

- 7. No consideration of the radio production program is well-founded until it is recognised that the days of one radio set and one radar set per
- craft have long gone. The modern capital ship is not over-equipped when it has twenty communication sets and fifteen radar sets; the Lancaster bomber is definitely under-equipped when it has two hundred and fifty radio valves installed.
- 8. It is not sufficient to establish the importance of radar. It is necessary to cite examples of the limitations which are imposed by our current radio production on the availability of radio and radar equipment to craft and weapons now engaging in battle, and on the development of further members of the amazingly successful series of radio and radar weapons which have won decisive victories in the earlier phases of the war. Decisive victories against the enemy's improving radio weapons will not be won without great and sustained development and production effort by the allies.
- 9. The Royal Navy lost H.M.S. "Coventry" to air attack, probably for lack of one additional radar set and of good R/T communication. It lost the ex-U.S.S. "Stanley" to submarine attack, probably for lack of a spare valve for its anti-U-boat radar set. It lost H.M.S. "Charybdis", probably to E-boat attack, for lack of a receiver for interception of German R/T traffi It may well lose other ships to glider-bomb attack because jamming sets to counter this attack are being issued with no spare valves. Attacks on enem convoys have been missed for lack of simple components in short supply; attacks on U-boats have been missed for lack of H/F D/F equipment. Destroys were denied participation in the Salerno operations for lack of components for VHF communication sets.
- 10. The vital air cover of the Fleet is far below requirement now because the production of Fighter Direction equipment for ships is six months behind program and because radar sets for the carrier borne fighters have to await valve production. The Royal Navy and the field armies alike are denied the immense advantages of the radio proximity fuse for ship gunnery and ground artillery for lack of valve production. Naval gunnery is in large measure, and coastal and field artillery are wholly, denied the revolutionary advantages of correction of unseen fire by radar observation on fall of shot, for lack of valve production. (Fall of shot corrections from radar fire against land targets opens a completely new field of improvement in fit artillery work).
- 11. The home bases of the expeditionary force are denied a substantial part of their H.A.A. cover because production facilities, especially for valves, did not suffice to maintain the planned output of fire-control radar. H.A.A. in mobile warfare will be crippled by the lack of light-weigh automatically-following radar for gun-laying. Scarchlight aids to H.A.A. and to night fighters at home and abroad is left with radar sets vulnerable to enemy interference for lack of adequate valve production.
- 12. The Allied Expeditionary Air Force, the Fleet Air Arm, Airborne Forces, the Strategic Bomber Forces, Special Airborne Sections, Special Operations aircraft, light and heavy craft of the Royal Navy, are all short of the long-established Gee equipment for navigational guidance. The functionally satisfactory Gee sets have, however, had to be re-designed for the sole purpose of overcoming difficulties in valve production.

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13. Bomber Cormand awaits the fitting of H2S in every bomber; meanwhile it is tied to the precarious and unsatisfactory pathfinder technique. It will continue to carry obsolete H2S on 10 centimetre wavelengths because valve production will not allow it to have the greatly superior 3 centimetre equipment.

- 14. All these services, limited as has been shown, are further crippled by inadequacy in the available number of training equipments and of test gear the radar sets go into operations ill-adjusted for lack of test gear, ill-maintained and ill-operated for lack of training gear. Bomber Command will have its modest demands for H2S trainers satisfied before June 1945 only by sacrificing the claims of Coastal Command to similar equipment.
- 15. In the communications field, the denial to the Allied Expeditionary Air Force of 40% of the VHF R/T sets which they require, the inability to begin the introduction of VHF R/T for Bomber Command before June 1945, the lack of VHF R/T in No.5 Bomber Group for its co-operation with A.E.A.F., and the lack of VHF R/T for inter-ship communication in the Royal Navy, are consequences of inadequate production capacity within a well established technique.
- 16. The inability to meet the field armies' demands for small, light portable radio communication equipment of adequate power and sensitivity rests on the inability to produce in quantity in the U.K., as an addition to existing production, miniature valves of types which are in production in U.S.A.
- 17. The continued use of heavy mine detectors is enforced by the absence of miniature valves production phased to fit the production of a new mine detector already tooled.
- 18. The gravity of the situation has been in part concealed by the fact that craft, vehicles and weapons are not withheld from combat for lack of radio and radar equipment. Unlike the case of equipment which keeps the armament entirely out of action until it is supplied, as, for example, a tyre for a Lancaster aircraft, a failure to equip an aircraft or vehicle with the latest radio devices does not blatantly show up the deficiency, because the aircraft or vehicle can still operate, but with a great decrease in operational efficiency.
- 19. No less important than these past and present deficiencies is the inhibition of a substantial part of that flood of inventive and development effort which so greatly assisted the Air Defence of Great Britain and the Air Offensive against Germany. Development of radio and radar devices for the final phases of the war is held up materially for lack of new valves and components and more important still psychologically by the knowledge that new developments cannot become fully effective in the war because of limitations of radio production capacity.

(Signed) ROBERT WATSON-WATT

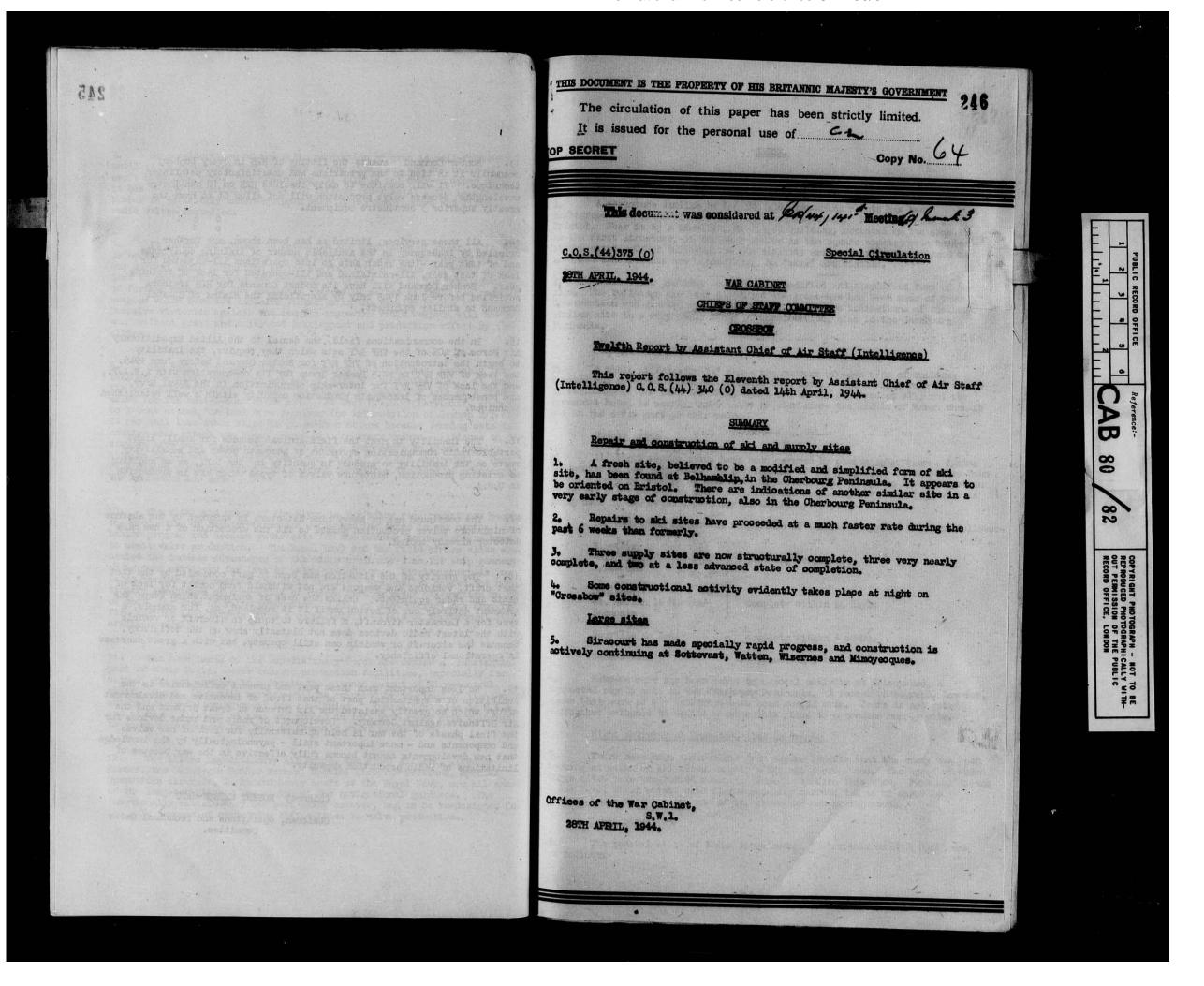
Chairman, Operations and Technical Radio

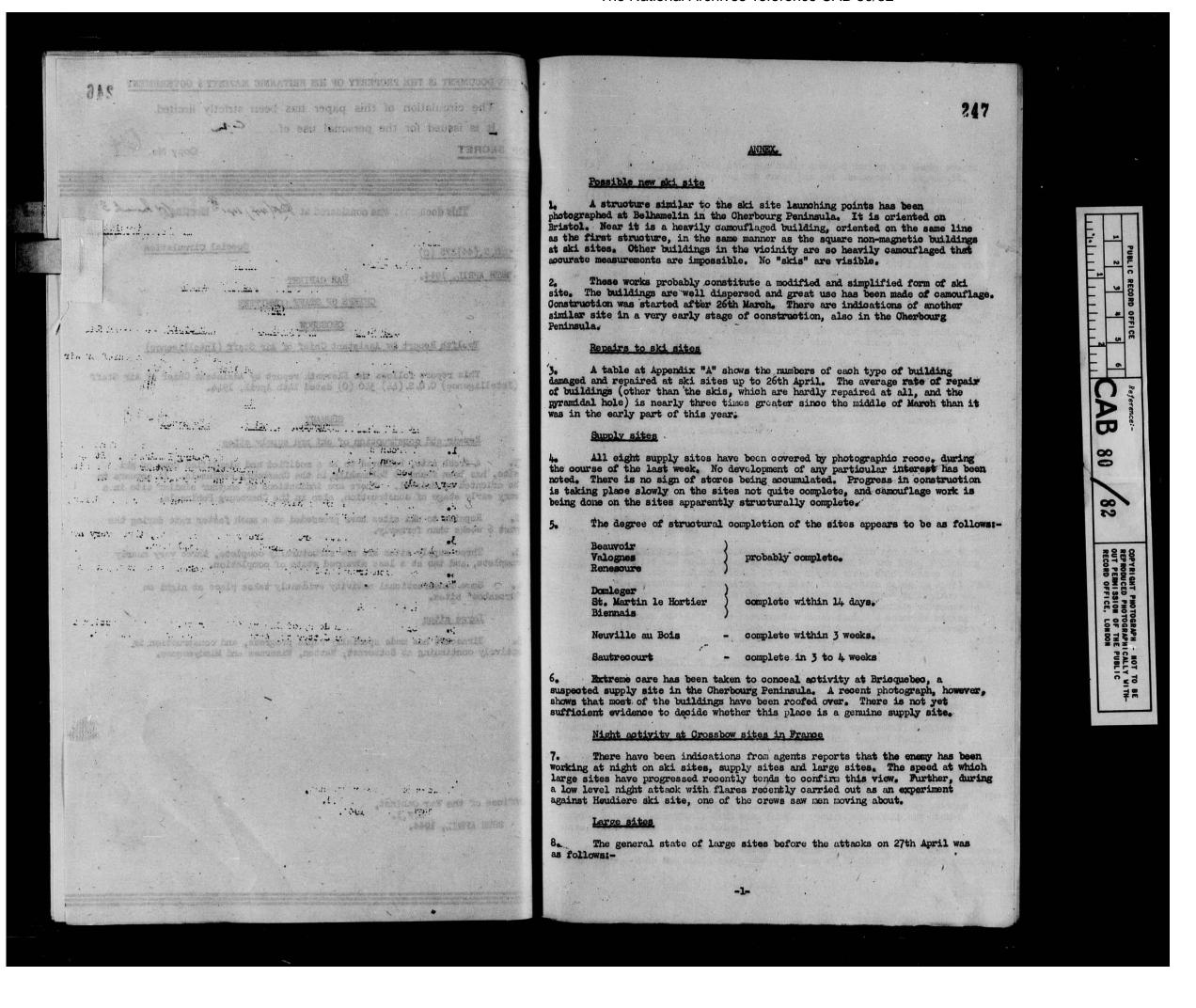
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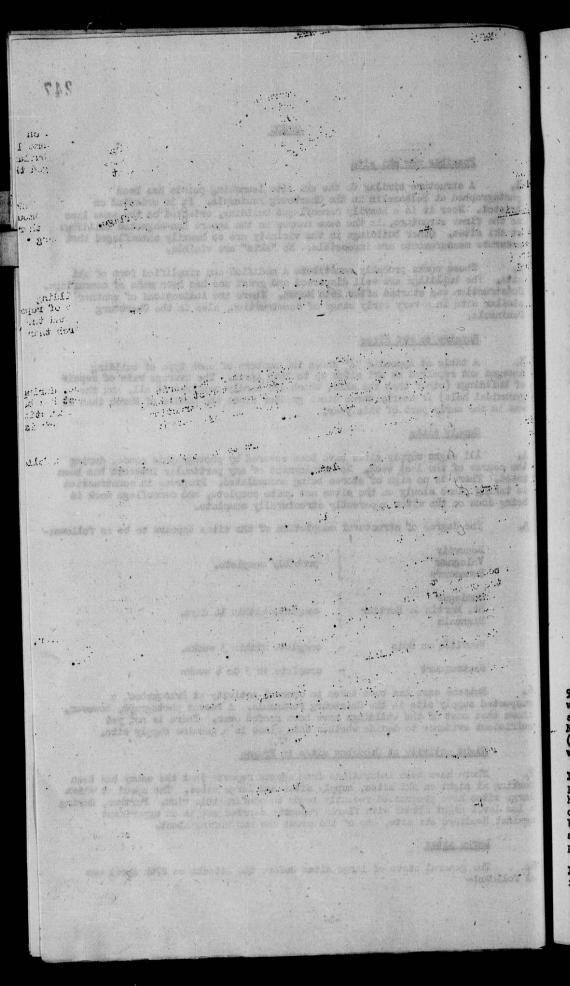
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(1) Martinvast. This site was badly damaged during the early stages of its construction and the enemy has not attempted to repair it.

- to bombing. The enemy appears to be removing decauville railway material and no constructional work is proceeding.
- (iii) Siracourt and Sottevast. These two sites are similar in design to Martinwast and Lottinghem. The main feature, apparently common to all four, is a wilding about 600 feet long by 150 feet wide with walls of reinforced concrete more than 20 feet thick and a roof of very great strength. At Martinwast and Lottinghem, the construction of these buildings was stopped by heavy damage to the foundations. At Siracourt and Sottevast, construction is following a different plan. Instead of completing the whole of the foundations first the enemy is building the main walls and the roof section by section. Thus the area vulnerable at any one time is reduced to a minimum.

At Sottevast, one end of the main building has been completed to roof level and about a quarter of the total length has been roofed.

At Siracourt, where progress has been particularly rapid, one third of the roof is almost complete. A further third, which was begun on 13th April, is now in an advanced stage. A photograph of Siracourt is at Appendix "B".

- (iv) Watten. The main building is externally complete, and no serious damage has been inflicted on it or on the railway which is being built to serve it.
- (v) <u>Wisernes</u>. Attacks on 26th March and afterwards have not prevented immediate clearance and resumption of work. The circular structure is nearing completion and general activity at this site is at a high level.
- Mimovecques. Photographs taken on April 11th and 13th show that the site had been tidied up and work resumed by the 13th, following the attack on April 10th. In this attack three shaft mouths and the rectangular excavation were hit. Photographs taken on April 22nd show no interruption in the work, although an attack took place on the 19th. These photographs show that a large quantity of concrete has been placed in the rectangular excavation. A concrete mixing plant can now be identified at the western corner of the excavation, and two deep holes can be seen near its northeastern end.

Supply of "T-Stoff" to Northern France.

9. A reliable report has been received that a total of 10 special tank wagons for transporting the "T-Stoff" required for pilotless aircraft has been allocated to the German Air Force supply organization covering Belgium and Northern France. A further five are being held in reserve at Giebelstadt (South of Wirzburg). The Germans estimate that this number will suffice in view of the situation in regard to the supply of this special fuel.

10. These special tank wagons are in all probability the same as some seen on photographs of Peeneminde (26th April) and Ober Raderach (11th April). They have not been noticed elsewhere on photographs, but an accurate description of one, said to be transporting "the special mixture used for ejecting rockets", has been received from Kochanowka in Poland. Kochanowka is the railway station serving Blizna where trials with some form of rocket projectile have taken place. (See paras. 12 to 14 below).

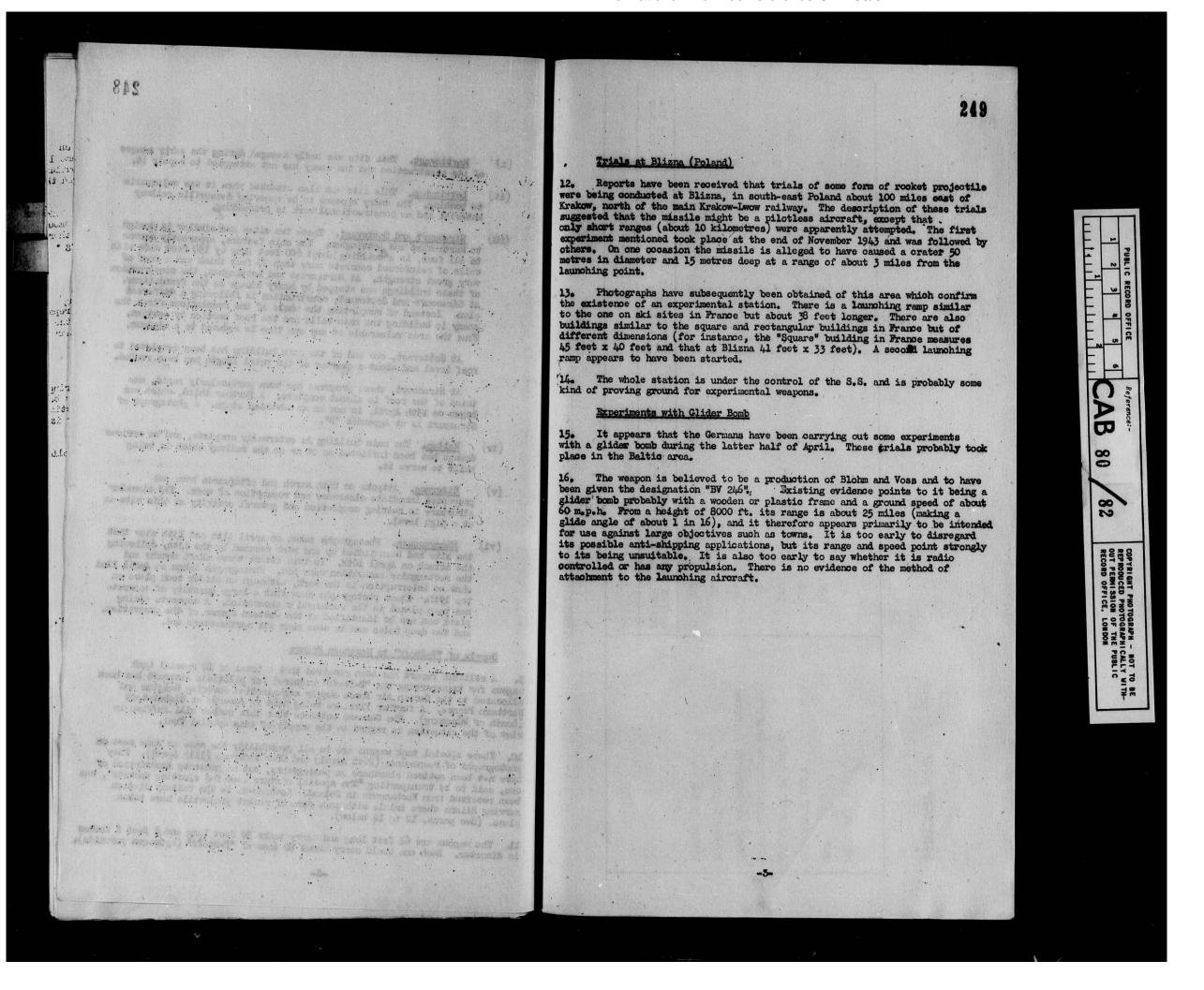
11. The wagons are 62 feet long and carry tanks 30 feet long and 8 feet 6 inches in diameter. Each one would carry about 50 tons of "T-Stoff" (hydrogen peroxide).

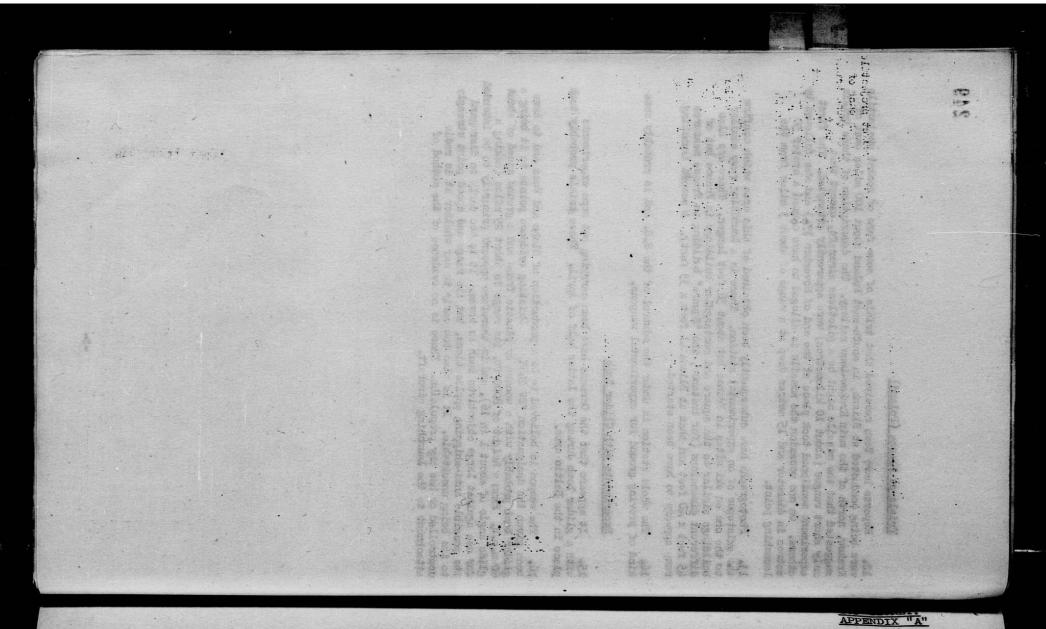
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STATEMENT OF DAMAGE AND REPAIRS TO SKI SITE BUILDINGS

	BUILDINGS DAMAGED		BUILDINGS REPAIRED	
	During 3 months ending 16 March	During period from 17 March to 26 April	During 3 months ending 16 March	During period from 17 March to 26 April
FIRING POINT	25	14	7	. 5
SQUARE BUILDING	37	10	6	7
LARGE RECTANGULAR BUILDING	27	4	5	6
SMALL RECTANGULAR BUILDING	26	6	4	4
BLAST WALL BUILDING	12	7	3	3
PYRAMIDAL HOLE	12	2	.5	
SKI	104	10	5	1
HALF SKI	9.	1	-1,	-

28th April 1944.

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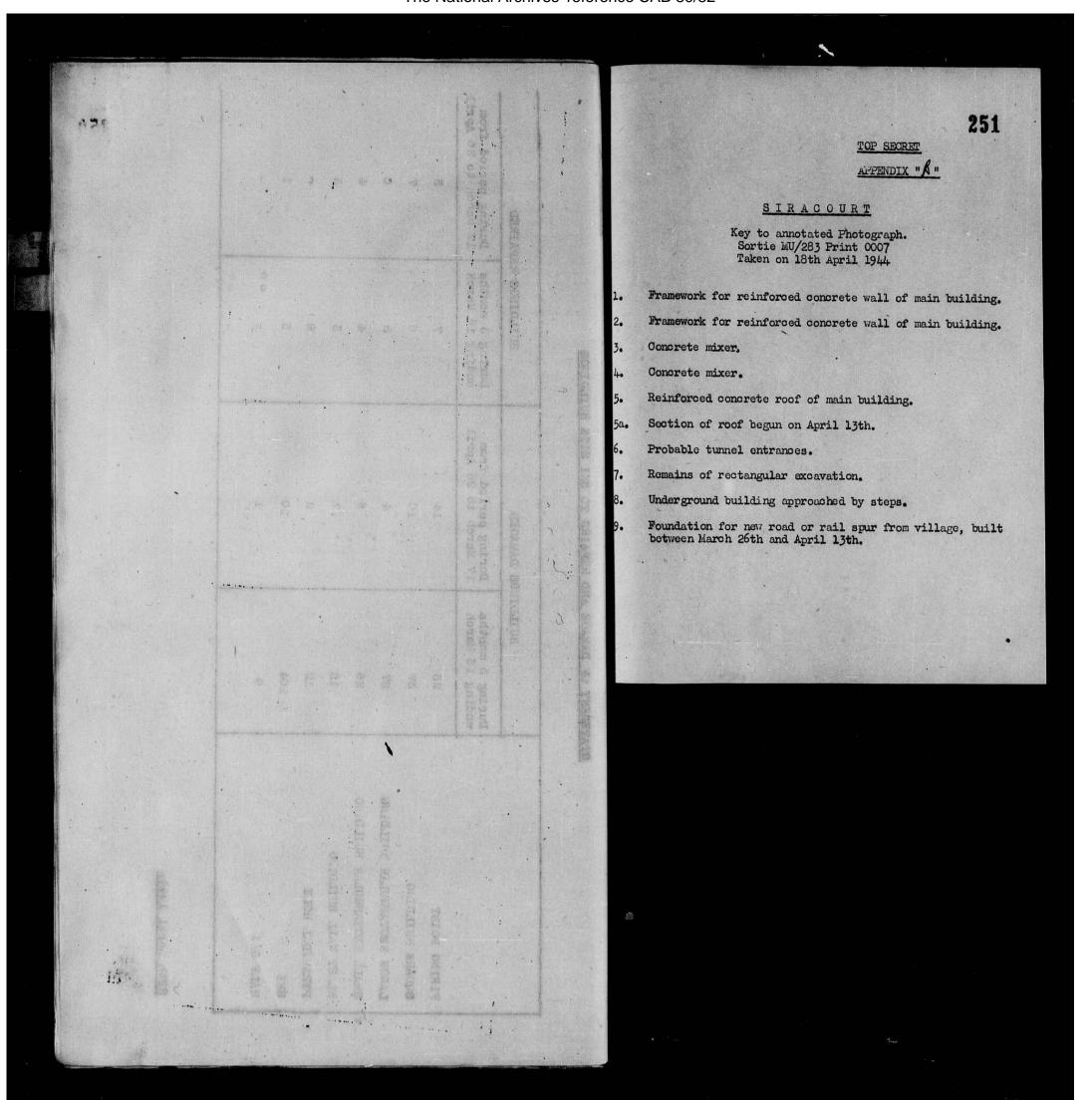
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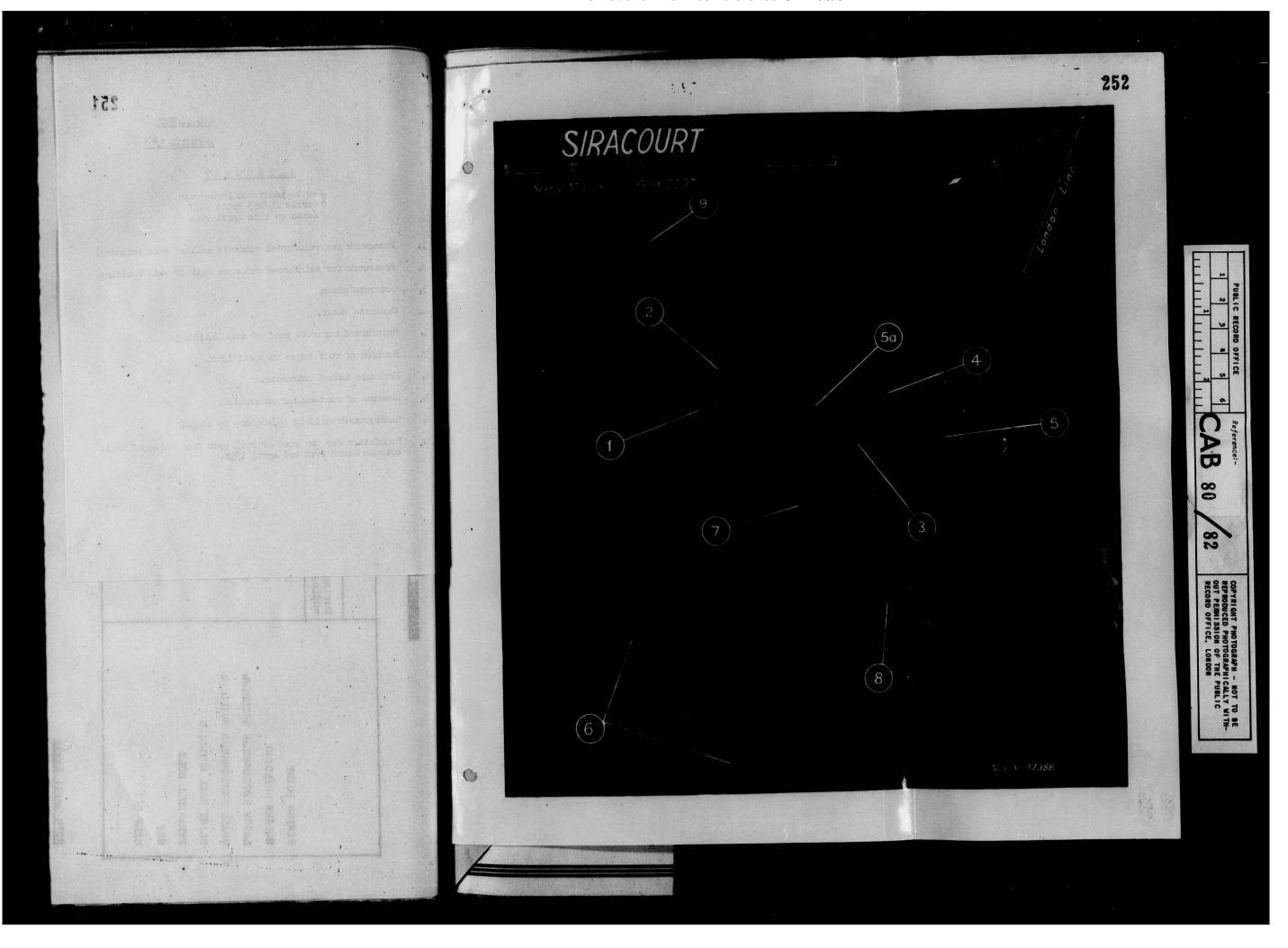
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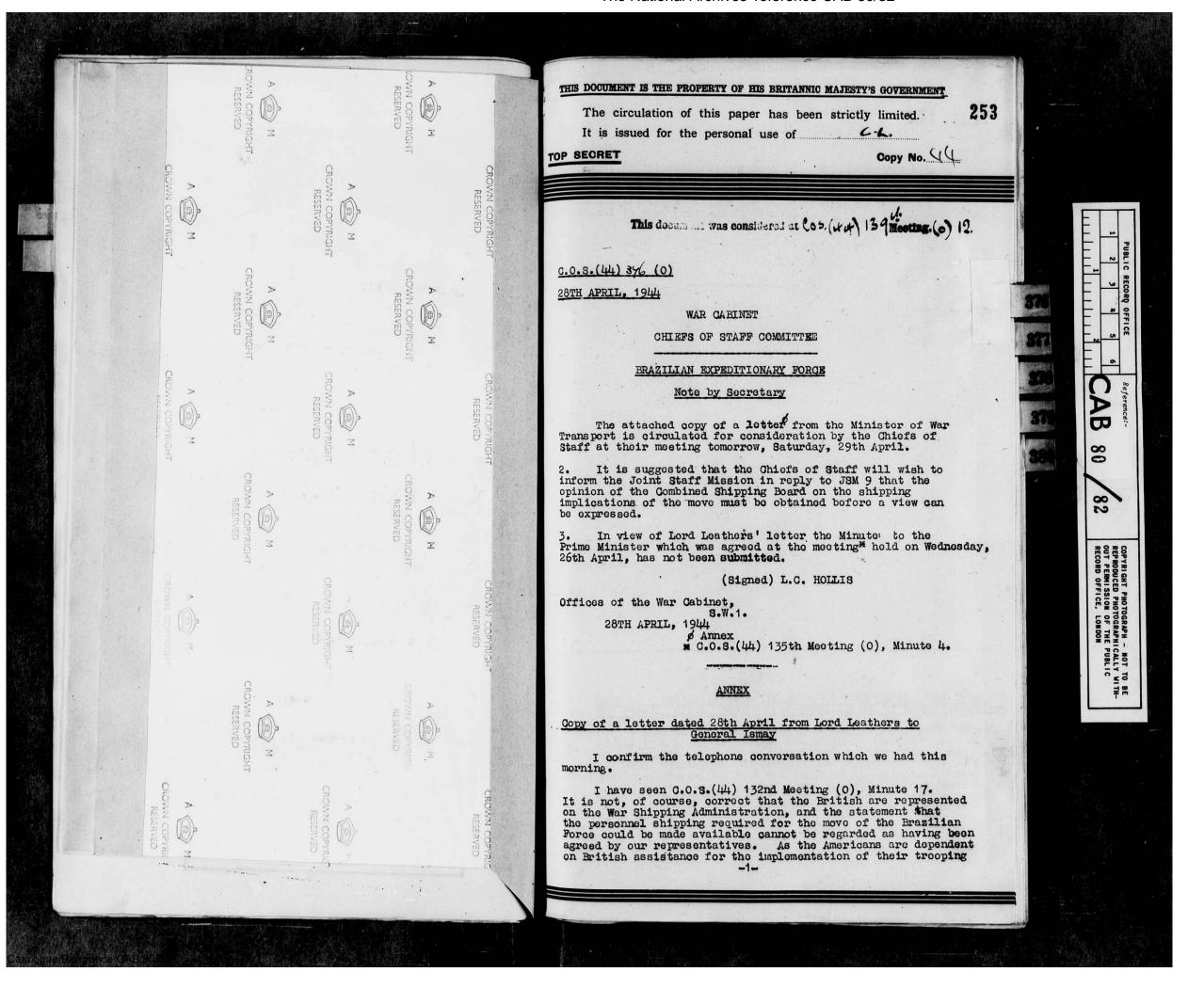
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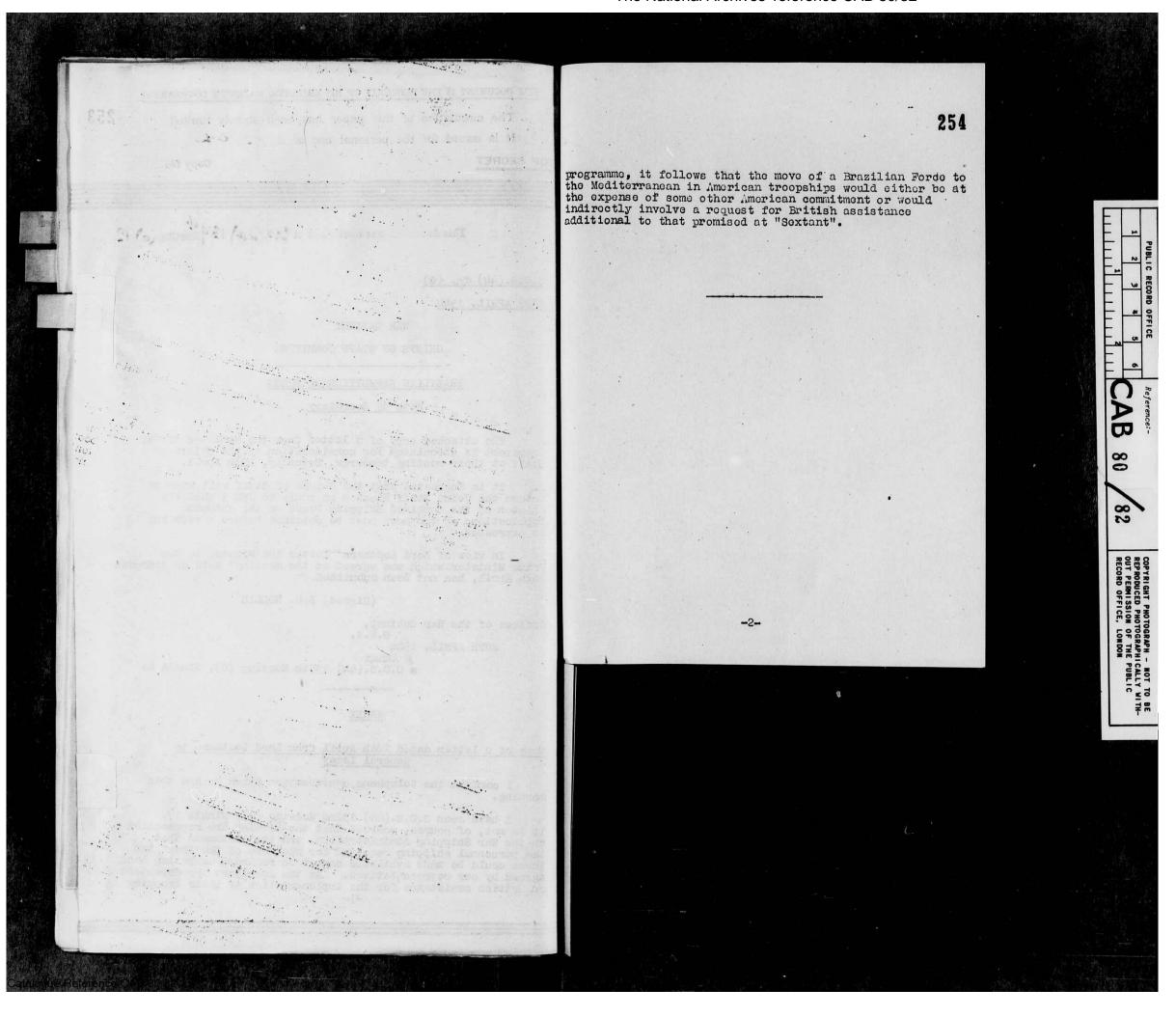
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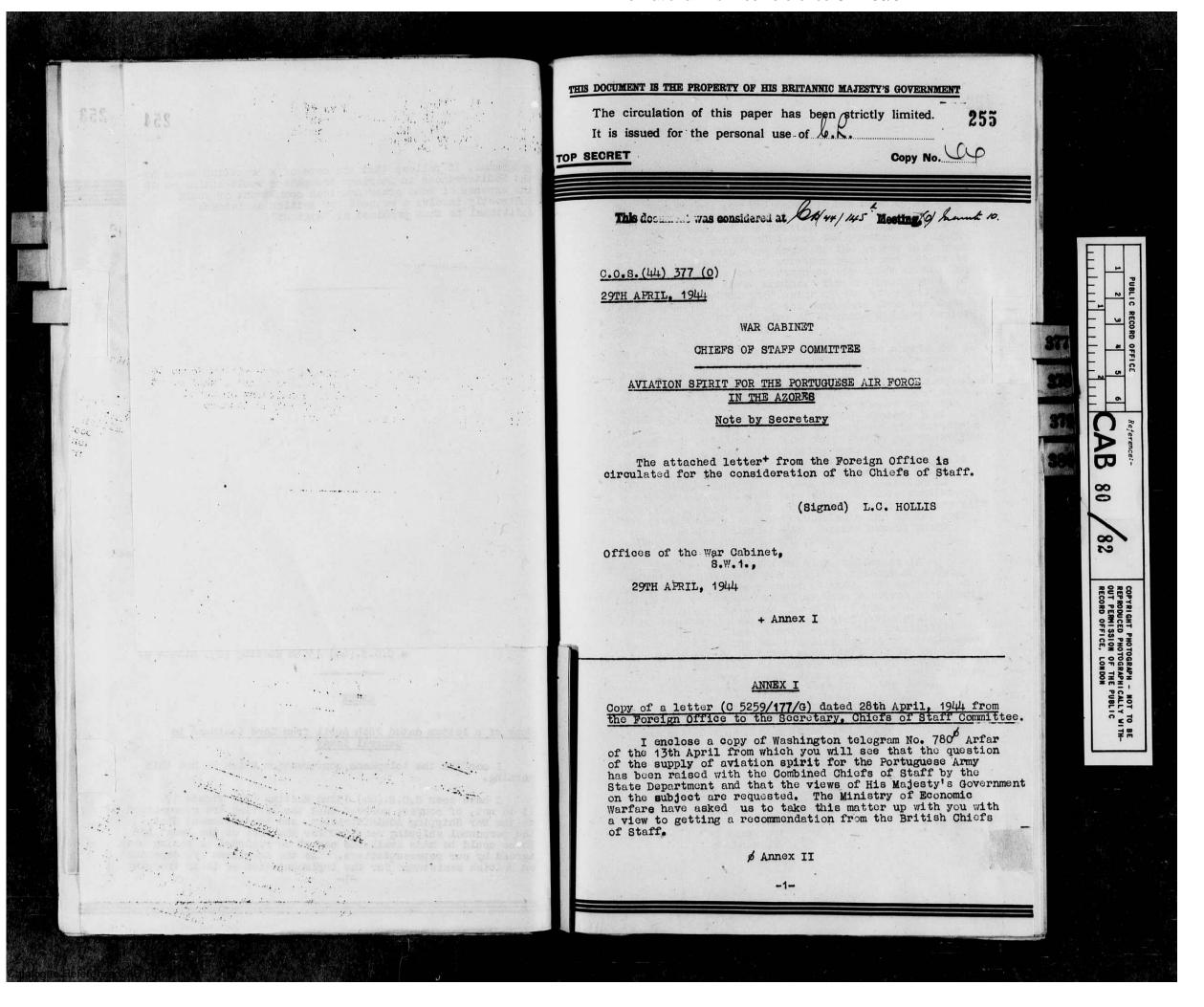


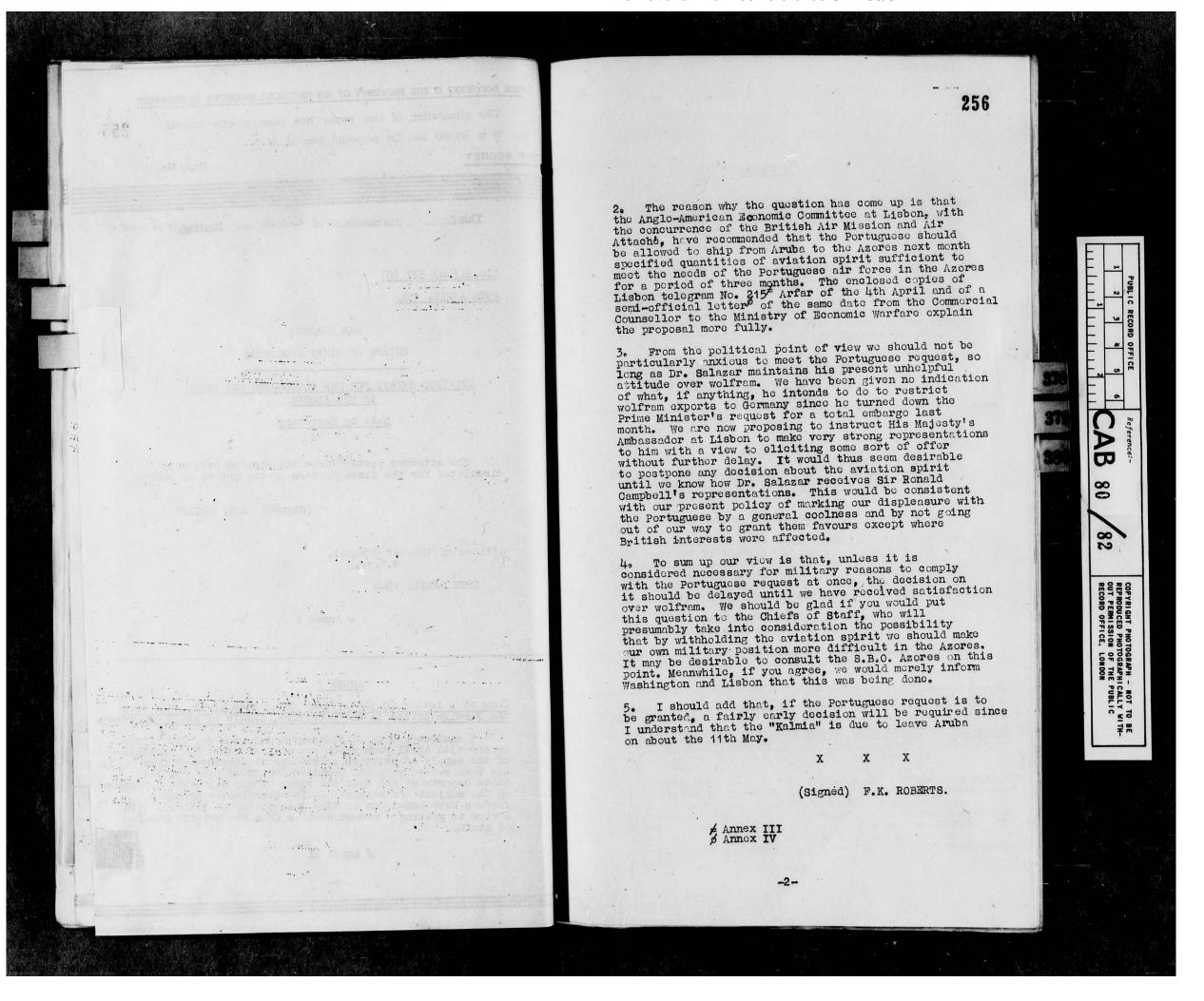


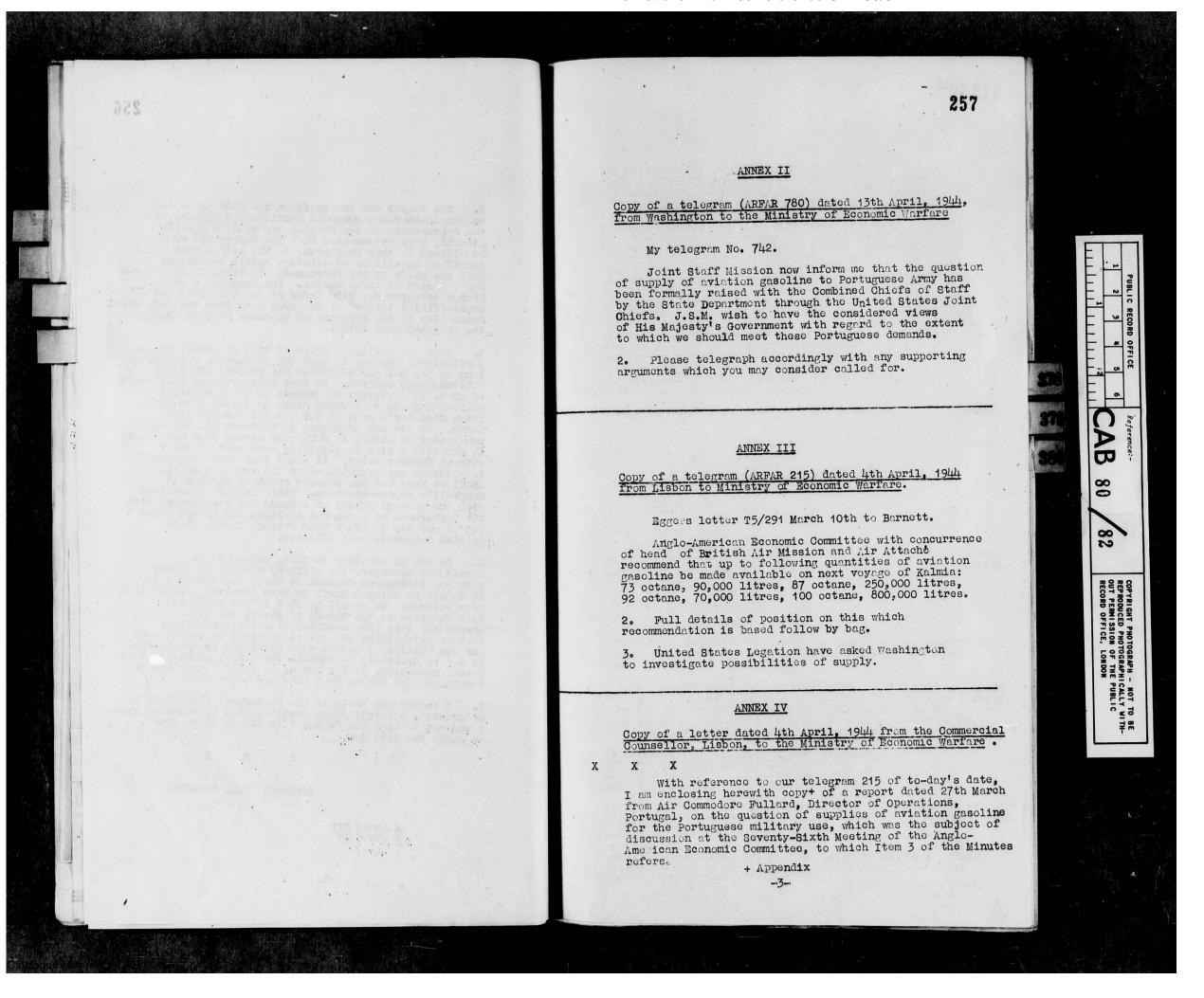


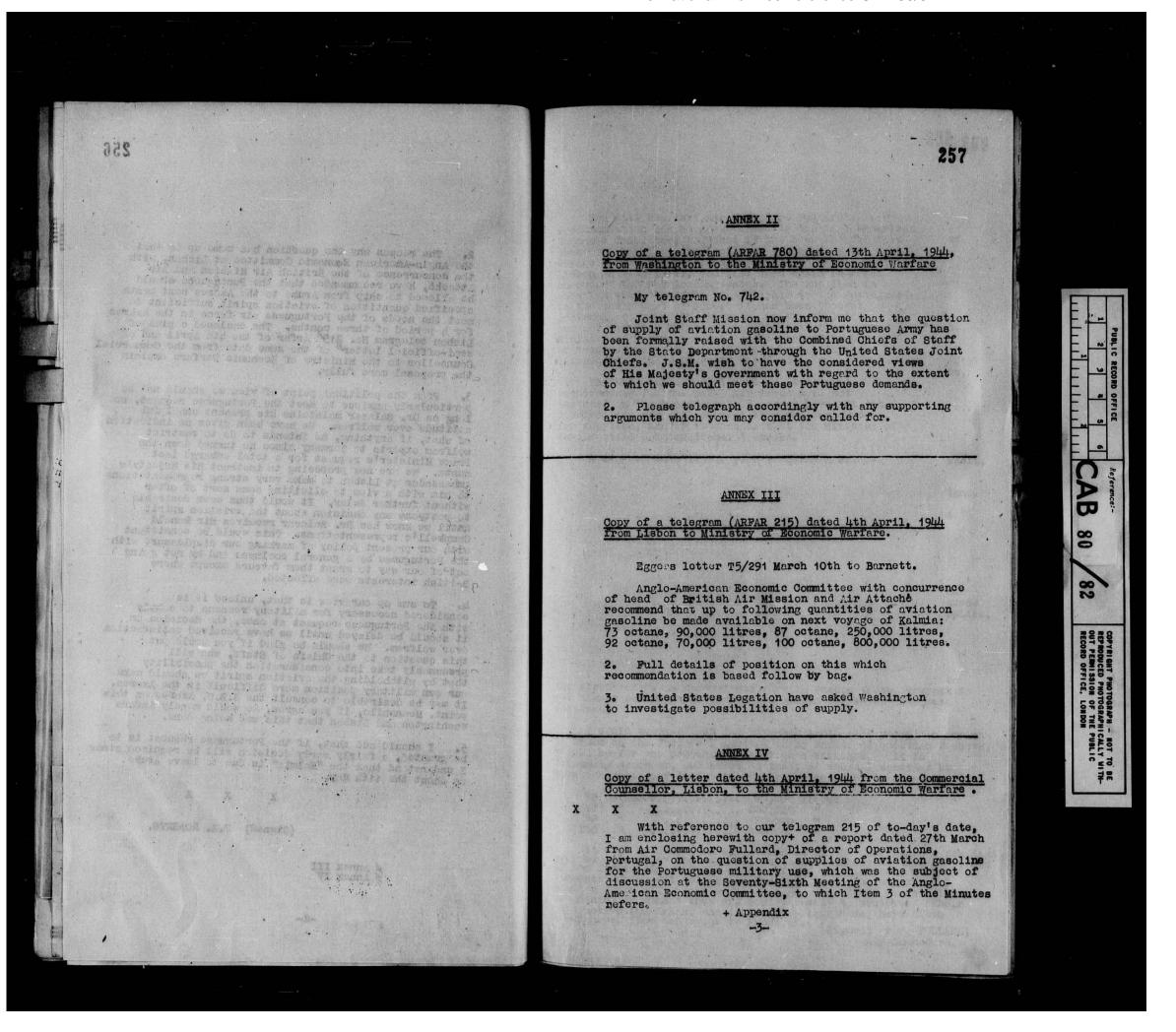


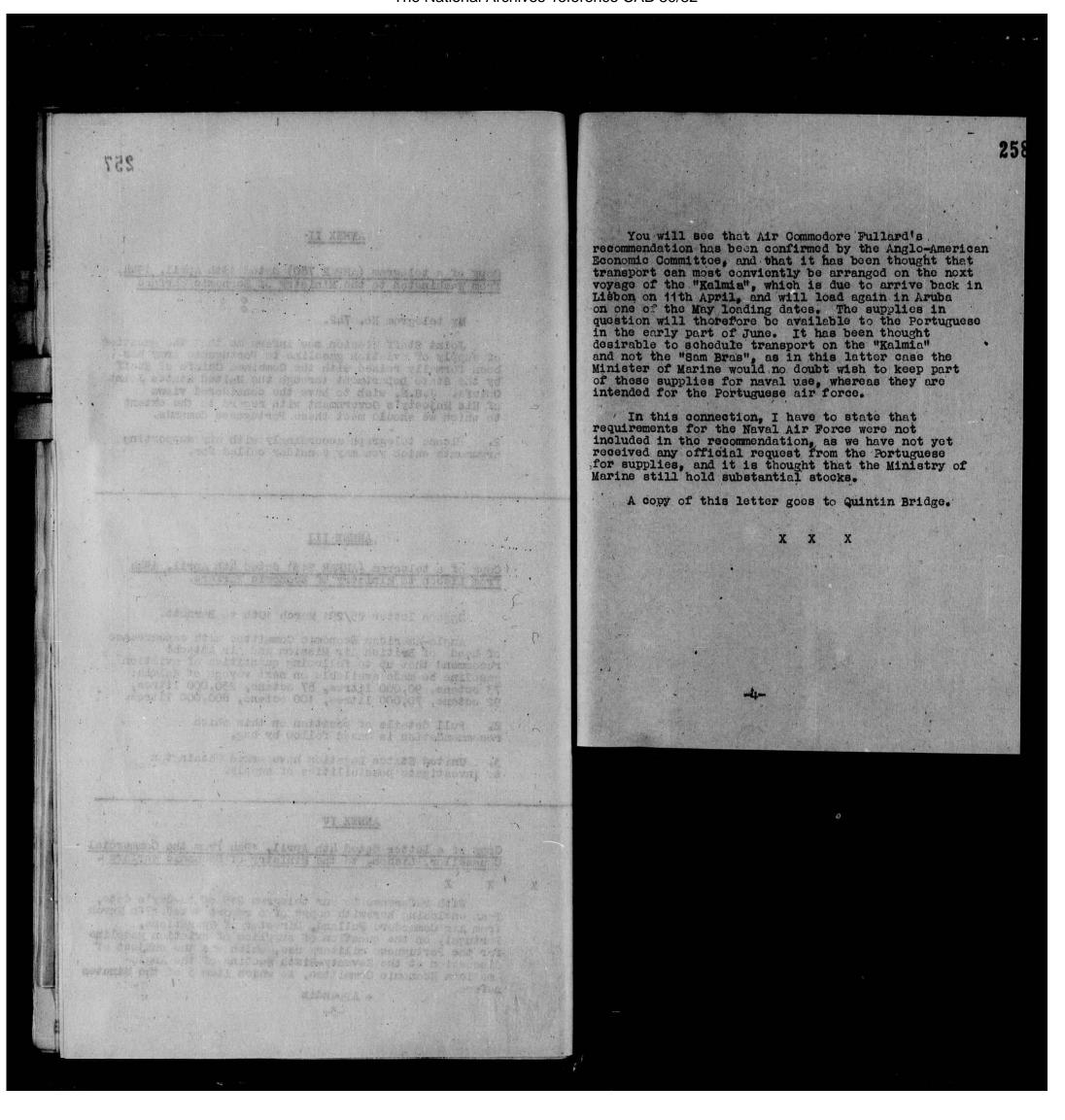


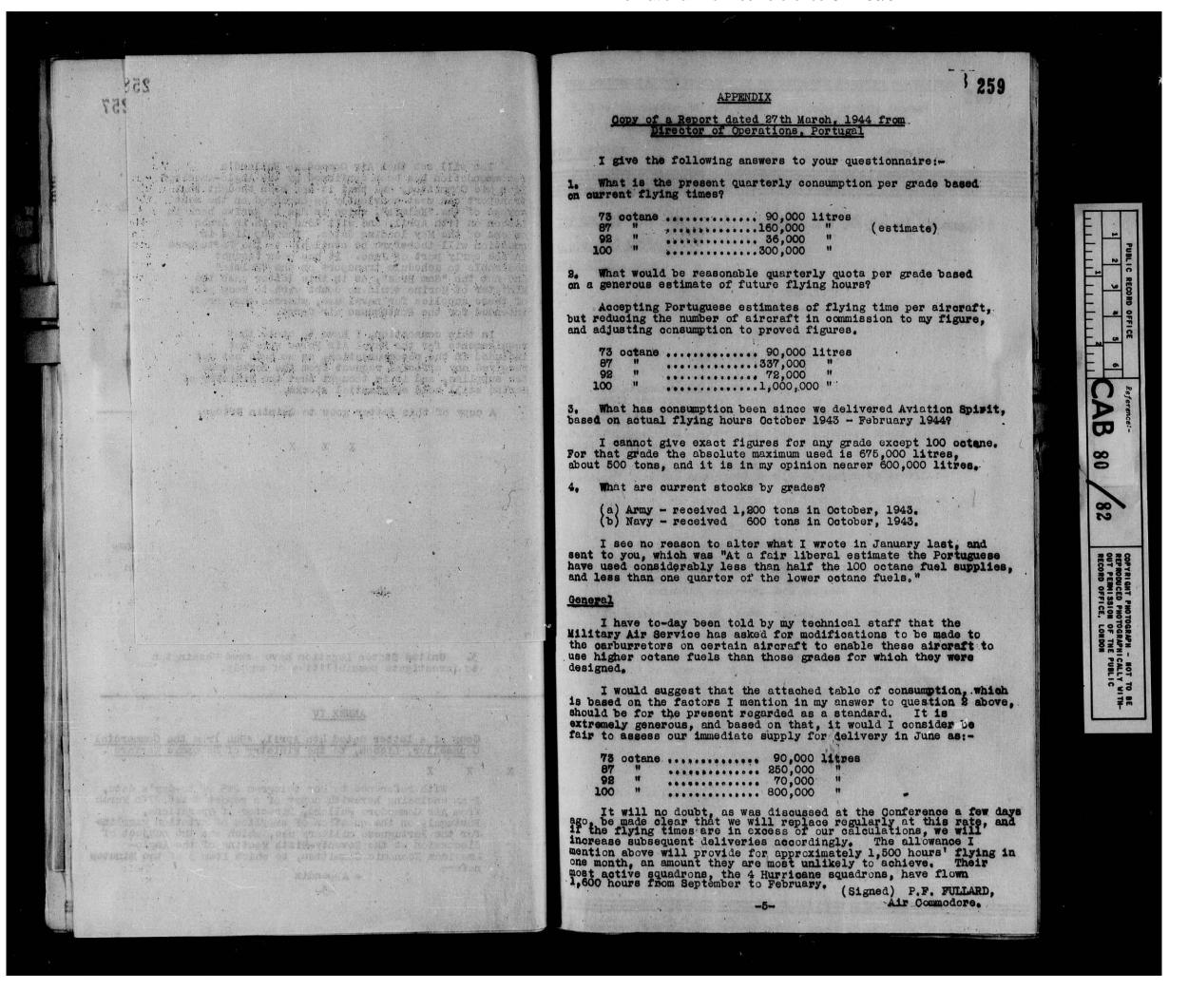


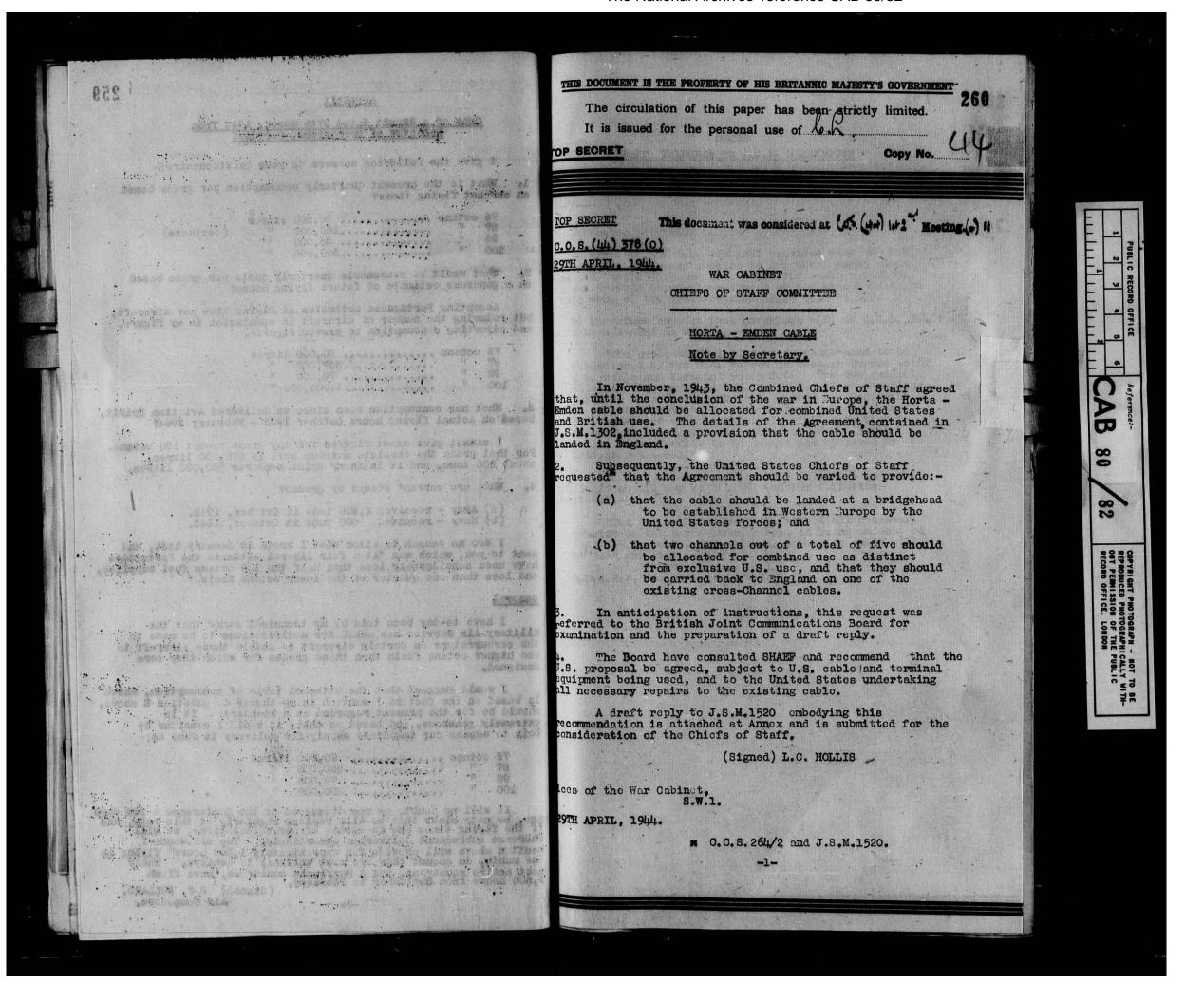


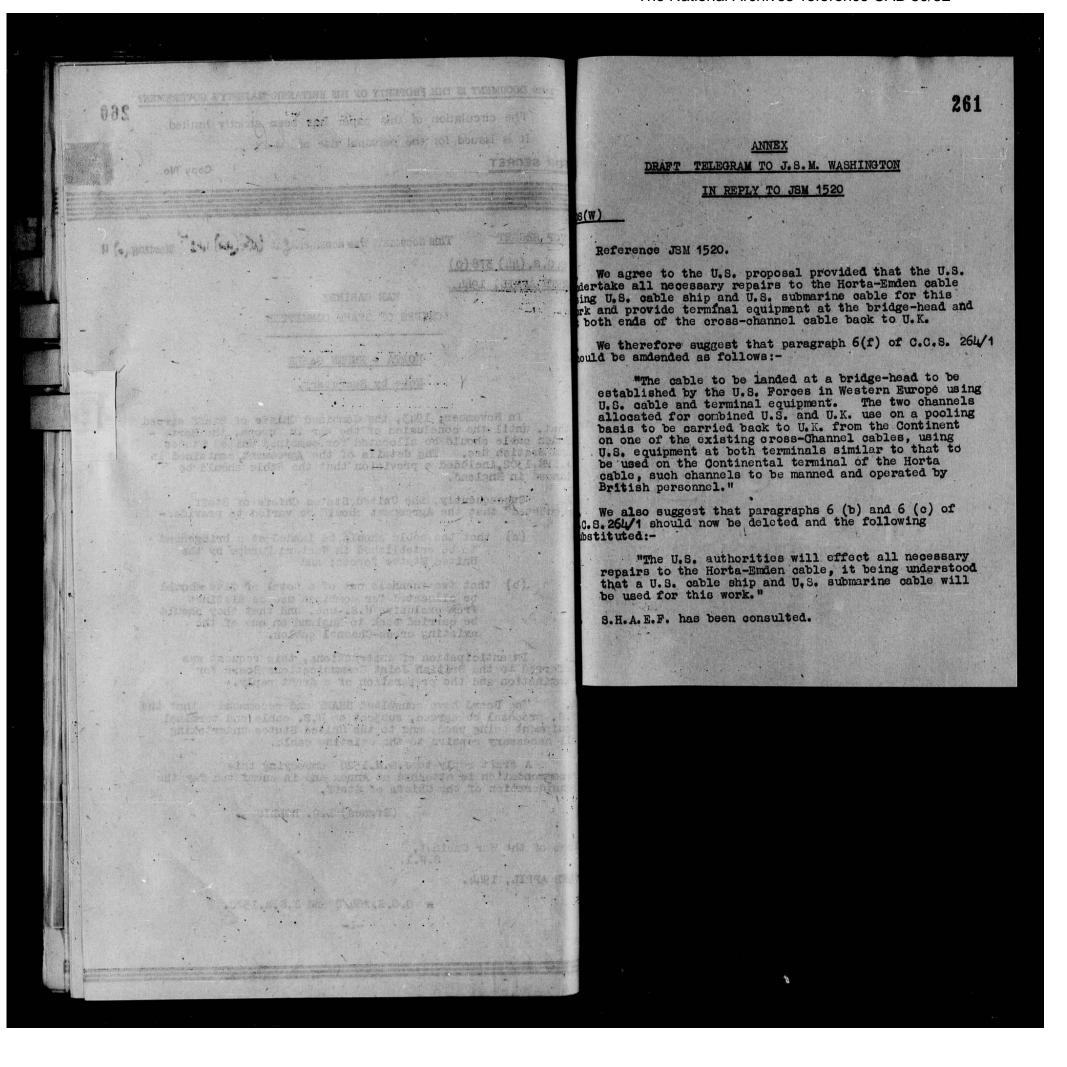


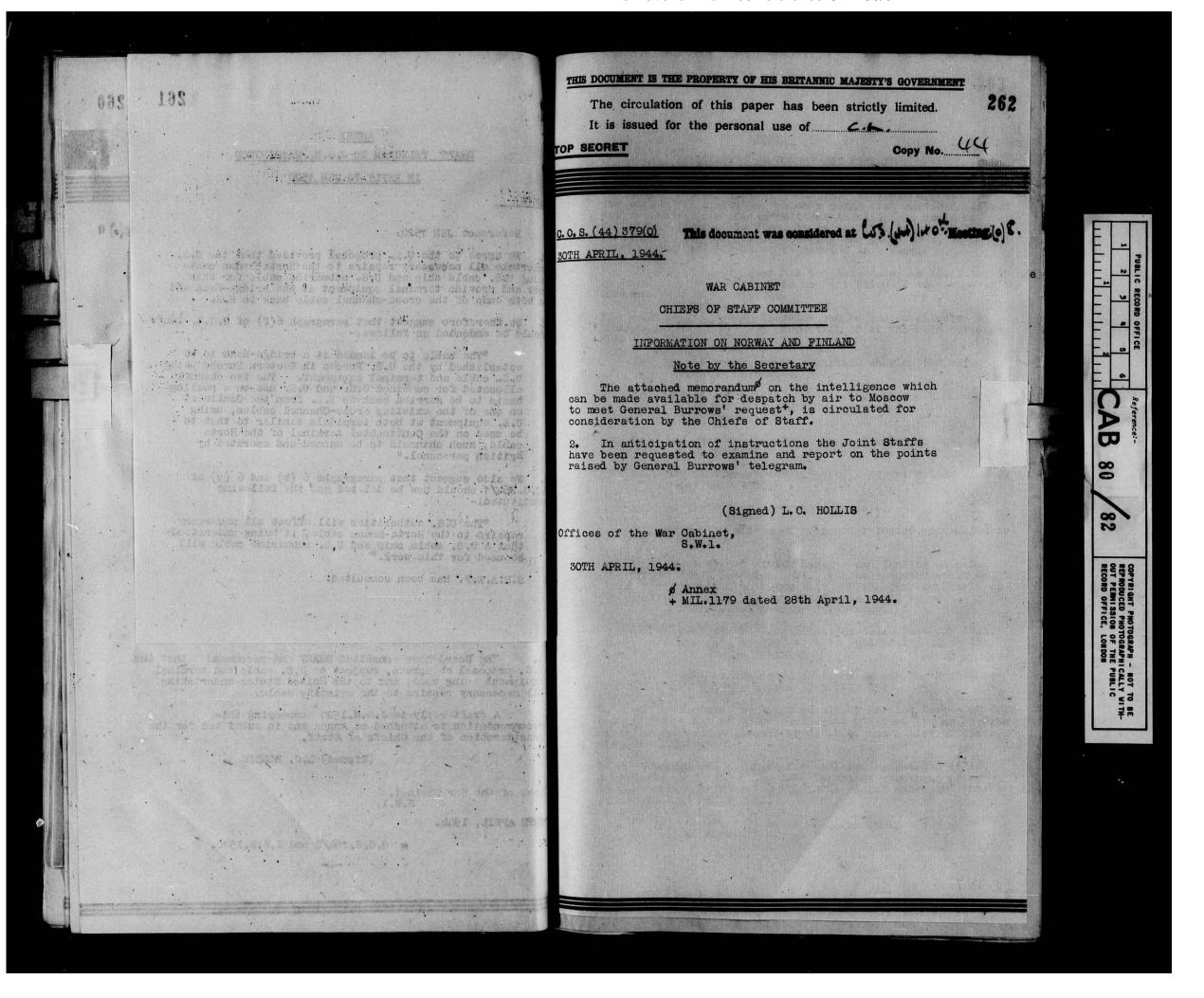


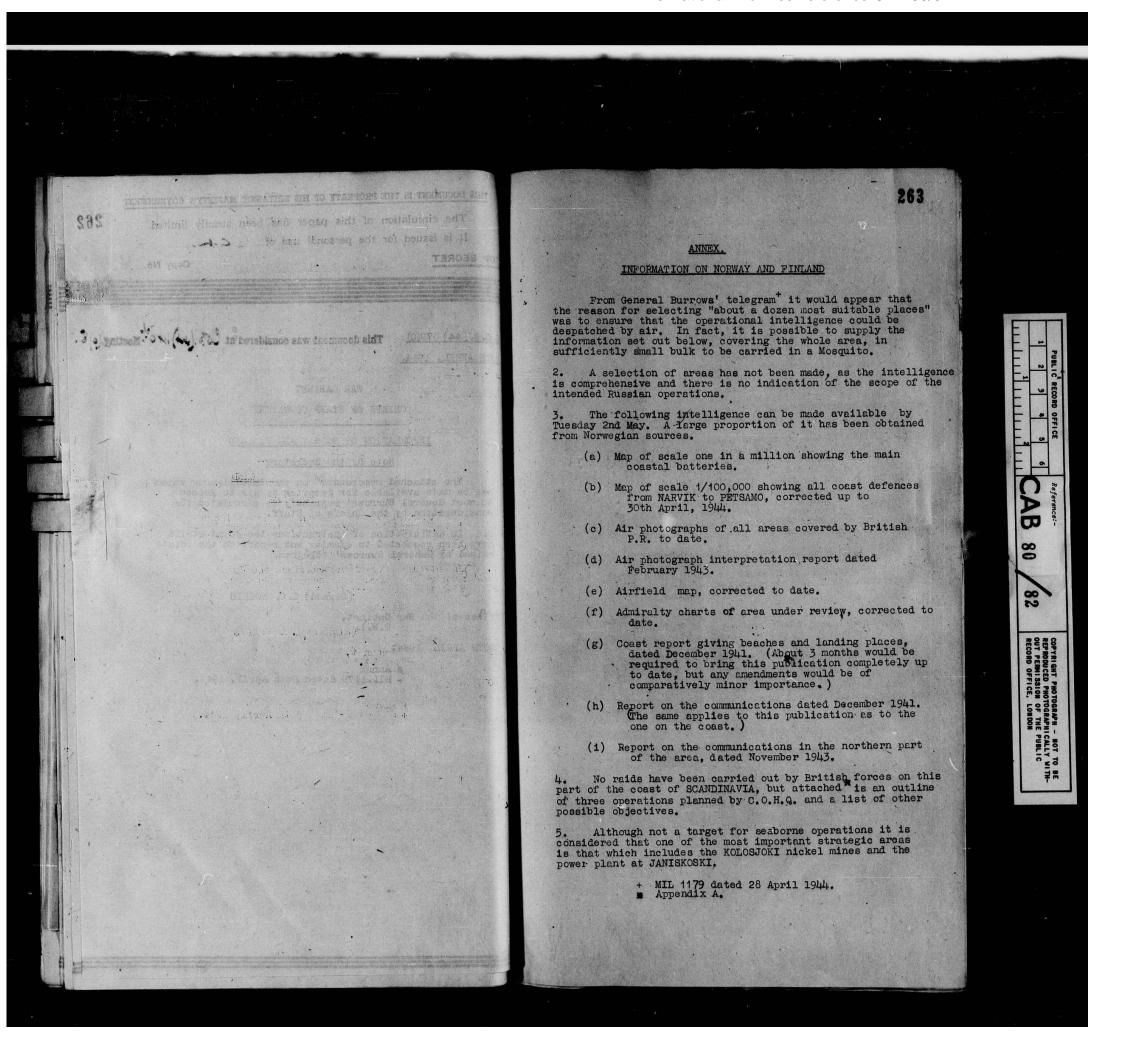


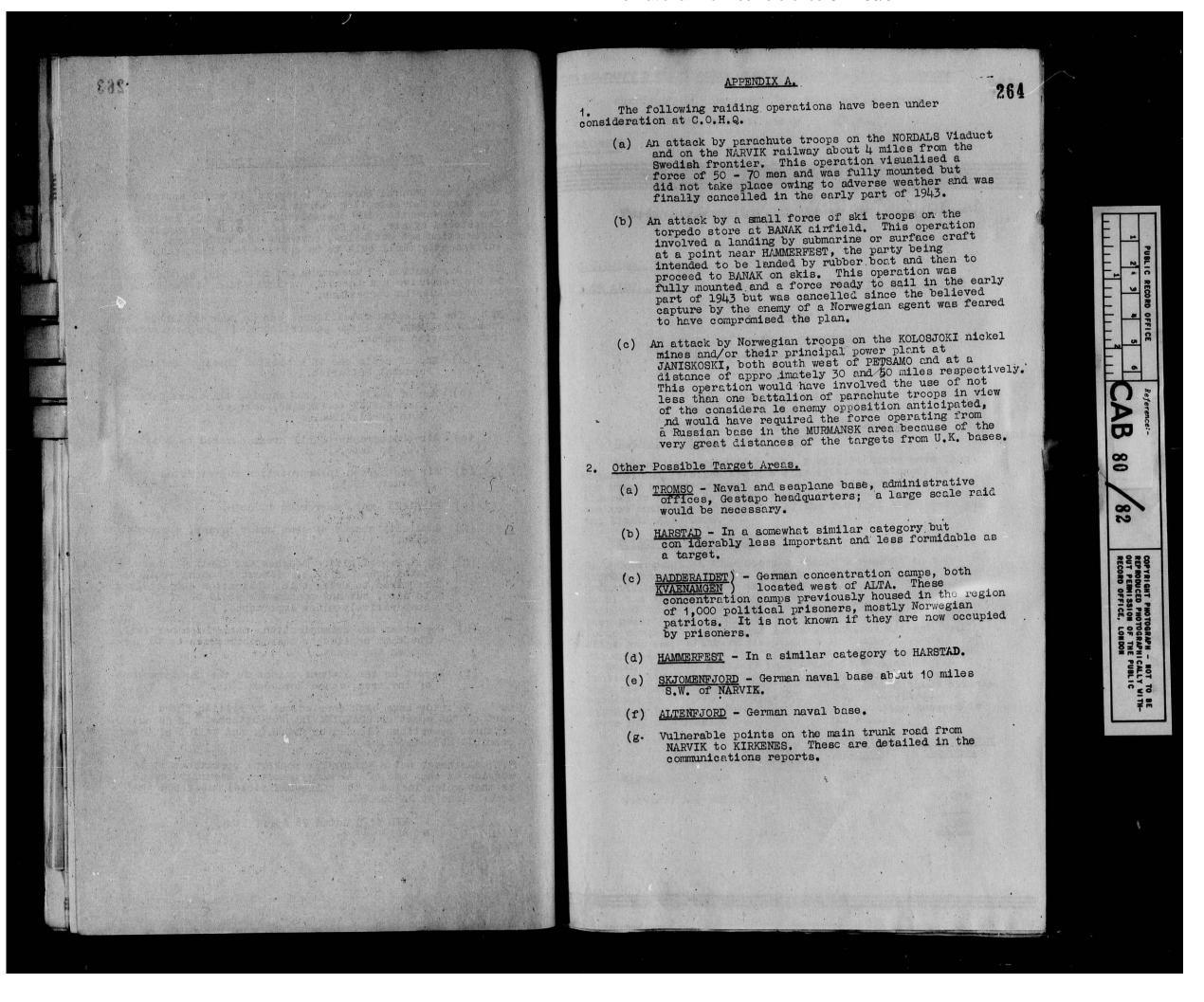


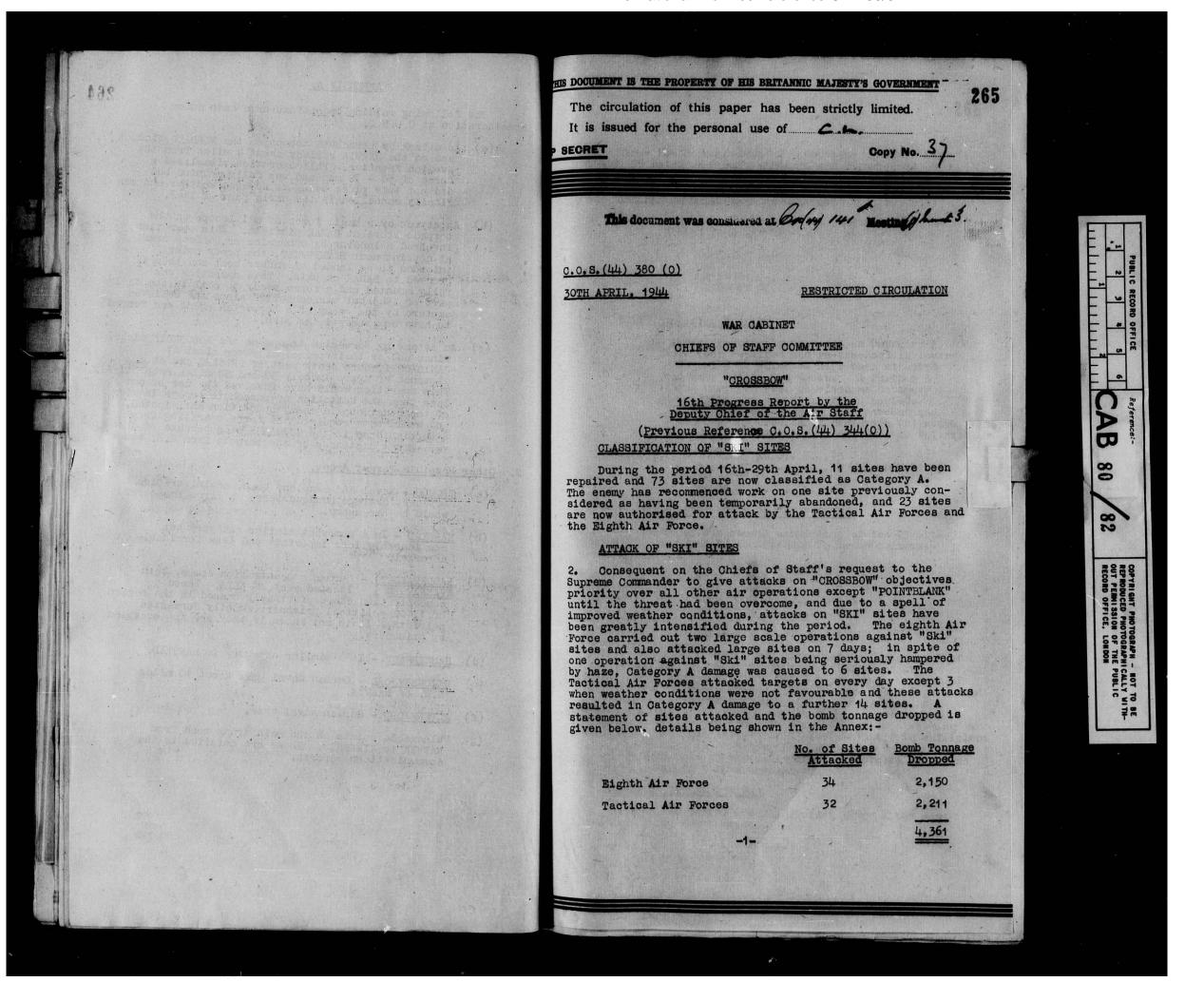


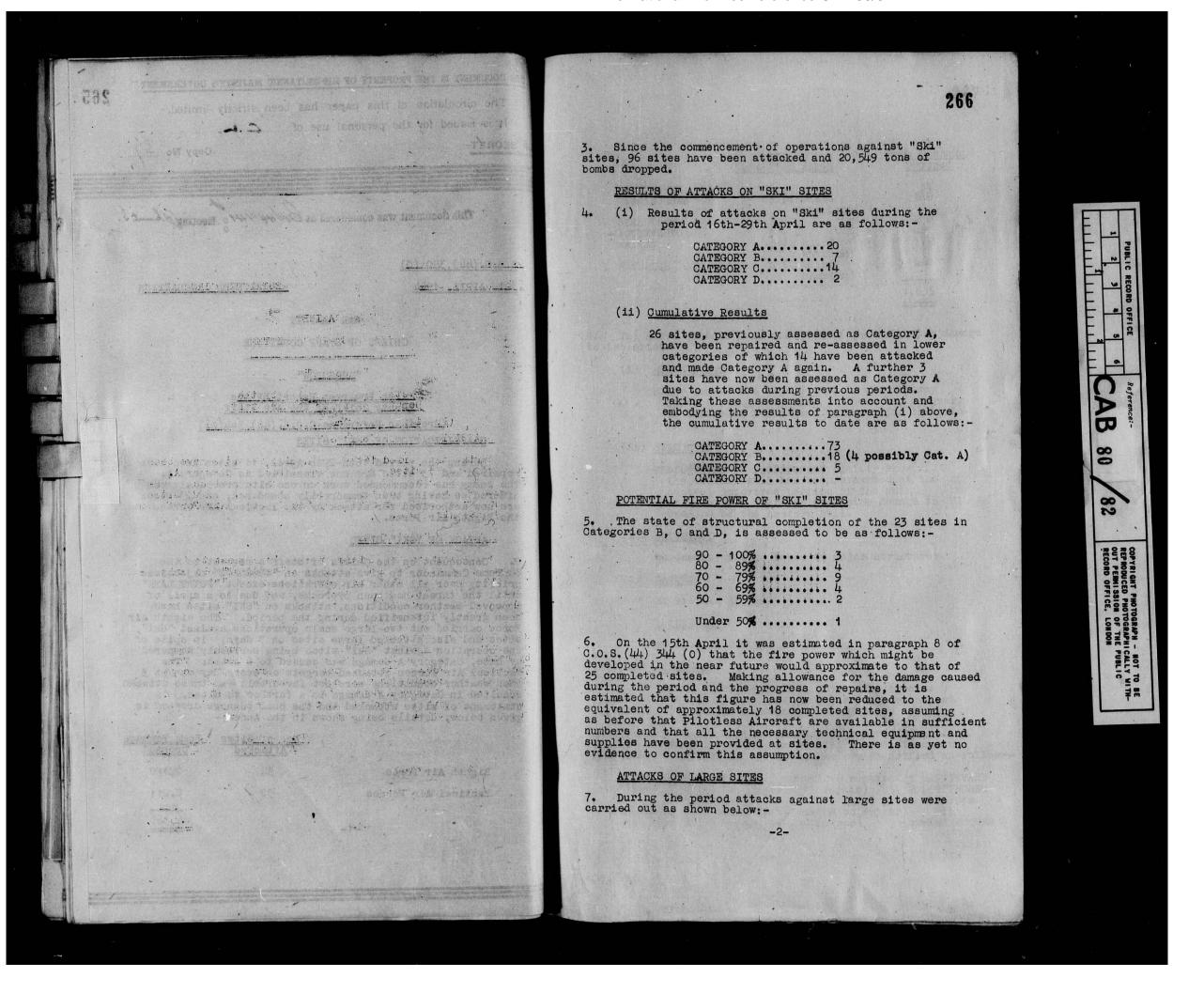


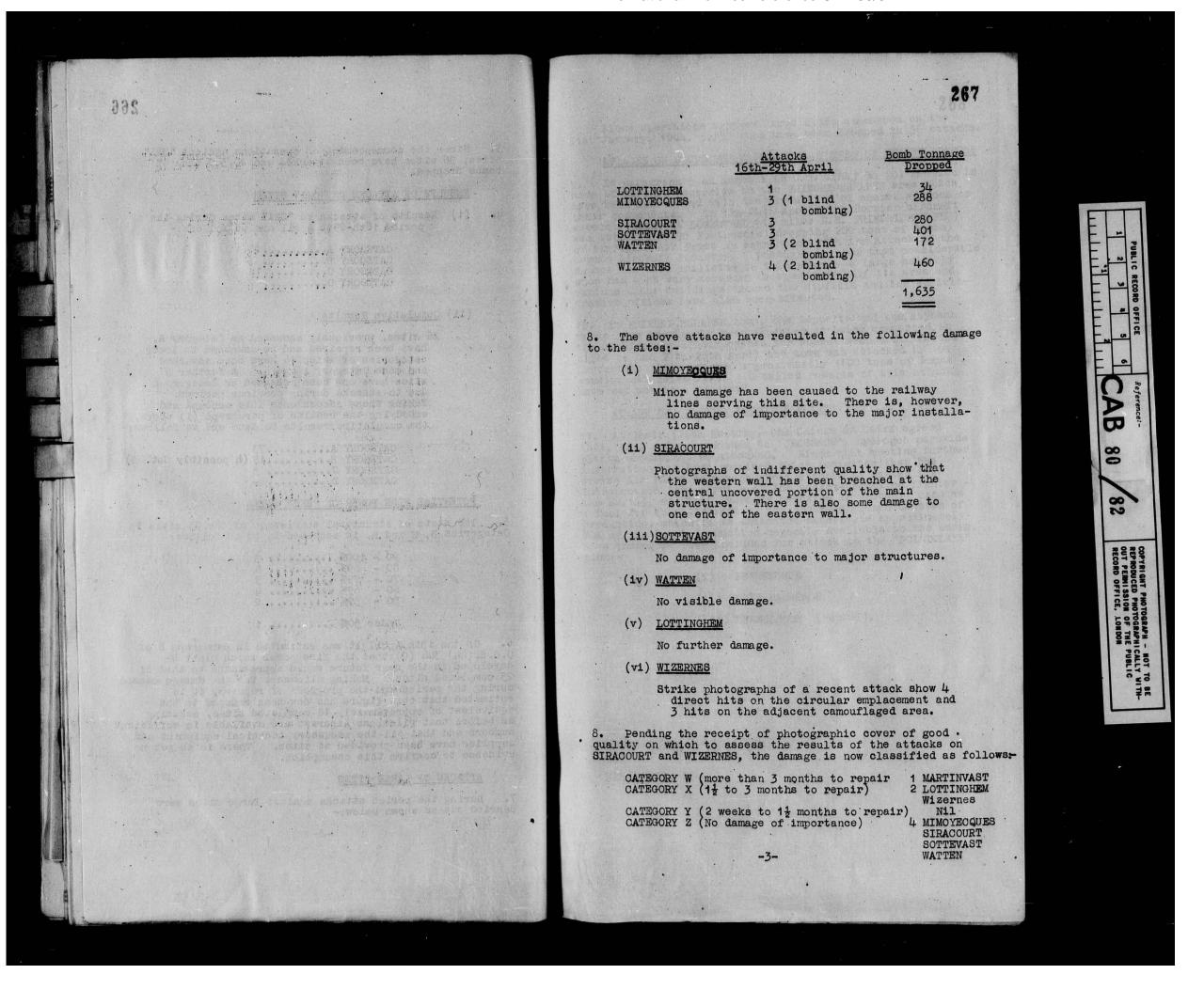


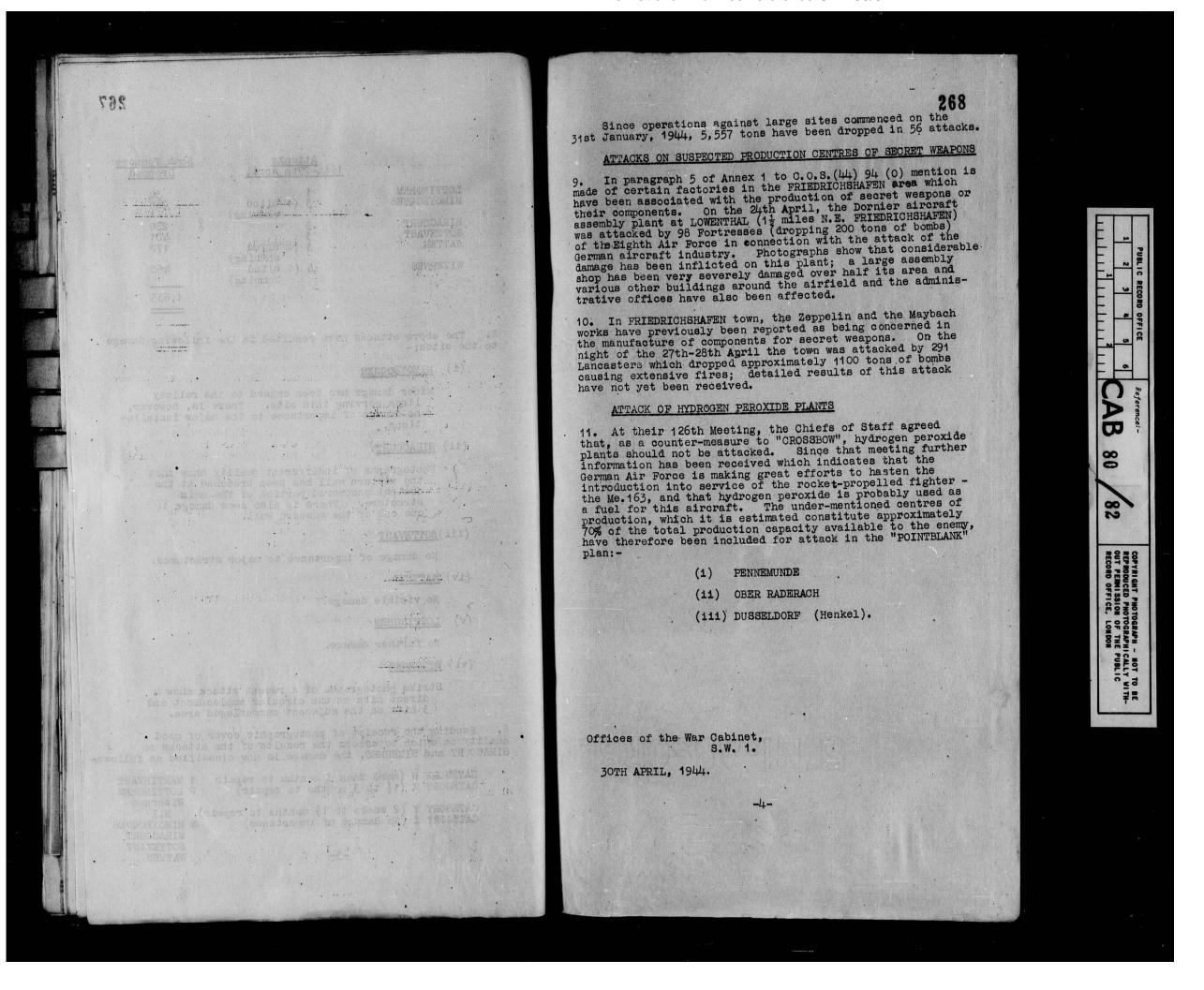


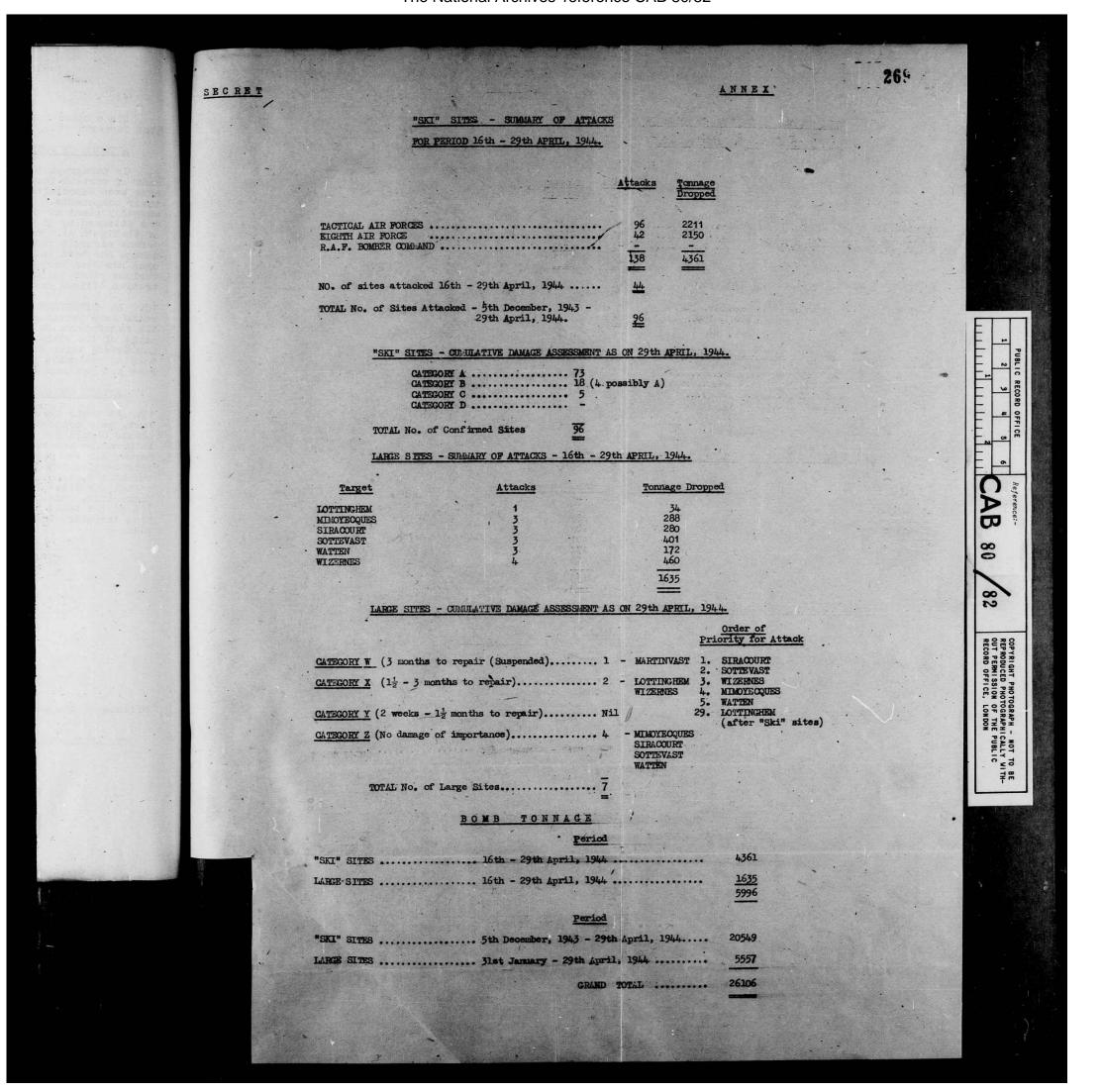












The National Archives' reference CAB 80/82 SEGRET SUMMARY OF ATTACKS ON "SKI" SITES FOR PERIOD 16th - 29th APRIL, 1944. TOTAL TONNAGE DROPPED TO DATE PREVIOUS ASSESSMENTS CONFIRMED SITES TOTAL TONNAGE ORDER OF PRIORITY FOR ATTACK PRESENT DROPPED DURING SCHEDULED FOR ASSESSMENT ATTACK BY Locality Target No. PERIOD (1 - 5 LARGE SITES) 6 ZUDAUSQUES XI/A/100 T.A.F. & EIGHTH A.F. 210.6 305, C BOIS D'ESQUERDES XI/1/11(c) 166 365.7 C 8 XI/A/26(d) BRISTELLERIE 45.9 457.2 B 9 DRIONVILLE XI/1/50 41 C A. 241.8 10 BOIS COCQUEREL XI/A/60 135.4 11 BOIS D'ENFER XI/A/99 132.2 206.5 12 HARDINVAST LA MOTTERIE XI/1/26(0) 65.1 115.8 XI/4/79(a) 13 BEAUVOIR 174 434 A - C B AB HEUDIERE 14 XI/1/106 54 96.5 A. - C LIVOSSART 15 XI/A/120 79.5 80 366.3 16 BEHEN XI/1/59 218.4 B C MOYENNEVILLE XI/A/61 17 72 287.6 B LE GRISMONT 18 XI/A/95 222.2 380.4 B 19 LA LONGEVILLE XI/A/117 64 172.9 B 20 XI/4/51 BELLEVUE 70.8 131.8 B COPYRIGHT PHOTO REPRODUCED PHOTO OUT PERMISSION RECORD OFFICE, 21 FORET NATIONALE DE TOURNEHEM XI/A/88 180.9 310.1 B - C B 22 MARQUENNEVILLE XI/A/78 103.7 341.6 AUDINCTHUN 23 XI/A/94 188.1 738.1 24 BONNIERES XI/4/85 148.4 25 RUISSEAUVILLE XI/4/65 151.1 C PUBLIC PUBLIC 26 AILLY LE HAUT CLOCHER XI/A/38 881.8 27 MAISONCELLE XI/1/55 83.3 28 LE GROSEILLER XI/A/121 66.7 139.6 BOUILLANCOURT EN SERY XI/1/84 98.4 No. 2 Group 15.3 XI/A/101 ECALLES SUR BUCHY 264.1 Not Authorised 76.2 AGENVILLERS XI/A/58 Suspended

120.9

99.1

77.7

105.8

56.6

165.1

47.8

ARDOUVAL

BEAUTOT

BAILLY LA CAMPAGNE

BEAUMONT LE HARENG

BELLEVILLE EN CAUX

BEAULIEU FERME

XI/4/110

XI/A/31

XI/A/91

XI/A/115

XI/4/124

XI/1/77(a)

Suspended

			-2-		271			
RDER OF	CONFIRMED SITES		SCHEDULED FOR	TOTAL TONNAGE DROPPED DURING	TOTAL TONNAGE DROPPED TO DATE	PREVIOUS ASSESSMENTS	PRESENT ASSESSMENT	
RIORITY OR ATTACK	Locality	Target No.	ATTACK BY	DURING PERIOD	TO DEED			
thorised			Suspended		66.9		A	
•	RELMESNIL	XI/A/105	u -	105.4	411.1	A - B	A	
•	BOIS CARRE	XI/A/39			145•7		A .	4
•	BOIS DE CREQUY	XI/L/82(a)		136.2	360.2	A - B	Δ	
• 1000	BOIS BE LA COUPELLE	XI/A/67		125	242.6		A	-
•	BOIS DE LA JUSTICE	XI/4/74			192.4		A	EL
"	BOIS DE POTTLER	XI/1/54			199.7		* A	PUBL 10
* ***	BOIS DE RENTY	XI/A/102 XI/A/114			25.5	10-10	A	10 8
	BOIS MEGLE				160.1		, A.,	RECORD
	BOIS DE WARIPEL	XI/L/25		143	772.4		A	4 OFFICE
	BOIS DES HUITS RUES	XI/4/73			174.8	1 -	A .	- N CE
	BOIS REMPRE	XI/A/53			86.6		A	E
	BONNETOT	XI/L/27		19.6	209.9			O Rote
	BRUNEHAUPTRE	XI/1/24	l u		54		A .	AB
•	CAMPNEUSEVILLE	XI/L/45	1		84.7		α Δ .	\ \mathref{O} \\ \frac{1}{2}
	CHATEAU DE BOSMELET	XI/A/92	1	132	329.1	A - B	A	8
	COCOVE .	XI/L/70	1	100.5	282.6	A - C	A	
•	CORMETTE	XI/I/57		70.6	261.1	A - B	4	00
•	CROISETTE	XI/4/15(a)		63.4	433.4		A .	82
•	DOMART EN PONTHIEU	XI/L/36			270.5		. 4	
•	ECTIMENX .	XI/A/76			62.5		A	RECOR
•	FEBVIN PALFART	XI/A/87			118.4		À	PRINT OF
	FORET D'HESDIN	XI/A/34		32.1	243.4	A - B		COPYRIGHT PHOTOGRAPH - NOT TO BE REPRODUCED PHOTOGRAPHICALLY WITH-OUT PERHISSION OF THE PUBLIC RECORD OFFICE, LONDON
	FREVAL	XI/4/30		72	351.6		A	OGRAP TOGRA OF T LOND
) ,	GORENFIOS	XI/1/37(b)			125.7	A - B	4	DH PH
	GRAND PARC	XI/A/107		3.6	185.5	-	A	JBLIC T
	GUESCHART	XI/A/20			147.9		4	0, BE
	HAMBURES	XI/A/64			131 .			
•	HERBOUVILLE	XI/4/42		65.2	203.4	A - B	A	3
•	HEURINGHEM	XI/A/32		, 1-	343.2			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
r	LABROYE	XI/A/22			99.2			
"	LA SORELIERIE II	XI/1/93			95.2		A	THE REAL PROPERTY.
•	L. SORELLERIE III	XI/L/26(b)			. 192		A	
•	LE METLIARD	XI/1/75			45.8		A	, , , , ,
•	LE NIEPPE	XI/A/86		175.3	255.6	A B		
	LE PLOUY FERME	XI/A/66			219.8		A	
	LES HAYONS	XI/A/108						

ORDER OF PRIORITY	CONFIRMED SITES			TOTAL TONNAGE	TOTAL TONNAGE	PREVIOUS	PRESENT	
FOR ATTACK	Locality	Target No.	SCHEDULED FOR ATTACK BY	DROPPED DURING PERIOD	DROPPED TO DATE	ASSESSMENTS	ASSESSMENT	
ot	7. 4.							
ot uthorised								
•	LE MESNIL ALLARD	XI/A/48	Suspended		134.7		A	
	LES PETITS MORAUX	XI/A/89	U		109.5		A .	EIII
	LIGESCOURT	XI/A/40	0	88.3	314.7	A - B	A	F - 2
	LINGHEM .	XI/1./72		119.2	328.9		A	2 2 5
•	LONGUEMONT	XI/14/63			65.9		A	RECORD
	LOSTEBARNE	XI/A/68			346.3		A	- 40
	MAISON PONTHIEU I	XI/A/21(a)			64.9		A	OFFICE
•	MAISON PONTHIEU III	XI/A/21(b)			112.5		A	
"	MONTORGUEIL	XI/V/81			60.6		A	
•	NOTRE DAME FERME	XI/4/112	•	33.3	118.3	A - B	A	Refer
	NOYELLE EN CHAUSSEE	XI/A/44			90.5		À	AB
	PETIT BOIS ROBERT	XI/4/52	- "		106		A	
	PETIT BOIS TILLENCOURT	XI/4/62		15	206.6		A	80
"	POMMEREVAL	XI/A/56			96.8		. A	
	PUCHERVIN	XI/A/47(a)	• ' • '		77.7		A	800
•	PREUSEVILLE	XI/1/29(a)			174		A	
	QUOEUX.	XI/4/?0	W.		124.8	,	A	2528
	ST. ADRIEN	XI/1/109			47.9		A	PRODU T PEN CORD
• 2	ST.AGATHE D'ALTEREMONT	XI/1/46	1		100.3		A	MI SSI
•	ST. JOSSE AU BOIS	XI/A/19 .			344	A - B	A	HOTOG PHOTO SE, LI
•	ST. PIERRE DES JONQUIERES	XI/A/28			266		A	RAPH GRAPH F THE
	VACQUERTETTE	XI/A/83	•	83.1	412.8	B-C-B	4	PUBL
	VACQUERTE LE BOUCQ	XI/A/71			166.8		A	- NOT TO BE
	WISQUES	XI/A/96		147.4	193.1			
•	FLOTTEMANVILLE HAGUE I	XI/A/10(a)		119.5	261.7		A	
	FLOTTEMANVILLE HAGUE II	XI/1/10(b)	n -	145.4	310.1		A	
	LA GLACERTE(a)	XI/A/26(a)		146.1	235.4			
	MESNIL AU VAL	XI/A/41		120.4	266.5	A - B		

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1944.

WAR CABINET

CHIEFS OF STAFF COMMITTEE

AMERICAN V.T. FUSES

Report by the Sub-Committee on the Allocation of Active Air Defences

A supply of the above American proximity fuses is now available for use in Operation "Diver" by heavy anti-aircraft guns which would be deployed in the areas shown on the annexed maps.

2. The use of these fuses in "Divor" has already been approved by the Combined Chiefs of Staff. The fuses are in an early stage of development and it is understood that, in the worst possible case, the self-destroying element of up to 20 per cent of the rounds may fail to function, although not all will explode on nearing or contacting the ground; there is therefore some risk to life and property if, as proposed, they are fired inland.

An attempt has been made to assess the risk involved if these fuses are used inland. On the two maps annexed the full line shows the danger zones where blinds may be expected to fall. It will be seen that these zones include several small towns, but even in the south-eastern zone which is the more populous of the two it is estimated that the density of the population is only 620 per square mile as compared with 10,800 per square mile in Greater London.

Not more than 2 heavy anti-aircraft guns per square mile are to be deployed in the "Diver" areas as compared with the present deployment of approximately .3 heavy anti-aircraft guns per square mile in the London I.A.Z. Moreover, whereas in the London L.A.Z. a large percentage of guns are fitted with the No. 11 mechanical fuse setter, with which the rate of fire of the 3.7-inch gun is increased from 12 to 24 rounds per minute, the majority of those guns in the "Diver" areas being mobile will not be fitted with this fuse setter. This will result in the expenditure of ammunition per gun per engagement being considerably less than in London.

6 J.S.M. 1418 dated 14th January 1944.

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