5° E	230°/25 m.p.h.	240°/40 m.p.h.	270°/55-60 m.p.h.
5° E - Ruhr	270°/5-10 m.p.h.	260°/25 m.p.h.	280°/45 m.p.h.

Plan of Attack.

6. Zero hour 0120

Period of Attack 0117-0159.

En route to the target, 8 Oboc Mosquitoes were to drop yellow T.I's at 51°43'N. 06°52'E, 4 miles to port of the main force's track. Between (Z - 3) and (Z + 36) the Mosquitoes were to drop red T.I's in salvo on the aiming point. Between (Z + 2) & (Z + 35), 29 Lancasters, as backers up, were to aim green T.I's to overshoot by 1 sec. red T.I's, if possible, but otherwise the estimated centre of existing green T.I's. The main force crews, divided into 8 sections with the best crews of Lancasters and Halifaxes in the first half of the attack, were to aim at red T.I's, if possible, but otherwise at the centre of all greens. All main force aircraft were to carry mixed loads except the Stirlings which were to carry incendiaries only. The T.I's dropped during the first ten minutes of the attack were to cascade at 3,000' or 6,000', thereafter they were to cascade at 3,000' or 10,000'.

For training, 2 Oboc Mosquitoes were to attack each with 3 x 500 lb. M.C. bombs at (Z + 52) and (Z + 57) respectively.

The Eastern Gee Chain was to be available on two frequencies between 0030 and 0215 hours.

Timing.

7. Mosquitoes	Backers-up	Main Force.
Z - 3	-	-
Z + 1	-	Z-(Z+4) Sec.1 Lancasters
-	(Z+2)-(Z+6) 5 at 1 min.intervals	(Z+5)-(Z+9) Sec.2 Lancasters
Z + 7	-	-
-	(Z+8)-(Z+12) 5 at 1 min.intervals	(Z+10)-(Z+14) Sec.3 Halifaxes
Z + 13	-	-
-	(Z+14)-(Z+18) 5 at 1 min.intervals	(Z+15)-(Z+19) Sec.4 Stirlings
Z + 19	-	-
-	(Z+20)-(Z+24) 5 at 1 min.intervals	(Z+20)-(Z+24) Sec.5 Stirlings, Halifaxes & Well
Z + 25	-	-
-	(Z+26)-(Z+30) 5 at 1 min.intervals	(Z+25)-(Z+29) Sec.6 Hals. & Well
Z + 31	-	-
-	(Z+32)-(Z+35) 4 at 1 min.intervals	(Z+30)-(Z+34) Sec.7 Lencs. & B
Z + 36	-	(Z+35)-(Z+39) Sec.8 Lancasters

Bomb Loads - Marker Aircraft.

8. 10 Mosquitoes - 1 T.I. yellow (LB) + 3 T.I. red (1 LB)
29 Lancasters - 4 T.I. green (2 LB) + 1 x 4000 H⁰ + 6 x 1000 GP.

Routes.

9. P.F.F. - Base - 52°22'N. 03°50'E - Bocholt - Target - wide right turn - 51°25'N 06°30'E - Noordwijk - Southwold Base.

1 Group - Southwold - Noordwijk - Bocholt - Target - wide right turn - 51°24'N 06°30'E - Noordwijk - Mablethorpe

.../3 Group

3 Group) - Southwold - Noordwijk - Bochoolt - Target - wide right turn -
 4 Group) 51°25'N 06°30'E - Noordwijk - Southwold.
 6 Group)

5 Group - "as passed verbally."

Sorties.

10.	No. of aircraft despatched	557
	" " " reporting attack on primary area	464 (83.3%)
	" " " " " alternative area	4 (0.7%)
	" " abortive sorties (technical or manipulative errors . 49)	
	{ late on target 2	
	{ illness of crew 1	. 54 (9.7%)
	{ attacked by fighter. 1	
	{ reserve, not required 1	
	" " aircraft missing	35 (6.3%)

Weather Experienced.

11. Home Bases:- Patches of low stratus affected the south part of the country, but otherwise all bases were fit.

Route:- 2 or 3 layers of cloud 8-10/10ths, base 2-3,000 ft., tops 6,000 ft. Broken Layer cloud at 10,000 ft. and between 12 and 15,000 ft. Broken cirrus above. Icing was reported at 15,000 ft. The layers of cloud broke over the Dutch coast, and contrails formed between 18,000 ft. and 20,000 ft. from the Dutch coast to the target.

Target:- Isolated patches of medium cloud, mainly 2-5/10ths, breaking to nil at times. This cloud was thin and varied between 15 and 18,000 ft. Scattered cirrus cloud above, base 25,000 ft. Visibility moderate, with slight ground haze. Winds, 18-20,000 ft. 260°-270°/30 m.p.h. Surface winds:- light, variable. Moon:- 65% of full, up during the period of attack.

Enemy Airfields:- Broken medium cloud, with moderate to good visibility.

Night Photographic Statistics.

12. Owing to thin cloud, which was sufficient to obscure most of the photographs, the sample of photographs showing ground detail was very small, being only 5.8% of the aircraft reporting attack. Of the 15 photographs plotted, 9 were within 3 miles of the aiming point. It was not possible to make the usual plottings by fire-tracks, but an approximate assessment of fire-track photographs, linked with a fire-mosaic from a slow-speed-shutter camera, indicates that the main weight of the attack fell on Mulheim and tailed off to the N.N.E., extending to about 2 miles N. of Oberhausen. It seems probable that 25-30% of the attack fell on the built-up area of Mulheim, including the Thyssen Steel Works.

Narrative of Attack.

13. Red T.I.'s were accurately placed by 8 Oboe Mosquitoes including one reserve. The timing was fairly good, and the 2 short breaks in marking were covered by the backers-up, which kept the target marked by green T.I.'s throughout the raid. The main force bombed almost entirely on T.I.'s, crews' reports and daylight reconnaissance photographs indicating that a good concentration was achieved. There is nothing to suggest that the enemy decoyed any aircraft from the target by using dummy T.I.'s.

Daylight Reconnaissance.

14. Reconnaissance photographs show very heavy damage to industrial, business and residential property, concentrated almost entirely in the closely built-up area of the old town, and to the north of it, where the heavy iron and steel works are situated. This important group of works consists of the Vereinigte Stahlwerke A.G., Fr. Wilhelmshutte and Siemens - Schuckertwerke A.G., each of which sustained major damage. Other severe industrial damage includes buildings of the Rheinische Filz- und Pappfabrik and 15 unidentified factories, 8 of which were devastated.

The main railway station was almost completely destroyed and 2 other stations were damaged. The extensive railway workshops west of the River Ruhr were also affected. 22 public buildings, including two large municipal buildings and the main post-office, were damaged, 9 being partially or wholly destroyed and 11 severely damaged. 3 commercial buildings and 3 hatted camps, one of which was demolished, were also damaged.

Widespread damage to business and residential property, mainly in the old town and to the north-east, was chiefly caused by fire. The total number of dwelling units rendered uninhabitable was estimated to be 6,136 out of a total of 33,000.

Alternative Targets

15. 4 aircraft attacked various alternative targets in the Ruhr.

Special Equipment

16. Oboe 12 Oboe Mosquitos were despatched, 8 as ground-markers, 2 as reserves and 2 to carry out a training attack at the end of the raid. 7 markers and one reserve dropped green T.I's accurately, the timing being good throughout, so that almost continuous marking by Oboe was attained. One marker returned early owing to failure of its Oboe equipment, the second reserve was not required. One of the 2 training aircraft bombed on Oboe, but the other used visual identification since, owing to supercharger failure, it was unable to gain sufficient height to use Oboe.

17. H2S H2S was carried as a navigational aid by 12 aircraft, only one of which used its equipment to check its position at bombing.

18. Gee The Eastern chain operated on the Virginia frequency throughout the raid and on the target (Zanesville) frequency from 00.30 to 02.15 hours. The average range obtained on both outward and homeward routes was 230 miles. Conditions were very similar to those prevailing on the last raid on the Ruhr (Wrefeld 21/22nd, June). Jamming was heavy on both frequencies, though on this occasion it was less serious on the Virginia than on the target frequency. The B and C signals were strong but the A signal was weak and soon lost in the heavy jamming.

Enemy Defences

19. (a) Flak and Searchlights At the target moderate heavy flak co-operated with a small number of searchlights which at times formed up to 4 cones. Intense heavy flak was reported at neighbouring places, in particular at Essen and Duisburg. En route heavy flak was active at Soesterberg, Noordwijk, Utrecht, Amsterdam and Rotterdam. 91 aircraft were damaged by flak, 11 seriously. At least 40 of these are stated to have been hit in the target area.

20. (b) Fighters Enemy wireless traffic overheard in this country revealed that 13 patrols were active and made at least 35 pursuits. 16 bombers were claimed destroyed in the areas of Alkmaar (4), Texel (1), Zwolle (1), Rhine (1), Arnhem Deelen (4), Flushing (2), Noordwijk (2), and Soesterberg (1).

Bomber crews reported 70 interceptions which developed into combats in 34 cases; 18 being attacks. 7 attacks were made on outbound aircraft (4 at Utrecht), 7 on homebound aircraft, (3 in the Nijmegen area), and a further 4 attacks were made over the target. Six aircraft were damaged by fighters, 3 seriously.

Casualties

21.	No. of aircraft missing.....	35 (6.3%)
	" " " damaged (a) flak.....	88 ⁿ)
	(b) fighter.....	3)..... 101(18.1%)
	(c) flak & fighter.....	3)
	(d) other causes.....	7)

*Including one which was mainly damaged by British incendiary bombs.

...../It is probable

It is probable that flak accounted for 9 of our losses, 6 at Mulheim, and the others at Ekerich, Utrecht and Amsterdam. Fighter losses have been identified as possibly occurring at Amsterdam (2), Soesterberg/Utrecht (7), Wesel (1), Nijmegen (1), Hertogenbosch (1), Noordwijk (1), in the target area (2), and to sea off Katwyk (1). 7 other losses due to unknown causes were reported at Deelen (1), Bocholt (1), Mulheim (2), Antwerp (1) and over the North Sea off Katwyk (2).

Two Lancasters were damaged in collision over the target, and one by fire from another Lancaster. 5 aircraft, one of which was also hit by flak, were damaged by incendiary bombs.

Berlin and Cologne

22. Berlin and Cologne were each attacked by 4 Mosquitoes flying at high level. No results were observed, and all the aircraft returned undamaged, although heavy flak was experienced at Berlin.

Mine-laying

Sorties

23.	No. of aircraft despatched.....	52
"	" reporting mines laid in primary area.....	47 (90.0%)
"	" abortive sorties (mine hung-up..... (unable to pin-point.....)	5 (10.0%)
"	" aircraft missing.....	Nil
"	" mines laid.....	173

Narrative of Attack

21. 173 mines were laid off the Frisian Islands by 47 aircraft of a force of 52. Although light flak and a few searchlights were active at Horderney, Langeoog and Schiermonnikoog, and intense flak from two positions at sea off the Islands, only 3 bombers were hit. In addition one Lancaster was slightly damaged by the trailing aerial of another aircraft. One Halifax was intercepted by enemy aircraft, but no attack was made.

Leaflets

25. 26 aircraft of Training Groups were despatched to drop leaflets at Paris, Orleans, Le Mans, Amiens, Lille, Rheims and Laval. The task was completed by 23 aircraft, but 2 Paris sorties were abortive owing to technical defects, and one is missing. A little light flak was experienced at Le Anelys and heavy flak at Rouen, Pt.illy, Dieppe, Caen and Cuistrehan, 3 aircraft being hit. Searchlights were active at Cherbourg, Cuistrehan and Boulogne. 2 Wellingtons were intercepted by enemy fighters, but no combat developed. One Wellington crashed on the return. Nothing is known of the fate of the missing aircraft.

APPENDIX

Timing of Attack

I. (a) Pathfinder Force

(i) 8 Mosquitoes attacked at 0117, 0122, 0129, 0131, 0141, 0151, 0154, 0201.

(ii) 26 bombers-up attacked at:- 0121, 0124, 0125, 0128(3), 0129 (2), 0132, 0133, 0135 (4), 0136, 0138, 0139, 0141, 0143, 0146, 0148, 0151 (5), 0152, 0154.

...../(b) Main Force.

(b) Main Force

Attacked 1-2 minutes early.....	4
" between 0120 and 0124.....	50
" " 0125 and 0129.....	72
" " 0130 and 0134.....	43
" " 0135 and 0139.....	82
" " 0140 and 0144.....	59
" " 0145 and 0149.....	61
" " 0150 and 0154.....	43
" " 0155 and 0159.....	14

428

2 Mosquitoes under training attacked at 0204 and 0209.

Bomb Loads CarriedII, (a) Pathfinder Force

T. I. only.....	8
T. I. + H. E.	26

(b) Main Force

H. E. + 30 lb. inc. + 4lb. inc.....	299
H. E. + 30lb. inc.....	5
H. E. + 4lb. inc.....	13
H. E. only.....	24
30 lb. inc. + 4lb. inc.....	<u>87</u>

428

H. E. + T. I. 2 Mosquitoes (training).

EMO/JT.
BC/S. 26342/6/ORS.
3rd. September, 1943.

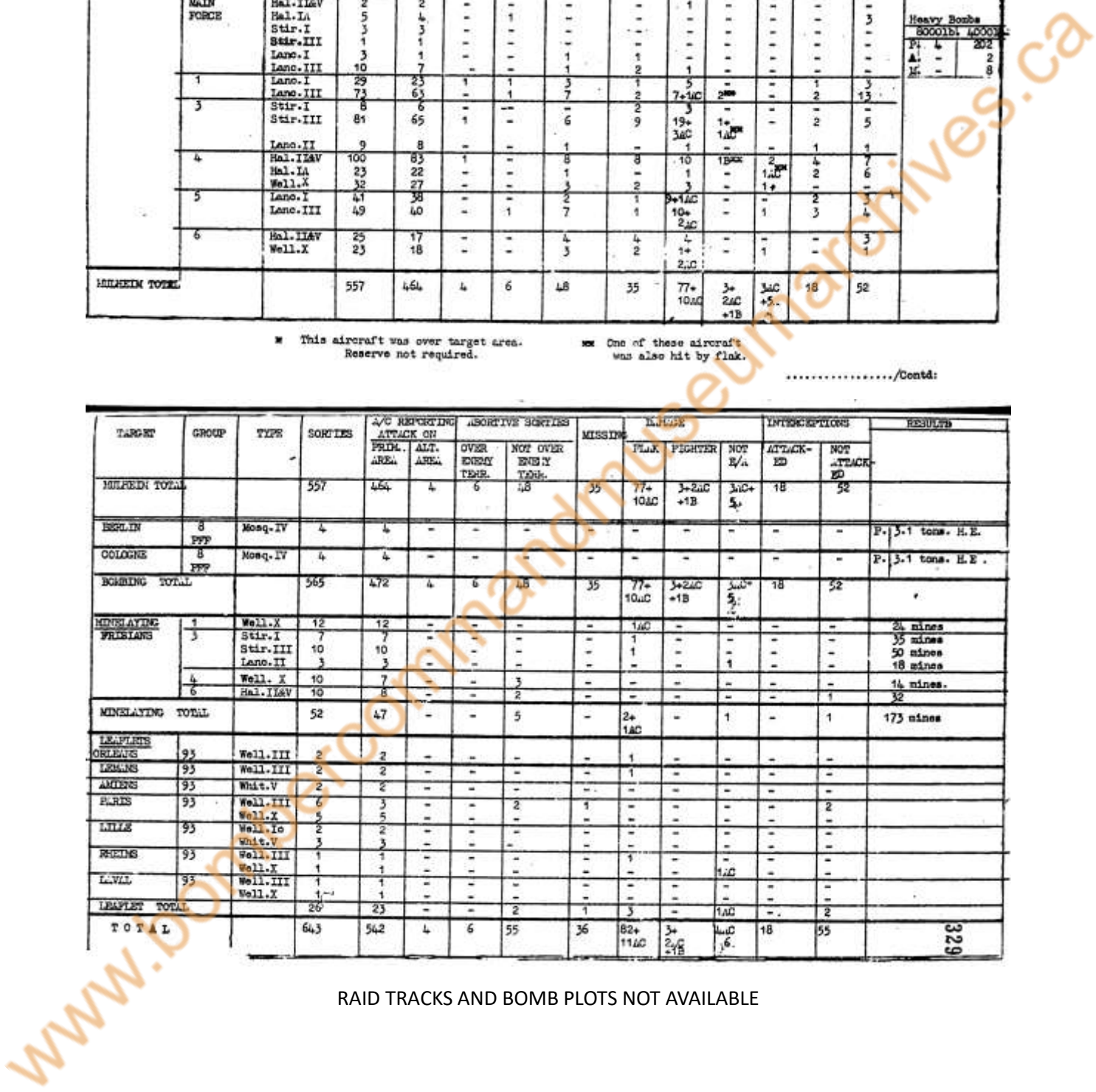
TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS	
				PRIM. AREA.	ALT. AREA.	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	Tons of Bombs	
														H.E.	Inc.
MULHEIM	8 PFF.	Mosq. IV	10	8	-	14*	-	-	-	-	-	-	-	P. 755.5	784.6
		Lanc. I	7	7	-	-	-	2	-	1AC	-	-	-	41 4.5	6.9
		Lanc. III	21	19	1	-	1	-	1AC	1AC	1AC	1	3	31.7	71.0
	8 MAIN FORCE	Mosq. IV	2	2	-	-	-	-	-	-	-	-	-	-	-
		Hal. IIAV	2	2	-	-	-	-	1	-	-	-	-	-	-
		Hal. IA	5	4	-	1	-	-	-	-	-	-	3	-	-
		Stir. I	3	3	-	-	-	-	-	-	-	-	-	-	-
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	-	-
		Lanc. I	3	1	-	-	1	1	-	-	-	-	-	-	-
	1	Lanc. I	29	23	1	1	3	1	5	-	-	1	3	-	-
		Lanc. III	73	63	-	1	7	2	7+1AC	2**	-	2	13	-	-
	3	Stir. I	8	6	-	-	-	2	3	-	-	-	-	-	-
		Stir. III	81	65	1	-	6	9	19+ 3AC	1+ 1AC**	-	2	5	-	-
	4	Lanc. II	9	8	-	-	1	-	1	-	-	-	1	1	-
		Hal. IIAV	100	83	1	-	8	8	10 1BAC	2	1AC**	4	7	-	-
		Hal. IA	23	22	-	-	1	-	1	-	1AC	2	6	-	-
	5	Well. X	32	27	-	-	3	2	3	-	1+	-	-	-	-
		Lanc. I	41	38	-	-	2	1	9+1AC	-	-	2	3	-	-
6	Lanc. III	49	40	-	1	7	1	10+ 2AC	-	1	3	4	-	-	
	Hal. IIAV	25	17	-	-	4	4	4 1+	-	-	-	3	-	-	
	Well. X	23	18	-	-	3	2	2+ 2AC	-	1	-	1	-	-	
MULHEIM TOTAL			557	464	4	6	48	35	77+ 10AC	3+ 2AC +1B	3AC +5.	18	52		

* This aircraft was over target area. Reserve not required. ** One of these aircraft was also hit by flak.

...../Contd:

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIM. AREA.	ALT. AREA.	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT E/A	ATTACK-ED	NOT ATTACK-ED	
MULHEIM TOTAL			557	464	4	6	48	35	77+ 10AC	3+2AC +1B	3AC+ 5.	18	52	
BERLIN	8 PFF	Mosq. IV	4	4	-	-	-	-	-	-	-	-	-	P. 3.1 tons. H.E.
COLOGNE	8 PFF	Mosq. IV	4	4	-	-	-	-	-	-	-	-	-	P. 3.1 tons. H.E.
BOMBING TOTAL			565	472	4	6	48	35	77+ 10AC	3+2AC +1B	3AC+ 5.	18	52	
MINSLAYING FRIESIANS	1	Well. X	12	12	-	-	-	-	1AC	-	-	-	-	24 mines
	3	Stir. I	7	7	-	-	-	-	1	-	-	-	-	35 mines
		Stir. III	10	10	-	-	-	-	1	-	-	-	-	50 mines
		Lanc. II	3	3	-	-	-	-	-	-	1	-	-	18 mines
	4	Well. X	10	7	-	-	3	-	-	-	-	-	-	14 mines.
6	Hal. IIAV	10	8	-	-	2	-	-	-	-	-	1	32	
MINSLAYING TOTAL			52	47	-	-	5	-	2+ 1AC	-	1	-	1	173 mines
LEAPLET	93	Well. III	2	2	-	-	-	-	1	-	-	-	-	
LEZENS	93	Well. III	2	2	-	-	-	-	1	-	-	-	-	
AMENS	93	Whit. V	2	2	-	-	-	-	-	-	-	-	-	
PARIS	93	Well. III	6	3	-	-	2	1	-	-	-	-	2	
		Well. X	5	5	-	-	-	-	-	-	-	-	-	
LILLE	93	Well. Ic	2	2	-	-	-	-	-	-	-	-	-	
		Whit. V	3	3	-	-	-	-	-	-	-	-	-	
REIMS	93	Well. III	1	1	-	-	-	-	1	-	-	-	-	
		Well. X	1	1	-	-	-	-	-	-	1AC	-	-	
LAVIL	93	Well. III	1	1	-	-	-	-	-	-	-	-	-	
		Well. X	1	1	-	-	-	-	-	-	-	-	-	
LEAPLET TOTAL			26	23	-	-	2	1	3	-	1AC	-	2	
TOTAL			643	542	4	6	55	36	82+ 11AC	3+ 2AC +1B	4AC +6.	18	55	329

RAID TRACKS AND BOMB PLOTS NOT AVAILABLE



BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 23/24 JUNE, 1943SPEZIA : Duisburg : Cologne : MinelayingSUMMARYSPEZIA

1. 52 of the Lancasters which landed in North Africa after the attack on Friedrichsafen on 20/21st June (see report No. 356) raided Spezia on the return journey. Damage included the San Vito arsenal and works, and 2 oil tanks were burnt out. None of the aircraft was lost and only one was damaged.

Duisburg and Cologne

2. Harassing raids on Duisburg and Cologne were made by 6 Mosquitoes of 8 Group, all of which returned undamaged.

Minelaying

3. 29 of 30 aircraft despatched laid a total of 79 mines off the west coast of France. The aircraft all returned safely, 2 being damaged.

Meteorological Forecast

4. Estimated midnight position of fronts: - occlusion from 63°N. 15°E. to 54°N. 10°E. becoming warm to 50°N. 06°E. and cold to Brussels to Le Havre to Lorient, thence warm north-westwards.

Bases: Bit all night, with little cloud. Visibility good, except for local smoke in 1 and 5 Groups.

Germany: Much medium cloud (in thin layers) and high cloud near the front, but little low cloud. Broken strato-cumulus and medium cloud over N.W. coast. Patchy thin cloud at medium levels in central and S. Germany. Fair clear by 0130, with moderate to good visibility.

France: Patches of very low cloud over Brest, decreasing southwards to small amounts beyond Nantes. A belt of 5-8/10ths strato-cumulus, base 2-3,000 ft., will lie somewhere between Nantes and Bordeaux. Haze patches in frontal zone. Visibility moderate to good.

Plan of Attack

5. Zero hour:- 2330 hours

All available 5 Group and P.F.F. Lancasters in North Africa are to take off at the earliest possible date after arrival in North Africa. Any aircraft which are unserviceable, and which cannot be made ready without delaying the operation, are to return to England independently as ordered by the C.-in-C., Mediterranean Air Command.

6. As far as possible the operation should be treated as a normal night operation, using the P.F.F. crews to mark the target if they have any T.Is. As Spezia will undoubtedly be covered by a smoke screen all crews are to attack on time and distance from a selected point on the island south of the target, unless ordered by R/T or W/T to attack any visible marker such as a T.I. or fire.

7. Further details are to be decided by the leader of the operation in consultation with the C.-in-C., Mediterranean Air Command. These details are to include bomb-loads, which are not to exceed 7,500 lb. per aircraft.

Route

8. Maison Blanche or Blida - 42°N. 07°E. - Spezia - Savona - Lake Annecy - 47°N. 02°E. - Cabourg - Selsey Bill - Basc. (See route map attached to report No. 356).

Sorties

9.	No. of aircraft despatched	52
	" " " reporting attack on primary area.....	49 (94.2%)
	" " abortive sorties (Technical defect.....3).....	3 (5.8%)
	" " aircraft missing	0

Weather Experienced

10. Spezia: - Cloudless. Good visibility. No moon.
 Return route:- Alps clear except for cloud in the valleys. 0-3/10ths over France, but valley fog and ground haze. Half moon, rising at about 0200 hours.
 Wind at 20,000 ft: 020°/30-35 n.p.h. over North Italy, gradually backing and increasing to 40-45 n.p.h. over France.

Night Photographic Statistics

11.	No. of photographs with bombing examined	18
	" " " showing ground (plotted within 3 miles. .4)	
	" " " detail { " outside 3 " Nil } 4	
	" " " (unplotted .....Nil)	
	" " " showing fire (plotted within 3 miles .10)	
	" " " tracks { " outside 3 " Nil } 14	
	" " " (unplotted 4)	

No estimate of the number of aircraft bombing within 3 miles can be given since the photographic sample is small. Several aircraft carried no cameras, and many no photo-flashes. No plot is issued.

Narrative of Attack

12. Illuminating flares were dropped by the 2 P.F.F. aircraft participating, and green T.Is. by the leading 5 Group aircraft. These were assessed by the latter as wide of the target, but meanwhile a bomb had set fire to an oil-tank. Aircraft of the main force were ordered to bomb 500 yards north of the oil fire, and many did so. However, much interference on both R/T and W/T prevented a large number of aircraft from receiving the signal. Some of these made a timed run, others bombed green T.Is., and a few orbited the target until the "attack-completed" signal was received, when they bombed hurriedly. Despite this partial breakdown of the pre-arranged plan, and despite the adequate smoke-screen, a fairly concentrated attack was delivered, all aircraft bombing between 2338 and 0009 hours.

Daylight Reconnaissance

13. Most of the damage done was to harbour-side buildings south of the town, The smithery at the San Vito arsenal was severely damaged, and the fitter's shop and large gun factory were also affected. 2 buildings in the San Vito works were also damaged, a direct hit was scored on the submarine workshops southwest of Basin No. 1, and half the boat house on the opposite side was destroyed. At Marola, about 600 yards further south, one large and one small oil tank were burnt out and another large oil tank was damaged. The hull of a Regolo class cruiser lying just off this point, which had previously been reported as having

/received.....

received a direct hit, was almost completely submerged. In addition, several houses were destroyed or damaged.

CHE

14. The Southern Chain operated on the Carolina-frequency and the Eastern Chain on the Virginia frequency throughout the raid; no separate target frequency was used. The average range was 490 miles, and the greatest range 630 miles. Fixes were obtained beyond the range of the existing lattice charts, and were plotted by extending the existing lattice lines. Some navigators reported an unidentified pulse near Spezia.

Enemy Defences

15. Flak and Searchlights Over the target there was slight inaccurate heavy and light flak, and a small number of searchlights were working singly in the harbour area. Ground defences were also active at Genoa, Savona, Turin and Caen. Only one Lancaster was damaged by flak.

16. Fighters No controlled night fighter activity was revealed by intercepted wireless traffic. 3 interceptions were reported, at Spezia, Chartres and Cabourg, but no combat developed.

Casualties

17. Apart from one aircraft hit by flak neither damage nor loss was sustained.

Duisburg and Cologne

18. 3 Mosquitoes were despatched to Duisburg and 3 to Cologne. All bombed their primaries from 27-28,000 ft., on E.T.A. from Gee fixes. No results were observed. All the aircraft returned undamaged, although heavy flak and searchlights were active at both targets. Searchlights were also active at Eindhoven.

MINELAYING

19. 30 aircraft of 1, 3 and 6 Groups were sent to lay mines off the west coast of France, Wellingtons going to Lorient (7), St. Nazaire (7) and Brest (3), while 11 Stirlings and 2 Lancasters went further south to La Pallice and the Gironde Estuary. A total of 79 mines was laid by 29 aircraft, one Brest sortie being abortive owing to a technical defect.

20. Light flak and searchlights were reported from coastal areas of the Bay of Biscay, and from shipping near the Gironde Estuary. One Wellington was seriously damaged by flak. A Stirling, which sustained minor damage, shot down an enemy aircraft near La Roche. No aircraft was lost.

EMD/MTA.

BC/S.26342/ORS3

12th September, 1943.

SPEZZA: DUISBURG: COLOGNE: MINELAYING: 23/24th. JUNE. 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS		
				PRIM. AREA.	ALT. AREA.	OVER ENERGY TWR.	NOT OVER ENERGY TWR.		PLAK	FIGHTER	NOT E/A.	ATTACK-ED	NOT ATTACK-ED	Tons of Bombs	H.E. Inc.	
SPEZZA	8 PFF.	Lanc. III	2	2	-	-	-	-	-	-	-	-	-	-	P. 105.4	13.7
	5	Lanc. III	50	47	-	-	3	-	1	-	-	-	2	-		
SPEZZA TOTAL			52	49	-	-	3	-	1	-	-	-	3	-	Heavy Bombs 8000lb. 4000lb.	
DUISBURG	8 PFF	Mosq. IV	3	3	-	-	-	-	-	-	-	-	-	-	P. -	21
COLOGNE	8 PFF	Mosq. IV	3	3	-	-	-	-	-	-	-	-	-	-	P. 2.3 tons H.E.	
BOMBING TOTAL			58	55	-	-	3	-	1	-	-	-	3	-	P. 2.3 tons H.E.	
MINELAYING																
LORIENT	1	Well. X	7	7	-	-	-	-	1LC	-	-	-	-	-	14 mines	
ST. HAZARE	1	Well. X	7	7	-	-	-	-	-	-	-	-	-	-	14 mines	
GIRONDE	3	Stir. III	9	9	-	-	-	-	-	1	-	1	-	-	31 mines	
		Lanc. II	2	2	-	-	-	-	-	-	-	-	-	-	10 mines	
LA PALME	3	Stir. III	2	2	-	-	-	-	-	-	-	-	-	-	6 mines	
HESST	6	Well. X	3	2	-	-	1	-	-	-	-	-	-	-	4 mines	
MINELAYING TOTAL			30	29	-	-	1	-	1LC	1	-	1	3	-	79 mines	
TOTAL			88	84	-	-	4	-	1+	1LC	1	-	1	3		

RAID TRACKS AND BOMB PLOTS NOT AVAILABLE

www.bombercommandmuseumarchives.ca

BOMBER COMMAND REPORT ON NIGHT OPERATIONS, 24/25th JUNE, 1943WUPPERTAL/ELBERFELD: Duisburg: Minelaying: LeafletsSUMMARYWUPPERTAL/ELBERFELD

1. The Elberfeld district of Wuppertal was almost completely devastated in an attack by 630 bombers, including 9 Obce Mosquitoes, which ground marked the target. The havoc was even greater than that wrought in the Barmen district on the 29/30th May, and together the raids destroyed at least 80% of the business and residential property in Wuppertal. 13 factories and 137 other industrial concerns in Elberfeld were severely damaged, and about 89 small factories outside the district were partially or wholly demolished. 33 bombers failed to return, and one came down in the sea.

Duisburg

2. 4 Mosquitoes were despatched to attack Duisburg. 2 completed the task and 2 returned early.

Minelaying

3. 3 Group sent 4 Stirlings to lay mines in the Gironde Estuary. 2 aircraft each laid 3 mines correctly, and 2 turned back owing to engine failure.

Leaflets

4. Leaflets were dropped over Rennes and Paris by 7 Whitleys of 91 Group, all of which returned undamaged.

Metereological Forecast

Anti-cyclonic conditions over England and N.W. Germany.

Hone Bases: Fit for take-off, with little cloud and good visibility. For return, little or no cloud in southern Groups apart from patches of medium and high cloud. In northern Groups, large amounts of medium cloud in layers with some strato-cumulus not below 2,000 ft; visibility 2-4 miles, but locally 1-2 miles in smoke haze in the north.

France: Much medium cloud in N.W., and broken low cloud associated with a frontal system advancing from the Atlantic. Small amounts of cloud over remainder of France.

Germany: Broken strato-cumulus over coastal strip, small amounts inland, and well broken layer cloud E. of 10°E. There is a risk of local thunderstorms in S. Germany.

Route to Ruhr: Little cloud at all levels.

Ruhr: Little or no cloud; probably slight smoke haze.

La Pallée and route: Little or no cloud, with moderate to good visibility.

...../Winds:

Winds:			
Bases: take-off	270°/15 n.p.h.	270°/35 n.p.h.	260°/55 n.p.h.
return	270°/20 n.p.h.		
02 E to target	310°/25 n.p.h.	310°/35 n.p.h.	310°/50 n.p.h.

WUPPERTAL/ELBERFELD.

6.

Zero hour 0105 hrs. Period of Attack 0102-0143 hrs.

En route to the target, as an aid to navigation, yellow T.Is were to be dropped at 50°59'N 06°26' E (A) between zero - 11½ and zero + 17½ by 12 Y aircraft on H2S if possible; but otherwise aimed at existing yellow T.Is. The first four aircraft were to orbit, at the rate of 3° per second, after dropping their markers and before proceeding to the target. On the way home, in order to help the main force to avoid heavily defended areas, yellow T.Is were to be dropped by all these Y aircraft in the same manner at 50° 33'N 07°23' E. Between zero - 3 and zero + 31, 7 Oboe Mosquitoes were to drop red T.Is in salvo on the exact aiming point, and 28 backers-up, between zero + 2 and zero + 34, were to aim green T.Is to overshoot, by 1 second, red T.Is if visible, otherwise the centre of all green T.Is. During the first ten minutes all T.Is were to cascade at 3,000 feet, thereafter at 3,000 feet or 10,000 feet. Main Force crews, divided into five sections, were to aim their bombs at red T.Is if possible, but otherwise at the centre of all greens. The most experienced crews were to attack in the first two waves. All Lancasters and Halifaxes were to carry mixed loads, Stirlings and Wellingtons (except Wellington 423's) incendiaries only. Emphasis was laid on the importance of adhering to the indirect route, which was carefully chosen to give the best chance of avoiding heavily defended zones.

Timing.

7.

<u>No. of aircraft</u>	<u>Time at "A"</u> <u>(yellow T.Is)</u>	<u>Time at Target</u> <u>(H.E. or I.B.)</u>
4 Lancasters	Z - 11½	Z + 2
1 Lancaster	Z - 8½	Z + 3
1 Lancaster	Z - 5½	Z + 6
1 Halifax	Z - 3	Z + 10
1 Stirling	Z + 1½	Z + 14
1 Stirling	Z + 5½	Z + 18
1 Stirling	Z + 9½	Z + 22
1 Halifax	Z + 13½	Z + 26
1 Halifax	Z + 17½	Z + 30

<u>Mosquitoes. +</u> <u>(red T.Is.)</u>	<u>Backers-up</u> <u>(green T.Is)</u>	<u>Main Force</u>
Z-3 & Z+1	-	-
-	5 at 1 min. intervals (Z+2)-(Z+6)	Sect. 1 Lancos. (Z+2)-(Z+6)
Z + 7	-	-
-	5 at 1 min. intervals (Z+8)-(Z+12)	Sect. 2 Hals. (Z+9)-(Z+13)
Z + 13	-	-
-	5 at 1 min. intervals (Z+14)-(Z+18)	Sect. 3 Stirs. (Z+17)-(Z+21)
Z + 19	-	-
-	5 at 1 min. intervals (Z+20)-(Z+24)	Sect. 4 Hals & Wells. (Z+23)-(Z+31)
Z + 25	-	-
-	5 at 1 min. intervals (Z+26)-(Z+30)	Sect. 5 Lancos. (Z+31)-(Z+35)
Z + 31	-	-
-	3 at 1 min. intervals (Z+32)-(Z+34)	-
+ plus 2 reserves.		

/..... Bomb Loads.

Bomb Loads - Marker aircraft

8. (3 Stirlings 2 T.I. yellow (LB) + 20 x 8 x 30 I.B.
 Y aircraft (3 Halifaxes 2 T.I. yellow (LB) + 7 x 1000 G.P.
 (6 Lancasters 2 T.I. yellow (LB) + 1 x 4000 HC + 6 x 1000 G.P.
 1 Mosquito 1 T.I. red + 2 T.I. red LB + 1 delay T.I. red No.9
 8 Mosquitoes 2 T.I. red + 2 T.I. red LB.
 Backers-up 3 Stirlings 1 T.I. green LB + 4 T.I. green + 17 x 8 x 30 LB.
 7 Halifaxes 1 T.I. green LB + 4 T.I. green + 6 x 1000 G.P.
 18 Lancasters 1 T.I. green LB + 4 T.I. green + 1 x 4000 HC + 6 x 1000GP.

Routes

9.

Orfordness (8, 3 & 4 Gps)
 Southwold (1 Gp)
 Flamborough Head (6 Gps.) } 51°34'N. 03°30'E - 50°59'N. 06°26'E - TARGET - 51°20'N.
 07°30'E - 50°33'N. 07°23'E - 50°38'N. 06°00'E - 51°22'N.
 03°20'E - (Orfordness (8, 3, 4 & 6 Groups)
 (Southwold (1 Gp.))

Sorties

10.	No. of aircraft despatched.....	630
	" " " reporting attack on primary area.....	521
		(82.7%)
	" " " " " alternative area.....	30
		(4.8%)
	" " abortive sorties (technical defect or manipulative error.....43) (sickness of crew..... 2) (reserve not required..... 1)	46
		(7.3%)
	" " aircraft missing.....	33
		(5.2%)

Weather Experienced

11. Bases: Fit for take-off and return.

Route: Little cloud on outward journey. On return a belt of medium cloud, tops 18,000ft. over North Sea. Slight icing in cloud tops and non-persistent contrails at 17,000ft. Average wind at 20,000 ft. 310°/40-45 m.p.h.

Target: Very small amounts of medium and low cloud. Moderate visibility.

Half moon, rising at approximately zero + 60 minutes.

Night Photographic Statistics

12.	No. of photographs with bombing examined.....	438
	" " " showing (plotted within 3 miles.....82)	
	ground detail { " outside 3 miles.....28}	156
	(unplotted.....46)	
	" " photographs (plotted within 3 miles.....Nil)	
	showing fire-tracks { " outside 3 miles.....Nil}	282
	(unplotted.....282)	
	No. of aircraft reporting attack.....	521
	No. of aircraft estimated from the photographic evidence to have bombed within 3 miles of the aiming point.....	364

Narrative of Attack

13. Red T.I.'s were accurately placed by 6 Oboc Mosquitoes, and the few gaps in the markings were adequately covered by the green T.I.'s dropped by the backers-up,/whose timing was

whose timing was excellent. The main force delivered a heavy and concentrated attack on Elberfeld, with a slight scatter to the south and southwest, downwind of the line of approach.

Daylight Reconnaissance

14. Reconnaissance photographs show that the town of Wuppertal, formed by the amalgamation of the two towns of Elberfeld and Barmen, was almost wholly wiped out. Barmen was virtually destroyed on 9/30th. May (see report No. 340), and the devastation of Elberfeld on 24/25th June was even more complete. The damage is concentrated in the centre of Elberfeld, and extends eastwards to the district of Unterbarmen, with a little extra damage to Barmen itself. It is estimated that 97% of the business and administrative centre of Elberfeld was destroyed and that in the 2 raids 80% of the business and residential property in the fully built-up areas of the whole of Wuppertal was devastated. Serious damage was also caused in the town of Ronsdorf, 2 miles south of Barmen, and there were many incidents of damage in Cronenberg, 2½ miles south of Elberfeld. Neither of these towns was covered by reconnaissance photographs taken between the two raids, so it is not known to which of the two this damage should be attributed.

15. Elberfeld, like Barmen, contained many small industrial concerns, and several larger undertakings, mainly associated with the manufacture of textiles and the production of tools and machinery. 13 identified factories and at least 137 small factories or industrial premises were wrecked or seriously damaged. In Ronsdorf and Cronenberg and scattered over the area between them and Wuppertal, at least 89 similar small factories were destroyed or damaged. 2 of the 13 identified factories made textile machinery, 3 electrical machinery, 2 textiles, 3 machinery and machine tools, one cellulose lacquers and one pharmaceutical products.

16. Main buildings of the electricity works and the town gas works were damaged, and other utilities, such as the pumping station and sewage plant, the slaughter house and the cattle market were also affected. The railway administrative building and main station buildings at Elberfeld, Unterbarmen and Steinbeck were gutted, and many goods sheds were almost completely wrecked. The power station for the overhead railway and Doppernberg station were also damaged.

17. Many buildings of both the Theishohn Barracks were demolished, and 88 public buildings, including the town hall, the main post office and telephone exchange, 6 other post offices, 2 fire stations and 7 police stations, were destroyed or severely damaged.

18. More than 320 acres of business and residential property in Elberfeld and 25 acres in Barmen were devastated in this attack, making a total of over 580 acres for the two raids in the whole of Wuppertal. This includes an estimated total of 64,000 housing units rendered uninhabitable in the built up areas, 30,000 of these being in Elberfeld alone.

Alternative Targets

19. 30 aircraft attacked alternative targets, in the areas of Cologne (8), Düsseldorf (6), Solingen (4), Kempen (near Krefeld) (1), Neerpelt (between Turnhout and Roermond) (1), Flushing (2), Antwerp (1), Rotterdam (1), Haanstede airfield (2), Schouwen airfield (1), and near the primary target (3).

Special Equipment

20. Oboe 9 Oboe Mosquitoes, including 2 reserves, were despatched to groundmark the target. Accurate attacks were made by 5 aircraft and one reserve, the timing being fairly good, with only 2 short gaps. 2 sorties were abortive owing to failures in the aircraft transmitter and the second reserve was not called.

21. H2S 24 aircraft carried H2S as a navigational aid, none using it to bomb. 3 Y-type aircraft returned early and 4 were missing.

22. Gee The Eastern chain operated on the Virginia frequency throughout the raid and on the target (Zanesville) frequency from 00.00 to 02.30 hours. The average range obtained on the outward journey was 235 miles and on the homeward route 245 miles. Three aircraft got fixes at ranges of from 360 to 366 miles - two on the Virginia frequency and one on the Zanesville frequency. The enemy was concentrating more of his effort towards jamming the Zanesville than the Virginia frequency; this is shown by the contrast in the number of fixes obtained on each frequency at ranges greater than 250 miles - namely 255 on the Virginia frequency against 47 on the Zanesville frequency. This southern route to the Ruhr was found to be as heavily jammed as the Northern one.

Enemy Defences

23. Flak and Searchlights Bombers encountered flak and searchlights as soon as they reached the Dutch coast. The defences of Walcheren, Zuid-Beveland and Antwerp all went into action, firing heavy flak, and co-operating with searchlights. No further ground opposition was met until the raiders reached the Ruhr, when the entire Duisburg-Dusseldorf-Cologne-Bonn belt opened up, with both predicted and barrage heavy flak, at times intense, and with searchlight cones of up to 50 beams in action throughout the belt. This area, on both outward and return journeys, was undoubtedly the most heavily defended of the whole route, and the defences of Wuppertal and Remscheid were weak by comparison. Over the target moderately heavy flak decreased as the attack developed, changing from predicted to barrage fire; searchlights were ineffective. Throughout the whole of the return route, enemy defences were active. One pilot described a continuous flak belt from Aachen to Brussels, and other reports mentioned ground activity at Julich, Eipen, Antwerp, Gocs, Walcheren, Bruges, Knooke and Ostend. 87 aircraft were damaged by flak, mostly over the Dusseldorf - Cologne gap.

24. Fighters Intercepted wireless traffic indicated that fighter patrols were operating in the Venlo, St. Trond and Gilze areas as much as 45 minutes before zero hour. There is not sufficient evidence to show whether this was due to an advance warning or to the maintenance of standing patrols, or whether it was the reaction to intruder flights by Fighter Command earlier in the night. The result of this unusual fighter activity was the reporting, both by our crews and by German R/T, of interceptions throughout the whole period that the raiding force was over enemy territory. R/T control of 14 enemy patrols was overheard; these undertook at least 22 pursuits and made 11 claims of victories, and 7 other indefinite claims. Of this total of 18 claims, two agreed with the observations of our crews. Returning bombers reported 77 interceptions, 30 outbound; 9 over the target, 35 homebound, and 3 unlocated. 39 combats were reported, including the large number of 23 attacks, possibly the result of little cloud cover. Only 3 aircraft were damaged by fighter attack.

Casualties

25.	No. of aircraft missing.....	33 (5.2%)
	" " " damaged by {flak.....87}	}..... 96(15.4%)
	{fighter..... 3}	
	{incendiary bombs..... 5}	
	{other causes..... 1}	

Reports by crews suggest that flak was responsible for at least 10 of the missing aircraft (5 over the Ruhr; one outbound at Woensdrecht, and 4 homebound, including one N.W. of Coblenz, one over Antwerp, and 2 shot down by flak ships over the North Sea). Fighters probably destroyed a minimum of 12 aircraft, including 4 outbound bombers, 6 homebound and 2 over the target. 7 other aircraft were observed falling by a number of bomber crews, but the cause of these is uncertain. One Stirling ditched in the sea, the crew being rescued, and a Wellington crashed on landing; owing to a burst tyre.

2 Ju.88's were shot down, and 2 more enemy aircraft were damaged.

...../Duisburg.

Duisburg

26. 4 Mosquitoes were despatched to make a harassing attack on Duisburg. The task was completed by 2 aircraft, which attacked on E.T.A. Two small fires in a built-up area were seen. One sortie was abortive owing to a technical defect, and another to illness of the crew. The raid was unopposed and all returned undamaged.

Mine-laying

27. 6 mines were laid in the Gironde Estuary by 2 of 4 Stirlings despatched on this mission. The other 2 returned early owing to engine trouble. There was no enemy opposition, and no damage was sustained.

Leaflets

28. 5 Whitleys scattered leaflets over Rennes and one over Paris. One Whitley was unsuccessfully attacked by an enemy aircraft, and there was one other encounter. All returned undamaged.

APPENDIX.Timing of AttackI. Pathfinder Force

(1) 6 Mosquitoes attacked at: 0101, 0104, 0111, 0120, 0123, 0124.
 (2) 33 back-up attacked at: 0106(2), 0107, 0108, 0109(3), 0110, 0111, 0112(2), 0113, 0114(3), 0116, 0120, 0121, 0122, 0123, 0125(2), 0127(2), 0130, 0131(2), 0132, 0137, 0138(2).
 0126(2)

Main Force (0107-0143)

Attacked 1 - 5 minutes early.....	19
" within prescribed period.....	459
" 1-5 minutes late.....	4

482Bomb LoadsII. Pathfinder Force

T. I. only.....	6 (Mosquitoes)
T. I. + H. E.	3
T. I. + 30 lb. inc.....	30
	<u>39</u>

Main Force

H. E. + 30lb. inc. + 4lb. inc.....	293
H. E. + 30lb. inc.....	2
H. E. + 4lb. inc.....	17
H. E. only.....	25
30lb. inc. + 4lb. inc.....	142
30 lb. inc. only.....	3
	<u>482</u>

EH/JT.
 EC/S. 26342/1/ORS3,
 14th. September, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS	
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT R/A.	ATTACK-ED	NOT ATTACK-ED		
WUPPERAL/ MAGERSFELD	8 PPF.	Nonq. IV	9	6	-	1+1*	1	-	-	-	-	-	-	Tons of Bombs BE Inc. P/102-1 1020-6 M) 6-3 7-5 P/ 42-2 37-2	
		Stir. I	4	1	1	-	1	-	-	-	-	-	-		
		Stir. III	2	2	-	-	-	-	-	-	-	-	-		-
		Hal. II&V	2	2	-	-	-	-	-	-	-	-	-		-
		Hal. LA.	8	8	-	-	-	-	-	-	-	-	-		-
		Lanc. I	5	5	-	-	-	-	-	-	-	-	-		-
	8 MAIN FORCE	Lanc. III	19	15	-	-	1	3	1	-	-	-	1	4	Heavy Bombs Gross 4000 M) - 4 30 P/1 - 2 P/1 - 2
		Stir. I	4	3	-	-	-	-	1	-	-	-	-	-	
		Hal. II&V	2	2	-	-	-	-	1	-	-	-	-	-	
		Hal. LA	5	4	-	-	-	-	1	100	-	-	1	1	
		Lanc. I	3	2	-	-	-	-	1	-	-	-	-	-	
		Lanc. III	12	11	-	-	-	-	1	-	-	-	-	3	
	1	Lanc. I	28	20	4	1	1	2	2	-	-	1	1	1	
		Lanc. III	67	62	2	-	3	-	2	-	1	-	5	5	
		Well. X	33	28	2	-	-	3	4	-	1A	4	2	2	
	3	Stir. I	8	6	1	-	-	1	-	-	-	-	-	-	
		Stir. III	80	64	6	-	4	6	23+	-	-	3	12	-	
	4	Lanc. II	14	12	1	-	1	-	3	-	-	1	2	-	
		Hal. II&V	92	72	3	1	11	5	8+	-	1B	3	6	-	
	5	Hal. LA	26	23	2	1	-	-	3+	-	-	-	1	-	
		Well. X	42	37	-	1	4	-	6	1A	1A	5	1	1	
	6	Lanc. I	39	31	4	-	3	1	5	-	-	2	5	5	
		Lanc. III	64	57	2+1/2	-	4	1	11+1A	-	1A	-	1	5	
	6	Hal. II&V	36	30	-	-	2	4	4	-	-	1	1	1	
Well. X		26	18	2	1	2	3	2	1A	1B	1	5	-		
WUPPERAL TOTAL			630	521	30+ 1/2	7	39	33	80+ 5A 2E	1+ 2A	2B+ 1A 2A+1	23	54		

* Reserve aircraft not required.
 † This aircraft also attacked primary.
 ** Also hit by flak.

..../contd:

336

..../Contd:

WUPPERAL: DUISBURG: MINGELAYING: LEAFLET: 24/25th. JUNE, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		ABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FIGHTER	NOT R/A.	ATTACK-ED	NOT ATTACK-ED	
WUPPERAL TOTAL			630	521	30+ 1/2	7	39	33	80+ 5A 2E	1+ 2A	2B+ 1A 2A+1	23	54	
DUISBURG	8 PF.	Nonq. IV	4	2	-	-	2	-	-	-	-	-	-	P/1-1 tow H/C
DUISBURG TOTAL			634	523	1/2	7	41	33	80+ 5A 2E	1+ 2A	2B+ 1A 2A+1	23	54	
MINGELAYING GIRONDE R.	3	Stir. I	3	1	-	-	2	-	-	-	-	-	-	3 mines
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	3 mines
MINGELAYING TOTAL			4	2	-	-	2	-	-	-	-	-	-	6 mines
LEAFLET RENNES	91	Whit. V	1	1	-	-	-	-	-	-	-	1	1	
RENNES	91	Whit. V	6	6	-	-	-	-	-	-	-	-	-	
LEAFLET TOTAL			7	7	-	-	-	-	-	-	-	1	1	
TOTAL			641	532	30+ 1/2	7	43	33	80+ 5A 2E	1+ 2A	2B+ 1A 2A+1	24	55	

† This aircraft also attacked Primary.

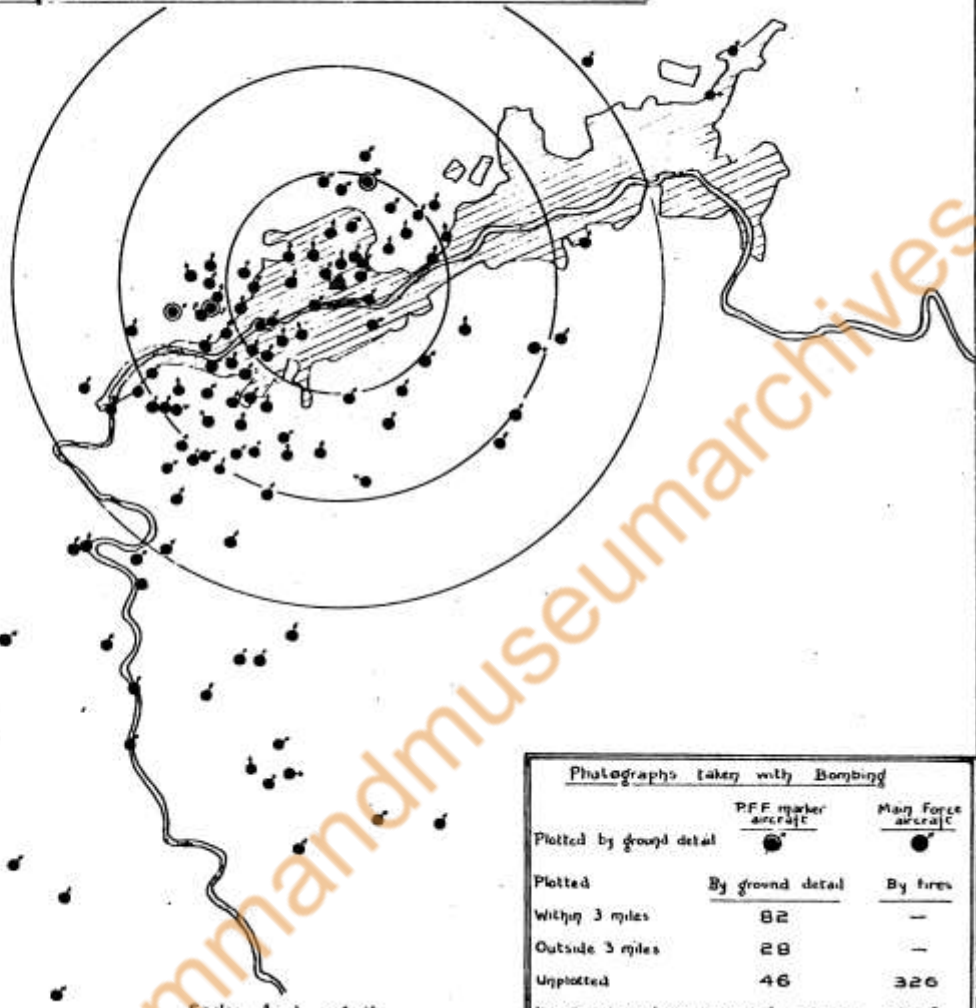
RAID TRACK NOT AVAILABLE

FINAL PLOT OF NIGHT PHOTOGRAPHS

338

TAKEN 24/25 JUNE 1943 TARGET: WUPPERTAL

SECRET



ORS/BC 236 B
Date 25.8.43 Tracer JJ
Ref N1350 Chd - A. 1.

Scale - 1 inch = 1 mile

Photographs taken with Bombing		
	PFF marker aircraft	Mary Force aircraft
Plotted by ground detail	●	●
Plotted	By ground detail	By fires
Within 3 miles	82	—
Outside 3 miles	28	—
Unplotted	46	326
No of prints (with bombing) examined	438	

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BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 25/26th. JUNE, 1943.GELSENKIRCHEN: Mineslaying:SUMMARYGELSENKIRCHEN

1. A force of 473 aircraft made an attack on Gelsenkirchen, which was sky-marked by Oboe Mosquitoes. The target was almost obscured by cloud, and the serviceability of the Oboe equipment was low, so that many aircraft had to bomb on E.T.A. No P.R.U. cover having been obtained until after Gelsenkirchen had been bombed again, and no night photographs having been plotted it is not possible to assess the accuracy of the attack but it does not appear to have been successful. Most of the 30 aircraft lost were probably shot down by enemy fighters, 4 of which were destroyed.

Mineslaying

2. 8 Wellingtons of 1 Group laid a total of 16 mines off the Frisian Islands, returning without damage. 56 mines were also laid off the coast of France by 22 of 25 aircraft, despatched by 3 and 4 Groups. One of these aircraft failed to return.

Meteorological Forecast

3. Estimated midnight position of fronts: occluded from 64°N . 09°E - $60^{\circ}\text{N}10^{\circ}\text{E}$ - 55°N . $07\frac{1}{2}^{\circ}\text{E}$ - Zuider Zee, becoming warm to Paris and cold to Dover to western channel.

Home Bases: fit for take-off and return, with variable strato-cumulus cloud at about 20,000ft. possibly with considerable local clearances for return. Visibility moderate throughout the night, apart from local smoke troubles in 1, 5, 91, 92 and 93 Groups.

Germany:- small amounts of cloud, with local ground haze in central and E. Germany.

Denmark: much medium and low cloud.

France: broken layer cloud in N.W., but small amounts of cloud in central and S. France, with moderate visibility.

Route to Ruhr: cloudy; strato-cumulus, base about 1,500 - 2,500 ft. with broken layers above; probably no cloud above 10,000ft.

Ruhr: cloudy conditions will persist, the cloud being in layers between 2,000 ft. and 10,000ft., and mainly 7-10/10ths. Visibility moderate.

Hamburg: total cloud probably 10/10ths, with local tops above 20,000ft. in rain.

Frisian Islands: considerable strato-cumulus at about 1,500ft. with moderate visibility.

Brest: possibly 10/10ths cloud at 1,000ft., with patches of stratus or sea fog.

...../Lorient and southwards:

Lorient and southwards: fine, with moderate visibility.

Winds: 700mb/290°/25 m.p.h.; 500mb./310°/45 m.p.h.; 300mb./310°/70 m.p.h.

Persistent contrails are expected above 18,000ft. Higher medium cloud associated with trough will have passed E. of Ruhr before 0100 hours.

GELSENKIRCHEN

Plan of Attack

4. Zero hour 0120 hours Period of attack 0120-0154 hours.

En route to the target, 7 Oboe Mosquitoes were to drop red steady tracking flares at 51°49'N. 07°06'E (21 miles short of the release point). At 51°40'N. 07°06'E (11 miles short of the release point) green steady warning flares were to be dropped by the same aircraft. At five minute intervals between zero and zero + 30, release point flares (red with green steady + 1 white) were to be dropped so that bombs aimed at them by main force crews, on a heading of 194°N. and I.A.S. 165 m.p.h., would hit the aiming point. If no sky markers were visible on arrival, crews were to bomb on E.T.A. All flares were to ignite at 14,000'. Three further Oboe Mosquitoes, carrying out a training flight, were to attack at Z + 10, Z + 45 and Z + 50 respectively, each with 3 x 500 H.C. bombs. The main force was to be divided into seven sections, each of about 70 aircraft, with the best Lancaster crews of 1 and 5 Groups in the first two waves. Lancasters and Halifaxes were to carry mixed loads, but Stirlings and Wellingtons (except Wellington 423's) were to carry incendiaries only.

Timing

5. <u>Mosquitoes*</u>	<u>Main Force</u>	
Zero	Sect. 1 Lancasters.	Zero - Z + 4
Z + 5	Sect. 2 Lancasters.	Z + 5 - Z + 9
Z + 10	Sect. 3 Halifaxes	Z + 10 - Z + 14
Z + 15	Sect. 4 Stirlings	Z + 15 - Z + 19
Z + 20	Sect. 5 Halifaxes & Wellingtons	Z + 20 - Z + 24
Z + 25	Sect. 6 Lancaster & Halifaxes	Z + 25 - Z + 29
Z + 30	Sect. 7 Lancasters	Z + 30 - Z + 34

* plus 2 reserves

Route

6. Base - 52°46'N. 04°40'E - 52°00'N. 07°05'E - GELSENKIRCHEN - turn right - Harderwijk - Egmond - base.

Sorties

7. No. of aircraft despatched.....	473
" " " reporting attack on primary area.....	394 (83.3%)
" " " " " " " " " alternative area.....	6 (1.3%)
" " abortive sorties (technical defect or	
{ manipulative error.....37	
{ weather.....1	
{ sickness of crew.....3	
{ late.....1	
{ attacked by fighter.....1	
" " aircraft missing.....	30 (6.3%)

Weather Experienced

8. Bases: Fit all night.

Route: 7-10/10ths. cloud, tops about 10,000 ft. breaking up near bases on return. Visibility generally good. Wind: 15,000ft./310°/45-55 m.p.h.;
...../20,000ft./320°

20,000 ft./320°/60-70 m.p.h. Half moon rose about 0230 hours, on return route.

Target: 7-10/10ths cloud, tops 8-12,000 ft., surface wind lightly north-westerly. Moon below horizon during the attack.

Night Photographic Evidence.

9. Owing to cloud, no night photographs were plotted.

Narrative of Attack.

10. Only 4 Mosquitoes dropped release-point flares, the first being 10 minutes late. The second and third attacked almost simultaneously at zero + 14½ minutes, so that skymarkers were available for only 10 minutes of the allotted period. The fourth Mosquito released at zero + 34 minutes, when the attack was almost over. Many crews bombed before the first skymarkers ignited, and many others bombed in the gap between the extinguishing of the third and igniting of the fourth load of flares. Reports from some of these aircraft that they bombed on release-point flares indicate that decoy flares were put up by the enemy, but a few crews suggested that the imitations were imperfect.

11. The attack appears to have been scattered. This was due to the lateness of the first Mosquito, and the unserviceability of the Oboe equipment. There were also many reports that the forecast winds were inaccurate, and that the flares drifted rapidly. A large number of crews reported that the flares ignited too high (at 18-20,000 ft. instead of 14,000 ft.), and that it was therefore impossible to bomb them.

12. Since no night photographs were plotted and no reconnaissance was undertaken before Gelsenkirchen had been attacked again, there is no direct evidence of the course of the raid. The Germany communique announced that the attack was over west German territory, particularly Bochum.

Daylight Reconnaissance.

13. No daylight reconnaissance was made over Gelsenkirchen until 24th and 25th July. Damage shown on these photographs includes that caused in the raid of 9/10th July, and is included in the report (No. 374) for that night.

Alternative Targets.

14. 6 aircraft attacked alternative targets in the area of Essen, Dortmund, Ickern, Buer, Hengelo and Winterswijk.

Special Equipment.

15. OBOE. 9 Oboe Mosquitoes, including 2 reserves, were despatched to mark the target, but only 4 aircraft, including one reserve, attacked. The first skymarkers were 10 minutes late, and 2 more loads were released almost simultaneously 5 minutes later. The fourth aircraft did not attack until the end of the raid (0154 hours). As a result the target was only marked for 10 minutes of the allotted period of 35 minutes. The remaining 5 OBOE sorties were abortive owing to failures in the airborne OBOE equipment.

16. 3 Mosquitoes equipped with Oboe were despatched to drop bombs for training purposes after the conclusion of the main attack. 2 aircraft bombed successfully on OBOE, but the third made a visual attack as the OBOE transmitter had detonated.

17. GEE. The Eastern chain operated on the Virginia frequency throughout and on the target (Zanesville) frequency from 0035 to 0205 hours. The average range obtained on the outward journey was 240 miles and on the homeward route 250 miles. The best ranges were all obtained on the Virginia frequency; conditions were almost precisely the same as those encountered on the previous night. Jamming was intense and of the usual type.

Enemy Defences.

18. Flak and Searchlights. Intense heavy flak was reported at Gelsenkirch and over the Ruhr, initially accurate predicted fire, and later an intense barrage round sky-markers. A small amount of flak was also encountered at Amsterdam, IJmuiden, Den Helder, and Egmond. In the target area cloud rendered the searchlights ineffective, and only a few were seen en route, mostly at Amsterdam, where cones of 7 to 20 beams were working in co-operation with heavy flak. 63 aircraft sustained damage from flak, mainly in the Ruhr area. This large number was almost certainly due to barrage fire concentrated around the sky markers.

19. Fighters. Intercepted Wireless Traffic revealed considerable control night fighter activity, mainly during the late stages of the raid. Patrols operated from Bergen/Alkmaar, Gilze/Rijen, Twente/Enschede, Noordwijk and Venlo. 11 patrols were overheard, making 37 pursuits. One unsuccessful attack was reported, but there were 22 claims of victories in the areas of Bergen/Alkmaar, Arnhem/Dalen (2), Twente/Enschede (5), Venlo (3) and Gilze/Rijen (7). 84 interceptions were reported, including 22 attacks, (5 outbound, 5 over the target and 12 homebound), 33 other combats (11 outbound, 7 over the target and 15 homebound) and 29 approaches (6 outbound, 14 over the target and 9 homebound). This shows an increased activity and a relative increase of attacks on the homeward route.

Casualties.

20.	No. of aircraft missing	30
	" " " damaged (a) flak.....	51
		4
	(c) incendiary bombs.....	2 ^x
	(d) collisions (separate)	2 ^x
	(e) crashed on landing	2
		71

x one also damaged by flak.

Enemy wireless traffic and observations by crews suggest that 5 aircraft were shot down by flak and at least 20 by fighters. The flak losses occurred at Amsterdam (2), in Dutch coastal areas (2) and over the target (1). Losses to fighters were mainly on the return route. 2 Ju.88, one Me.109 and one unidentified enemy aircraft were shot down.

Minelaying.

21. 8 Wellingtons of 1 Group successfully laid 16 mines off the Frisian Islands, without incident.

22. 3 Group despatched 7 Stirlings and 2 Lancasters to lay mines off La Pallice and in the Gironde Estuary. A total of 28 mines was laid by 8 aircraft but the ninth (a Lancaster) was missing without trace. The other Lancaster was intercepted by an enemy aircraft, but no combat developed.

23. 14 Wellingtons, out of 16 despatched by 4 Group, laid 28 mines off Lorient and St. Nazaire. 2 aircraft returned early, and one was damaged by flak.

APPENDIX.

Timing of Attack.

1. Pathfinder Force.

4 Mosquitoes attacked at:- 0130, 0134½(2), 0154 hours.

Main Force.

Attacked within the prescribed period (0120-0154) 385
 " 1 minute late 2
387

2 Mosquitoes (under training) attacked at 0159, 0204 hrs.

Bomb Loads.

II. Pathfinder Force.

Flares only 4 Mosquitoes

Main Force.

H.E. + 30 lb. inc. + 4 lb. inc. 279
 H.E. only 15
 30 lb. inc. + 4 lb. inc. 93
387

3 Mosquitoes (on training flights) carried
 T.I. + H.E.

KMD/LA3.
 BC/S.26342/1/ORS.3.
 18th September, 1943.

TARGET	GROUP	TYPE	MOSES	A/C REPORTING ATTACK ON		LABORTIVE SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS			
				PRIM. AREA	ALT. AREA	OVER ENEMY TERR.	NOT OVER ENEMY TERR.		FLAK	FLAK-TER	NOT ENEMY ACTION	ATTACK-ED	NOT ATTACK-ED	Tons of Bombs.	H.E.	Inc.	
GELSENKIRCHEN.	8 P.F.F.	Mosq. IV	12*	7	-	5	-	-	1	-	-	-	-	-	P. 587.8	719.7	
		1	Lanc. I	2	18	-	-	3	3	1 AC	-	-	-	-	-	A. 17.4	8.7
			Lanc. III	64	52	2	-	8	2	2 AC+4	-	-	1	6	M. 42.0	44.3	
	Well. X		10	8	-	-	-	2	1	-	-	-	-	-	Heavy Bombs		
	3	Stir. I	7	6	-	-	-	1	4	-	-	-	4	-	8,000	4,000	
		Stir. III	66	58	-	-	3	5	1 AC	1 AC	1 AC	3	12	P. 8	171		
		Lanc. II	12	9	1	-	1	1	2	1 AC	1*	2	1	A. 2	4		
	4	Mal. II & V	87	75	-	2	7	3	3 AC+9	-	1E + x	5	8	M. 1	11		
		Mal. In	19	16	-	1	1	1	3	-	1 AC	-	2	-	-	-	
		Well. X	22	19	-	-	1	2	-	-	-	-	2	-	-	-	
	5	Lanc. I	37	31	1	-	1	4	1E + 8	-	-	1	8	-	-	-	
		Lanc. III	77	64	2	-	8	3	2AC+15	1	1E + 1 AC	4	14	-	-	-	
6	Mal. I & V	28	23	-	-	2	3	1	-	-	3	6	-	-	-		
	Well. X	8	8	-	-	-	-	-	1B	-	1	1	-	-	-		
GELSENKIRCHEN TOTAL			473	394	6	8	35	30	1E+8AC+52	2AC+1+1B	1E+1B 3AC+1	22	62				
MINDLAUING	1	Well. X	8	8	-	-	-	-	-	-	-	-	-	-	16 mines		
LA PALICE	3	Stir. I	2	2	-	-	-	-	-	-	-	-	-	6 mines			
		Stir. III	1	1	-	-	-	-	-	-	-	-	-	3 mines			
		Lanc. II	2	1	-	-	-	1	-	-	-	1	-	6 mines			
GIRONDE R	3	Stir. I	1	1	-	-	-	-	-	-	-	-	-	3 mines			
		Stir. III	3	3	-	-	-	-	-	-	-	-	-	18 mines			
LORIENT	4	Well. X	8	8	-	-	2	-	-	-	-	-	-	12 mines			
ST. NAZAIRE	4	Well. X	8	8	-	-	-	1	-	-	-	-	-	16 mines			
MINDLAUING TOTAL			33	30	-	-	2	1	1	-	-	1	72 mines				
TOTAL			506	424	6	8	37	31	1E+8AC+53	1E+2AC+1	1E+1B 3AC+1	22	63				

* 3 On training flight
 x Also damaged by flak - included in flak column.

BOMBER COMMAND REPORT ON NIGHT OPERATIONS 26/27th JUNE, 1943.Hamburg: Duisburg: Minelaying: Leaflets.SUMMARYHamburg: Duisburg

1. 4 Mosquitoes of No. 8 Group were despatched on a harassing raid against Hamburg and 3 against Duisburg. All attacked their targets and returned undamaged.

Minelaying

2. 12 Wellingtons, out of a force of 16, laid 23 mines off Brest and Lorient. One aircraft did not return.

Leaflets

3. 13 aircraft, out of a force of 14, dispersed leaflets over Rennes, Tours, Le Mans and Caen. The remaining aircraft was unable to pinpoint, and dropped its bundles over Kervill. All returned safely.

Meteorological Forecast

4. Midnight frontal positions:- occlusion from 57°N. 01°E. to Zuyder Zee to 50°N, 10½°E. to Munich, becoming cold along the Alps to N. Spain.

Bases:- little cloud, apart from a strip of 8-10/10ths strato-cumulus in two layers down the east coast covering Yorkshire and East Anglia; base 1,500', locally 1,000'. Visibility moderate to good, but local smoke troubles, particularly in N. of 6 Group.

Germany:- Fine in Hamburg - Kiel - Bremen area, with good visibility and little cloud. Broken medium cloud over Central Germany E. of frontal belt. Cloud to great heights with rain in S. Ruhr: three quarters cloud cover in layers up to 12,000'.

France:- Fine with moderate visibility, except in extreme S. Less than 4/10ths strato-cumulus over W. coast, base 2-3,000'.

Sorties

		<u>Bombing</u>	<u>Minelaying</u>	<u>Leaflets</u>
(a)	No. of aircraft despatched.....	7	16	14
(b)	" " " reaching primary area....	7	12	13
(c)	" " " alternative area..	0	0	1
(d)	" " abortive sorties.....	0 (weather 2)		
		(technical 3)		0
		defect..1)		
(e)	" " aircraft missing.....	0	0	0

..../Weather Experienced

Weather Experienced

6. Bases:- Fit apart from low stratus (base 600') in East Anglia and Lincs. towards dawn.

Hamburg:- Large amounts of layer cloud over North Sea, tops to 8,000', breaking towards target to small amounts. Good visibility.

Duisburg:- 7-8/10ths. layer cloud, tops 8,000'. Good visibility.

France:- Hazy. No cloud, apart from 10/10ths at Caen. Moderate visibility.

No moon.

Enemy Defences

7. No serious opposition was encountered from ground defences, although two leaflet aircraft suffered slight flak damage over Rennes and Caen. 67 sorties by controlled fighters were overheard, 10 of which were active against British aircraft. Areas of activity included St. Briac, Bremen/Zwolle, Kiel/Flensburg and Hamburg/Deutsche Bucht. No attempted interceptions, claims or combats were heard. Leaflet aircraft reported 2 approaches, but no combats developed.

Casualties

8. One minelayer did not return from Brest. Nothing was heard from it, and there is no evidence of the cause or place of loss.

16M/JT.

EC/3.26342/5/OPF.

30th. August, 1943.

TARGET	UNIT	TYPE	SORTIES	VC REPORTED ATTACK ON		BOMBING SORTIES		MISSING	DAMAGE			INTERCEPTIONS		RESULTS
				PRIVACY AREA	ALTERNATIVE ARE.	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK FIGHTER	NOT ENEMY ACTION	ATTACK- ED	NOT ATTACK- ED		
HAMBURG	8 P.P.F.	Mosq. IV	4	4	-	-	-	-	-	-	-	-	-	P. 3.1
DUISBURG	8 P.P.F.	Mosq. IV	3	3	-	-	-	-	-	-	-	-	-	P. 2.3
BOMBING TOTAL			7	7	-	-	-	-	-	-	-	-	-	P. on Brest
MINELAYING CONCEPT	4	Well. X	8	8	-	-	-	-	-	-	-	-	-	15 mines
BREST	6	Well. X	8	4	-	-	3	1	-	-	-	-	-	8 mines
MINELAYING TOTAL			16	12	-	-	3	1	-	-	-	-	-	23 mines
RENNES	93	Well. III	5	5	-	-	-	-	1	-	-	-	-	1
TOURS	93	Well. III	2	2	-	-	-	-	-	-	-	-	-	-
LE HAVRE	93	Well. Ia.	3	3	-	-	-	-	-	-	-	-	-	1
CANTON	93	Whit. V	4	4	1	-	-	-	1	-	-	-	-	-
RENNES TOTAL			14	13	1	-	-	-	2	-	-	-	-	2
TOTAL			37	32	1	-	3	1	2	-	-	-	-	2

RAID TRACKS AND BOMB PLOTS NOT AVAILABLE

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

Minelaying: Leaflets.

SUMMARY

Minelaying

1. 25 aircraft, out of a force of 30, laid 150 mines off the Frisians and the French Atlantic coast. One aircraft was lost.

Leaflets

2. 4 aircraft dispersed leaflets over Paris without loss.

Metecrological Forecast

3. Midnight frontal positions:- (i) weak cold from 54° N. 02° E to Amsterdam to Upper Rhine, then cold to S. of Vienna. (ii) cold from S. of Norway to Bremen to S. of Breslau.

Bases:- almost cloudless. Local stratus towards dawn. Poor visibility 40 miles inland from east coast after 0400, not becoming widespread. Most bases fit till 0400, and some all night.

Germany:- 8-10/10ths strato-cumulu. near front (ii), with considerable medium cloud and showers. Good breaks S. of front. Ruhr: 4-9/10ths, base 2,000', tops 3-4,000', moderate visibility. Hamburg: strato-cumulus may break to 5/10ths.

France:- little or no cloud. Fine on W. coast. Moderate visibility.

Frisians:- 7/10ths or more strato-cumulus, base 1,500-2,000' tops to 6,000'. Chance of breaking to 5/10ths.

Sorties

Minelaying Leaflets

4.	(a) No. of aircraft despatched.....	30	.....	4
	(b) " " " reaching primary area.....	25	.....	4
	(c) " " abortive sorties (weather..... 2)			
		(technical defect..... 1)	4	..... 0
		(planted wild..... 1)		
	(d) " " aircraft missing.....	1	.....	0

Weather Experienced

5. Bases:- Cloudless at dusk, apart from 10/10ths strato-cumulus at 1,200' in coastal strip off East Anglia. Industrial mist and fog patches from 0500, in the patches of low stratus in

Frisians:- 10/10ths strato-cumulus, base 1,300' tops 2,500'. Occasional patches at 800'. Good visibility.

W. France:- No cloud. Hazy. No moon.

Enemy Defences

6. Moderate heavy flak was encountered by leaflet aircraft at Rouen, St. Val and Paris, accurately predicted. A single hit was sustained from heavy flak at the capital. Minelayers in the Bay of Biscay met moderate light flak from the usual coastal areas, and fairly intense heavy flak with searchlights at Nantes and La Pallice. 33 sorties by controlled fighters were overheard, but only 2 were active against British aircraft in the areas of Declen and Nantes. 2 interceptions were reported at Nantes and Beachy Head, but in both cases our aircraft took successful evasive action.

Casualties

7. One minelayer was lost at La Pallice without evidence of how or where.

MLH/Jt.
BC/S. 26342/5/ORS.
30th. August, 1943.

GROUP	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON		POSITIVE RESULTS		MISSING	INTERCEPTIONS			RESULTS	
				FABRIKY ARE.	ALTERNATIVE ARE.	OVER ENEMY TERRITORY	NOT OVER ENEMY TERRITORY		FLAK/FIGHTER	NOT ENEMY ACTION	ATTACKED		NOT ATTACKED
MINGL. YING													
GERMANY	1	Lanc. III	9	7	-	-	2	-	-	-	-	1	42 mines
LA PALLICE	1	Lanc. I	4	3	-	-	-	1	-	-	-	-	18 mines
		Lanc. III	2	2	-	-	-	-	-	-	-	-	12 mines
FRANCE	3	Str. I	3	3	-	-	-	-	-	-	-	-	18 mines
		Str. III	12	10	-	-	2	-	-	-	-	-	60 mines
MINGL. YING TOTAL			30	25	-	-	4	1	-	-	-	1	150 mines
PARIS	92	Lanc. III	4	4	-	-	-	-	1	-	-	1	-
TOTAL			34	29	-	-	4	1	1	-	-	2	-

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 28/29th JUNE, 1943.COLOGNE: Hamburg: Minelaying.SUMMARY.COLOGNE.

1. A successful sky-marking attack was made on Cologne by 608 bombers. Very extensive damage, probably caused by this raid, occurred around the aiming point on the west side of the river. Reconnaissance was made after the ground-marking raid of 3/4th July, which was shown by night photographs to have fallen mainly on the east of the Rhine, so that although no definite statement can be made, it is likely that this was an accurate and concentrated raid. 25 aircraft failed to return, mainly owing to night fighters, 8 of which were destroyed or probably destroyed.

Hamburg.

2. A harassing raid on Hamburg was carried out by 4 Mosquitoes without incident.

Minelaying.

3. 6 Stirlings laid a total of 19 mines in the Gironde Estuary, all returning undamaged.

Meteorological Forecast.

4. Anticyclone over British Isles, remaining stationary.

Home bases: Fit for take-off in all Groups, except some northern stations of 6 Group, which may have poor visibility in smoke. Coastal stations 8-10/10ths strato-cumulus at 1,000/1,500 ft. with moderate visibility. Inland stations will have small amounts of cloud and moderate to good visibility. For return up to 0500 hours, strato-cumulus is likely to spread inland during the night, affecting all stations except perhaps those in 4 and 6 Groups. Cloud will be 8-10/10ths at 1,000/1,500 ft, possibly with lower patches at high level stations. Visibility 2,000 yards or more. Little cloud in 4 and 6 Groups. Visibility more than 2 miles in 4 Group, but only 1-2,000 yards in 6 Group, where fog is expected to develop in some stations after hours. Moreton-in-Marsh, Honeybourne, Pershore and most of 92 Group stations will be available for diversions.

France: fine, with moderate visibility.

Germany: In N.W., strato-cumulus, with good clearances in Hamburg, Bremen, P area, and a few breaks over the Ruhr. Central Germany, small amounts of cloud. Visibility moderate to good except in the Ruhr, where industrial haze is expected.

Cologne and route: probably 10/10ths strato-cumulus, base 2,000 ft. tops 3,000 ft.

Hamburg: small amounts of cloud apart from possible cirrus. Visibility good.

Winds:	750' m.b.	500 m.b.	300 m.b.
Bases S. of 52°N to 3°E	010°/25 m.p.h.	020°/35 m.p.h.	360°/40 m.p.h.
" N. " " " "	350°/25 m.p.h.	350°/35 m.p.h.	020°/45 m.p.h.
3°E to Cologne	010°/40 m.p.h.	010°/40 m.p.h.	020°/60 m.p.h.

..../COLOGNE

COLOGNE.Plan of Attack.5. Zero hour: 0140 hours.Period of Attack: 0136-0219 hours.

En route to the target, 9 Oboc Mosquitoes were to drop green steady flares at $50^{\circ}41'N$ $06^{\circ}45'E.$, 18.7 miles S.E. of the release point. At the target, between Z - 4 and Z + 35, the Mosquitoes were to drop red T.I's in salvo on the aiming point and also release point flares (red with green stars + white) in case the groundmarkers could not be seen through cloud. Between Z + 2 and Z + 39, 32 backers up were to aim green T.I's to overshoot, by 2 seconds, red T.I's if seen, otherwise the estimated centre of all green T.I's visible. If no T.I's could be seen the backers up were to become part of the main force, and aim their bombs at the release point flares, bringing their own T.I's back. Crews of the main force, divided into 8 sections of about 70 aircraft each, were to aim at red T.I's or at the estimated centre of all green T.I's, but, if no T.I's could be seen, they were to aim at the release point flares on an exact heading of $030^{\circ}M$ at a speed of 165 m.p.h. (I.A.S.). If no marker of either kind was visible on arrival, crews were to bomb on E.T.A.

6. Between Z and Z + 10 the T.I's were to cascade at 3000' or 6000' and after Z + 10 at 10,000'. All flares were to ignite at 12,000'. All Lancasters and Halifaxes were to carry mixed loads; Stirlings and Wellingtons (except Wellington 423's) were to carry incendiaries only. The most experienced crews were to be detailed to attack in the first three sections. As a training flight, an Oboc Mosquito, carrying 3 x 500 M.C. bombs, was to attack the target at Z + 40 hrs.

Timing.7. Mosquitoes*Backers-up.Main Force.

(Z-4) & zero

2 at (Z + 2)

Sect.1 Lancs. Zero - (Z+4)

2 at 1 min.intervals (Z+3)-(Z+4)

(Z+5)

Sect.2 Lancs (Z+5)-(Z+9)

4 at 1 min.intervals (Z+6)-(Z+9)

(Z+10)

Sect.3 Hals.& Wells. (Z+10)-(Z+14)

4 at 1 min.intervals (Z+11)-(Z+14)

(Z+15)

Sect.4 Stirlings (Z+15)-(Z+19)

4 at 1 min.intervals (Z+16)-(Z+19)

(Z+20)

Sect.5 Wells. (Z+20)-(Z+24)

4 at 1 min.intervals (Z+21)-(Z+24)

(Z+25)

Sect.6 Hals. (Z+25)-(Z+29)

4 at 1 min.intervals (Z+26)-(Z+29)

(Z+30)

Sect.7 Lancs.& Hals. (Z+30)-(Z+34)

4 at 1 min.intervals (Z+31)-(Z+34)

(Z+35)

Sect.8 Lancs. (Z+35)-(Z+39)

4 at 1 min.intervals (Z+36)-(Z+39)

* Plus 2 reserves.

Bomb Loads - marker aircraft.

- 11 Mosquitoes - (1x3 flares green) + 1x3 flares (2 red/green + 1 white) + 2 T.I. red (1 LB)
 4 Stirlings - 4 T.I. green (1 LB) + 3 x 2000 HG.
 10 Halifaxes - 4 T.I. green (1 LB) + 1 x 2000 HC + 9 x 500 MC.
 18 Lancasters - 4 T.I. green (1 LB) + 4 x 4000 HC + 6 x 1000 MC.

Route

9. Base - $51^{\circ}22'N$ $03^{\circ}20'E$ - $50^{\circ}28'N$ $06^{\circ}32'E$ - TARGET - left turn - $51^{\circ}35'N$ $03^{\circ}48'E$ - Base.

.../Sorties

Sorties.

No. of aircraft despatched	608
" " " reporting attack on primary area	515 (84.7%)
" " " " " alternative area	6 (1.0%)
" " abortive sorties (technical & manipulative defect	52)
{ navigational error	2
{ sickness of crew	4
{ late	1
{ attacked by fighters	3
" " aircraft missing	25 (4.1%)
	..62 (10.2%)

Weather Experienced.

Bases:- Fit, with little cloud north of the Wash, and some smoke haze in 6 Group; 10/10ths strato-cumulus at 1,000-2,000 ft. over East Anglia. Visibility good.

Route and Target: 10/10ths layer cloud, tops variously estimated between 4,000 and 12,000 ft. but most frequently as 5,000 ft. Thickness more than 2,000 ft.

Surface wind: N.N.W./5-10 m.p.h.
Wind at 10/15,000 ft. N'y/30-35 m.p.h.
" " 20,000 ft. 010°/45-50 m.p.h.

Photographic Evidence.

No night photograph was plotted owing to cloud.

Narrative of Attack.

Owing to technical defects the first markers were released 11 minutes late and thereafter at irregular intervals. The red T.I's disappeared rapidly in cloud, so that it was useless to back up the marking with green T.I's. Thus, the main force had either to bomb on E.T.A. or wait until a sky-marker was released. A large number of bombs waited, and so, despite the lateness and irregularity of the markers, a very successful attack was delivered. Unfortunately no P.R.U. cover was obtained before Cologne was attacked again, on 3/4th July. However, the aiming point for the sky-marking raid was on the west of the river and for the other raid on the east. Night photographs for 3/4th July show a good concentration on the east and very few on the west of the river. The very extensive damage on the west can therefore be attributed mainly to the raid at present under consideration, although some of it may have been caused in the raid of 16/17th June for which incomplete cover was obtained.

Night Reconnaissance.

Reconnaissance photographs were taken on 4th July, but Cologne had received another attack in the intervening period. Damage shown on the photographs therefore included that caused by both raids. Several hundred acres of fresh devastation were seen on both sides of the Rhine; ruins on the east bank were still smoking. It is probable that most of the damage on the west side was caused by the raid of the 28/29th July, but as it is impossible to separate the incidents exactly an account of the total damage due to both raids, and possibly also to the attack on 16/17th June, is given in Night Raid Report No. 368 for 3/4th July.

Alternative Targets.

6 aircraft attacked alternative targets in the areas of Euskirchen (3), Eupen, and Esclée.

Special Equipment.

OBOE. 9 OBOE Mosquitos and 2 reserves were despatched to mark the target, but only 6 aircraft, including both reserves, completed the task. The first to attack was 11 minutes late, and the rest attacked at irregular intervals during the next 35 minutes. The other 5 aircraft all experienced technical trouble with the OBOE equipment. The

single OBOE Mosquito sent to drop bombs at the end of the raid for training purposes attacked visually owing to failure of the OBOE equipment.

17. H2S. 19 aircraft carried H2S as a navigational aid, and 8 of these used to determine or check their positions when bombing. One aircraft returned early and 2 were lost.

18. GEE. The Eastern Chain operated on the Virginia frequency throughout the raid and on the target (Zandvoort) frequency from 0030 to 0300 hours. The average range obtained on the outward journey was 280 miles and on the homeward route 270 miles. 9 aircraft obtained fixes at the target, 360 miles from the Master Station. The average ranges obtained on this occasion showed an improvement of the order of 35 miles over those reported in recent raids on the Ruhr. This improvement was probably due to an increase in signal strength of the Master Station, which was the result of efforts to bring this station to absolute maximum efficiency following reports from navigators of weaker reception from this station than from the slaves. Jamming was of the same type and strength as was reported on the Wuppertal raid of 24/25th June, when this route was last used.

Enemy Defences.

19. Flak and Searchlights. The bombers encountered heavy predicted flak from Walcheren as soon as they crossed the Dutch coast. Further inland, flak was again reported from Antwerp. Between Aachen and Liege the force crossed the boundary of the Ruhr defences, and from here to Munchen Gladbach on the return journey, defences were everywhere active. Over Cologne 9/10ths of this cloud prevented searchlights from operating successfully, and the fire was mainly barrage, directed particularly at the sky markers dropped by OBOE aircraft. Some light flak and predicted heavy flak were also reported. The defenses of Eindhoven and St. Trond went into action against returning bombers. 75 aircraft were damaged by flak. The large number probably due in part to the use of sky markers, with the consequent concentrated barrage, and also to the long distance which bombers had to cover within the Ruhr defensive system. The prevalence of barrage fire would explain the low flak loss.

20. Fighters. Intercepted Wireless traffic for the night indicates that controlled fighters were operating over a wide area in the Low Countries during the raid. Details were heard of 16 pursuits against the Cologne raiders and accompanying Fighter Command intruders. Of these all but four appeared to be against returning aircraft. 9 claims were made, and one night-fighter reported an unsuccessful attack. It is of interest to note that the W/T of one patrol suddenly ceased at about the same time, and in the same area, as that in which a returning Halifax reported destroying an Fw.190.

104 interceptions, including 33 attacks, 37 other combats, 32 approaches and 2 followings were reported by returning aircraft. It is clear from these reports from the Wireless traffic, and from the analysis of aircraft destroyed, that fighters were unusually active on this night. 46 interceptions took place on the outbound route and 42 on the homeward route. 9 aircraft were damaged by fighter attack.

Casualties.

21.	No. of aircraft missing	.	.	.	.	.	.	.	.	25	(4)
	" " " damaged	(a)	flak	.	.	.	.	.	75		
		(b)	fighters	.	.	.	.	.	9		
		(c)	flak & incendiary bombs	.	.	.	.	.	1		
		(d)	incendiary bombs	.	.	.	.	.	2		
		(e)	fire from friendly a/c	.	.	.	.	.	1		
		(f)	other causes	.	.	.	.	.	3		
										91	(1)

Analysis of observations of aircraft shot down indicates that at least 17 losses were caused by fighters; at Hasselt, Aachen, Antwerp, Bonn, Liege (2) (all outbound); Cologne, and Munchen-Gladbach, Eindhoven (2), Roermond; Hoogstraten and Dutch Islands (5) (all homeward). Only 3 losses can definitely be attributed to flak, 2 over Cologne and one over Aachen. 3 enemy aircraft were destroyed, 5 probably destroyed, 5 damaged and one probably damaged. 4 of the reports of enemy fighters destroyed were supported by observations by other crews.

2 aircraft crashed owing to engine failure, and a burst tyre caused the undercarriage of another to collapse.

5.

HAMBURG.

22. 4 Mosquitoes attacked Hamburg from 28,000 ft. A probable explosion followed by a fire was the only result observed. All the Mosquitoes returned undamaged, although 3 controlled night fighter pursuits were overheard.

MINELAYING.

23. 6 Stirlings of 3 Group laid a total of 19 mines in the Gironde Estuary, returning without loss or damage.

APPENDIX.Timing of AttackI. Pathfinder Force.

6 Mosquitoes attacked at, 0147½, 0149, 0200, 0209, 0212, 0223
The backers-up attacked with the main force.

Main Force.

Attacked within the prescribed period (0140-0219)	501
" 1-4 minutes late	7
	<u>508</u>

1 Mosquito (under training) attacked at 0230.

Bomb Loads (carried by aircraft reporting attack)II. Pathfinder Force.

T.I. + flares	6 Mosquitoes
T.I. + H.E.	29 backers-up
	<u>35</u>

Main Force.

H.E. + 30lb inc. + 4lb. inc.	337
H.E. only	24
30 lb. inc. + 4 lb. inc.	115
30 lb. inc. only	3
	<u>479</u>

11/1AS.

EC/S.26342/5/ORS.3.

20th September, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON				LOSING	DAMAGE				INTERCEPTIONS		RESULTS	
				PRIM. AREA	ALT. AREA	OVER ENERGY TONS	NOT OVER ENERGY TONS		FLAK	FIGHTER	NOT R/A	ATT-ACQD	NOT ATTACKED	Tons of Bombs		
														H.E.	Inc.	
COLOGNE	B P.F.F.	Mosq. IV	11	6	-	-	5	-	-	-	-	-	-	-	P. 829.0	819.0
		Stir. I	4	4+	-	-	-	-	-	-	-	-	-	-	A. 6.3	9.9
		Hal. II	2	2+	-	-	-	-	-	-	-	-	-	-	M. 2.8	4.6
		Hal. IA	8	7+	-	-	-	1	2	-	-	-	-	-	Heavy Bombs	
		Lans. I	5	4+	-	-	1	-	-	-	-	-	1	-	5000lb.	4000lb.
	Lans. III	13	12+	-	-	1+	-	2	-	-	1	2	-	P. 8	933	
	B MAIN FORCE	Mosq. IV	1	1	-	-	-	-	-	-	-	-	-	-	A. -	1
		Stir. I	4	3	-	-	1	-	-	1B	-	1	1	-	M. -	8
		Hal. IIAV	2	2	-	-	-	-	-	-	-	-	-	-	-	-
		Hal. IA	6	5	-	-	-	1	-	-	-	-	1	-	-	-
		Lans. I	3	2	-	-	1	-	-	-	-	-	-	-	-	-
	Lans. III	13	12	-	-	-	1	-	-	-	-	-	-	-	-	
	1	Lans. I	19	18	-	-	1	-	-	-	-	-	2	-	-	-
		Lans. III	70	60	-	-	1	6	3	-	-	1E	4	4	-	-
		Well. X	27	20	1	-	5	-	1	1AC	-	1E+	1	2	-	-
	3	Stir. I	3	1	-	-	1	-	1	2	-	-	-	-	-	-
		Stir. III	64	52	-	-	8	-	4	11	-	1	5	11	-	-
		Lans. II	13	10	-	-	3	-	-	2	1AC	-	1	1	-	-
	4	Hal. IIAV	96	80	3	2	5	6	2AC+8	1AC	1B+	3	12	-	-	-
		Hal. IA	25	23	-	-	-	1	1AC+3	1	-	4	7	-	-	-
		Well. X	37	35	-	-	1	1	1B+2	-	-	4	1	-	-	-
5	Lans. I	39	33	-	-	3	3	7	1AC	-	2	4	-	-	-	
	Lans. III	92	82	1	1	7	1	2AC+5	1AC	1*	4	15	-	-	-	
6	Hal. IIAV	28	22	1	-	4	1	1AC+3	1B+	-	3	6	-	-	-	
	Hal. IA	2	2	-	-	-	-	-	-	-	-	-	-	-	-	
	Well. X	21	17	-	-	4	-	2	-	-	-	-	-	-	-	
COLOGNE TOTAL			608	515	6	5	57	25	1B+ 6C+ +68	1B+ 1B+ +6C+ +1	2B+ 1B+ 1C+ 3	33	71			

* Attacked with main force owing to cloud.

* One damaged by flak - included in flak column.

...../(Contd):

350

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON				LOSING	DAMAGE				INTERCEPTIONS		RESULTS
				PRIM. AREA	ALT. AREA	OVER ENERGY TONS	NOT OVER ENERGY TONS		FLAK	FIGHTER	NOT R/A	ATT-ACQD	NOT ATTACKED		
														COLOGNE TOTAL	
HAMBURG	B P.F.F.	Mosq. IV	4	4	-	-	-	-	-	-	-	-	-	-	P. 3.1 ton-B.E.
BOESING TOTAL			612	519	6	5	57	25	1B+ 6C+ 68	1B+1B +6C+ +1	2B+ 1B+ 1C+ 3	33	71		
KINELAYING CIRQUE R.	3	Stir. III	6	6	-	-	-	-	-	-	-	-	-	-	19 Mines
TOTAL			618	525	6	5	57	25	1B+ 6C+ 68	1B+1B +6C+ +1	2B+ 1B+ 1C+ 3	33	71		

RAID TRACKS AND BOMB PLOTS NOT AVAILABLE

BOMBER COMMAND REPORT ON NIGHT OPERATIONS - 29/30th JUNE, 1943.

Mine-laying.

SUMMARY.

1. 16 Wellingtons of 1 and 4 Groups were despatched to lay mines off St. Nazaire and Lorient. 15 completed the task, laying 30 mines. The sixteenth was missing without trace.

Meteorological Forecast.

2. Anti-cyclone over Scotland, persisting without much change.

Home Bases: 1 and 4 Group stations will be fit for take-off, but very few bases anywhere in England after 0300 hours, owing to low cloud at 300 ft. and drizzle. Some diversions will be available in 91 Group until 0400-0500 hours,

France:- much low cloud in N.E.; fine with moderate visibility in W. and centre.

Germany:- small amounts of strato-cumulus cloud, with a few larger patches in N.W.; variable amounts of strato-cumulus in N.E. Much cloud and occasional rain in S.

Sorties

3.	(a)	No. of aircraft despatched.....	16
	(b)	" " " reaching primary area.....	15
	(c)	" " " missing.....	1 (6.2%)
	(d)	" " mines laid.....	30

Weather Experienced.

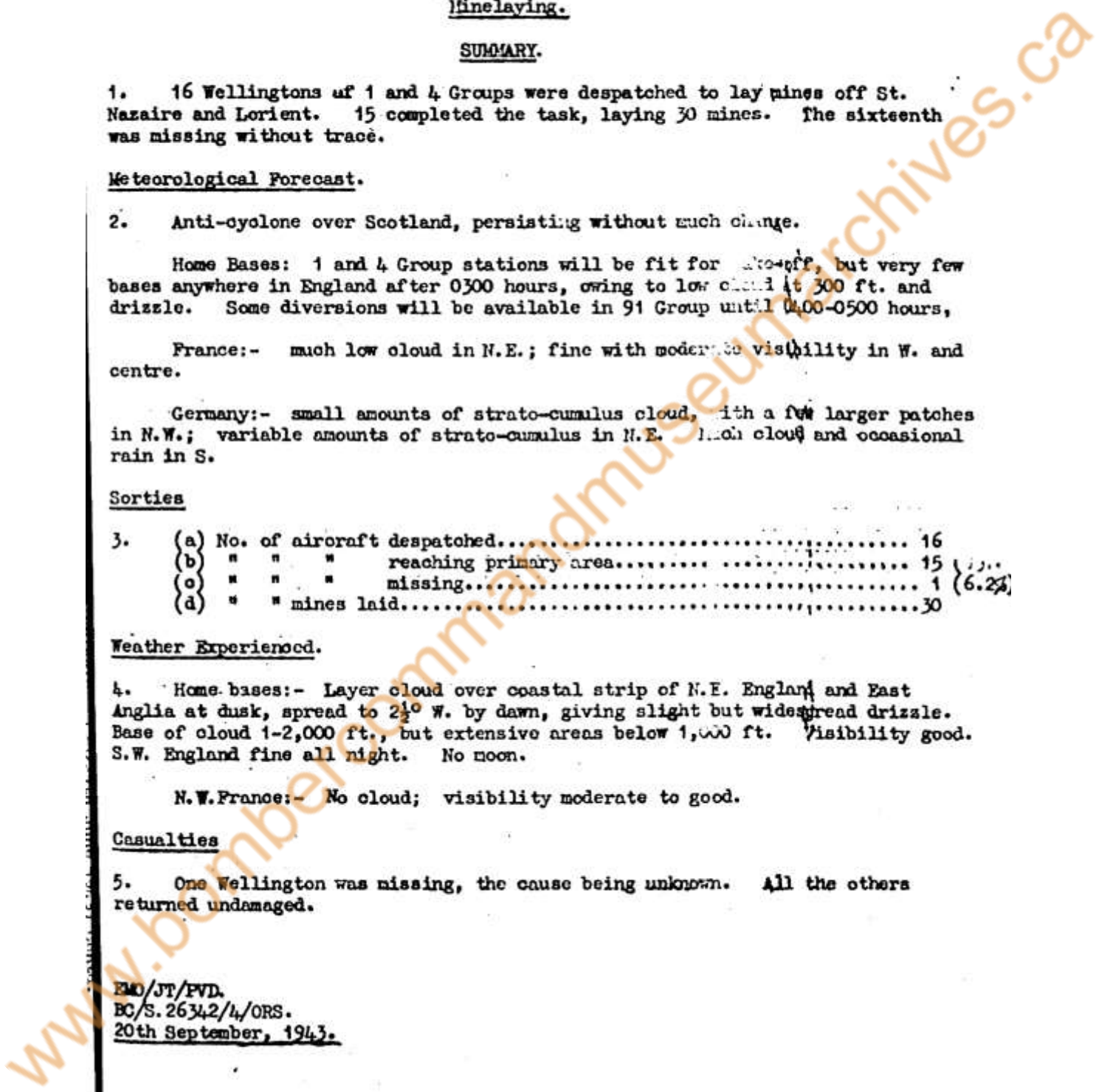
4. Home bases:- Layer cloud over coastal strip of N.E. England and East Anglia at dusk, spread to 2 1/2° W. by dawn, giving slight but widespread drizzle. Base of cloud 1-2,000 ft., but extensive areas below 1,000 ft. Visibility good. S.W. England fine all night. No moon.

N.W. France:- No cloud; visibility moderate to good.

Casualties

5. One Wellington was missing, the cause being unknown. All the others returned undamaged.

EMO/JT/PVD.
BC/S. 26342/4/ORS.
20th September, 1943.



MINELAYING

29/30th JUNE, 1943.

TARGET	GROUP	TYPE	SORTIES	A/C REPORTING ATTACK ON PRIMARY AREA	ABORTIVE SORTIES	MISSING	DAMAGE	INTER- CEPTION	RESULTS.
ST. NAZAIRE	1	WELLINGTON X	8	8	-	1	-	-	16 mines
LORIENT	4	WELLINGTON X	8	7	-	1	-	-	14 mines
		TOTAL	16	15	-	1	-	-	30 mines

www.bombercommandmuseumarchives.ca