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MISSION #42

Singapore

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12 March 1945

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XX BOMBER COMMAND



Tactical Mission Report

No. 42

DATE 12 MARCH 1945

GENERAL OF THE ARMY H.H. ARNOLD

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C O N F I D E N T I A L

The following named Exhibits, Annexes, and Reports included in this Tactical Mission Report, originally classified SECRET, are hereby reclassified to CONFIDENTIAL.

By authority of the Commanding General, XX Bomber Command

30 March 1945

Date

Initials

Track and Vertical Flight Path

Consolidated Specialist Mission Report of Staff Bombing Officer

Consolidated Specialist Mission Report of Staff Navigation Officer

Annex B, Enemy Antiaircraft

Weather Chart (as forecast and as encountered)

Synoptic Map

Annex E, Communications Information

Annex H, Central Station Fire Control and Gunnery

Consolidated Specialist Mission Report of Staff Flight Engineer

Summary of Performance Sheet

Annex M, Consolidated Mission Statistical Summary

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TWENTIETH AIR FORCE
Office of the Deputy Commander, IB and C
APO 493

TACTICAL MISSION

REPORT

Field Order No. 42

Mission No. 42

TARGETS

40th Group: OIL STORAGE, SAMBOE ISLAND, SINGAPORE AREA
444th Group: OIL STORAGE, BUKUM ISLAND, SINGAPORE AREA
462nd Group: OIL STORAGE, SEBAROK ISLAND, SINGAPORE AREA

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Prepared by:

Intelligence Section

XX Bomber Command

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TWENTIETH AIR FORCE
Office of the Deputy Commander, IB and C
AFO 493

29 March 1945

SUBJECT: Report of Operations, 12 March 1945

TO : Commanding General, Twentieth Air Force.

1. UNITS PARTICIPATING: Three Bombardment Groups of the XX Bomber Command were directed by Field Order No. 42 to participate in a daylight attack on oil storage facilities in the Singapore Area. The Groups participating, their bases, the number of aircraft required of each, and their Commanding Officers were as follows:

<u>Group</u>	<u>Base</u>	<u>No. A/C Required</u>	<u>Commanding Officer</u>
40th	Chakulia	15	Colonel W.K. Skaer
444th	Dudhkundi	30	Colonel A.L. Harvey
462nd	Piardoba	15	Colonel A.F. Kalberer

2. IDENTIFICATION OF MISSION:

a. Attack No. 42.

b. Targets Specified:

(1) Primary Targets - Singapore Area, Malaya

(a) 40th Group - Oil Storage, Samboe Island,
(AAF Target No. 94.1-35).

(b) 444th Group - Oil Storage, Bukum Island,
(AAF Target No. 92.2-72).

(c) 462nd Group - Oil Storage, Sebarok Island,
(AAF Target No. 94.1-A).

(2) Secondary Target: Malayan Collieries, Batu Arang,
Malaya (AAF Target No. 92.1-50).

(3) Last Resort Target: Main Hutted Area, Khao Huagang,
Thailand, (AAF Target No. 98.3-a)

3. STRATEGY AND PLAN OF OPERATIONS:

a. Importance of Targets:

(1) Primary Targets: Oil storage facilities on Samboe, Bukum and Sebarok Islands have a capacity of 2,800,000 barrels, constituting about 35% of the capacity of the Singapore area. These islands are used for the storage of petroleum products brought by small vessels from the Palembang oil refineries on Sumatra, and picked up by ocean-going tankers for shipment to Japan, the larger tankers being unable to reach Palembang because of the shallowness of the waters of the Moesi River. Successful attack demolishing these 3 targets would cause the destruction of from 1,500,000 to 2,800,000

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barrels of petroleum products, would render the islands useless for further storage purposes, and would force large tankers to proceed into Singapore Harbor to obtain cargo. As these facilities are probably now used largely for the refueling of enemy shipping still in Southern waters, the destruction of these targets would increase the difficulty of shipping and naval operations in the Singapore Area, particularly in view of recent mining operations which have restricted freedom of action in and about Singapore Harbor.

(2) Secondary Target: The Malayan Collieries, producing about 600,000 metric tons of low-grade sub-bituminous coal per year, provide the sole source of coal on the peninsula. Its output is used largely by the Malayan railroads and electric power stations and meets about half of the annual requirements of the peninsula. The mine is highly mechanized making extensive use of machinery deriving its power from a power plant located at the colliery. Destruction of this power plant would put a halt to all mining operations until the plant had been repaired, or power obtained from some other source. Interruption of mining operations would result in reduction of the amount of coal available for the use of the Malayan railroads, and would hinder the operation of these lines now carrying Japanese military supplies in the Malayan area.

(3) Last Resort Target: Khao Huagang is the western terminus of the Kra Trans-Isthmus Railroad which connects the Bangkok-Singapore Railroad with shipping facilities at the Pakchan River. Supplies awaiting transportation by sea to Burma ports along the Bay of Bengal are stored in the target area, and their destruction would further complicate the Japanese supply problem on the Burma front.

b. Details of Planning:

(1) Operational Planning

(a) Since restrictions imposed by the Supreme Allied Commander eliminated all suitable targets at Singapore proper, it was decided to utilize available sorties for an attack on oil storage facilities located on islands south of Singapore. No tactical problems of an unusual nature were anticipated in carrying out this plan as there were no restricted areas near the selected targets. In addition, the route selected to the targets was expected to keep aircraft out of range of the effective anti-aircraft fire usually encountered at Singapore thereby decreasing the possibility of battle damage.

(b) Each Group was to be given a separate fuel storage area as a target and Pisang Island was selected as an initial point for all Groups due to its advantageous position for making possible the best axis of attack.

(c) Two assembly points designated as assembly points "A" and assembly points "B" were selected for each Group. All "A" assembly points were located on the Sumatra side of the Malacca Straits and all "B" assembly points located on the Malayan side of the Straits. This plan was developed in response to requests from the various Groups for assembly points on the Malayan side rather than on the Sumatran side as in the past. This request was made as a result of past experience which indicated that the most favorable weather for assembly usually occurs on the Malayan side of the Straits. The final decision as to whether "A" or "B" assembly points were to be used was to be made by a weather scout aircraft scheduled to precede the striking force by $1\frac{1}{2}$ hours over all assembly points.

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(d) Time to leave the assembly point was specified for each Group and the method of bombing was to be by three plane formation due to the relatively small target areas. In the event that the targets were overcast, it was decided to employ radar bombing technique as it is felt that the islands will provide excellent radar targets. As the weather on D-day minus 1 indicated considerable cloud cover at bombing altitudes, it was decided to allow the Groups to decrease bombing altitude to a minimum of 17,000 feet to accomplish visual bombing. It was felt that the lack of fighter opposition and AA in the target area would safely permit the decrease in altitude.

(e) Although this mission was originally scheduled to be conducted on 10 March, it was postponed on two successive days due to unfavorable weather.

(2) Determination of Bomb Load:

(a) Study of the individual targets by Operations Analysis Section indicated that the preferred bomb loading was 75% AN-M30 100 pound G.P. and 25% M-18 Aimable Clusters, but in view of operational considerations and bomb and rack availability, the 500 pound G.P. and the M-76 were considered to be an acceptable compromise. Cognizance was taken of the fact that not every M-76 would be an effective fire raiser, and although the 260 pound M-81 Fragmentation Bomb was considered, the presence of numerous tankers taking on oil at each target led to the selection of the 500 pound G.P. instead. The fusing selected for the 500 pound G.P.'s was designed to permit penetration of the oil storage tank in those instances where direct hits were obtained, and yet insure effective fragmentation of those bombs which failed to have a storage tank as their first point of impact. Thus released at an altitude of 22,000 feet and a ground speed of 300 mph, a 500 pound G.P. bomb, either the AN-M-43 or the AN-M-64 could be expected to have a striking velocity of approximately 1005 ft/second and an angle of impact of 13 degrees from the vertical. Consequently 500 pound G.P. bombs fused .1 second nose and non-delay tail, which hit storage tanks, would normally detonate approximately 34-38 inches below the point of entry. G.P. bombs detonating within fifty feet of a storage tank would perforate the estimated 1/4 inch steel walls of the tank and provide approximately one fragment per square foot of tank wall. The fusing for the M-76, instantaneous nose and non-delay tail, was such that a direct hit on a large tank would detonate approximately 25 feet below its point of entry or just below the center of the tank. Effective dispersion of incendiary material from the M-76 was expected only in those instances where the M-76 had as its point of impact a storage tank, the foundation of either an abandoned tank or a tank in the process of being constructed, adjacent buildings or a tanker.

(3) Bombing Data:

(a) The field order prescribed that each aircraft would be loaded with 500 pound G.P. and M-76 Incendiary Bombs in a ratio of four (4) G.P.'s to one (1) Incendiary Bomb. The M-76's in each case were to be loaded to release last. The 500 pound G.P.'s were to be fused .1 second nose and non-delay tail and the M-76's instantaneous nose and non-delay tail. The method of bombing was by three plane formations, with each formation releasing on the range and deflection sighting of the formation leader. Bombs were to be released in minimum train. Bombing was to be conducted at the following pressure altitudes: 40th Group - 22,000 feet, 444th Group - 23,000 feet, 462nd Group - 21,000 feet. The 40th Group's axis of attack was 116 degrees magnetic, and 444th's 115 degrees magnetic, and the 462nd 116 degrees magnetic.

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(b) The prescribed aiming point in the Samboe Island target, which was to be attacked by the 40th Group, was Tank number 10, a large tank in the center of the island located east of Wharf number 1. Two aiming points were assigned the 444th Group in the Bukum Island attack, designated on the XX Bomber Command March 1945 mosaic of the Bukum Island Tank Farm number 92.2-72 by the following coordinates: 15 aircraft on aiming point 047104 and an equal number on aiming point 040078. As an alternate aiming point, the 444th Group was to use a point located at 047121. The aiming point selected for the 462nd Group, attacking the Sebarok Island Tank Farm, was Tank number 5, a large tank situated in the center of the island which is the central tank in a group of five (5) large storage tanks. In order to minimize the expected interference of smoke on visual sighting operations during the final approach, lead crews were instructed to release smoke grenades while circling the assigned aiming points, and the assembled formations were then given prescribed times for departing from their respective assembly points. In this manner an attempt was to be made to concentrate the attack in time and thus facilitate the positive identification of aiming points.

4. EXECUTION OF THE MISSION (See Annex A):

a. Take-off:

(1) Take-off times were not specified in the Field Order, but were left to the discretion of the Group Commanders. A time to leave the assembly point was specified for each Group.

(2) Take-off was accomplished as follows:

<u>Group</u>	<u>A/C Scheduled for Take-Off</u>	<u>A/C Airborne</u>	<u>First A/C Off</u>	<u>Last A/C Off</u>
40th	15	12	111707Z	111724Z
444th	30	22*	111658Z	111743Z
462nd	<u>15</u>	<u>15</u>	<u>111700Z</u>	<u>111721Z</u>
Totals	60	49	111658Z	111743Z

* A/C 3411 (444th) ran off end of runway when engine failed on take-off. It came to a stop 600 feet off the end of the runway, blocking the runway and forcing cancellation of the last 6 aircraft scheduled to take-off.

(3) Weather at take-off at the three bases was as follows:
At Chakulia: Clear. Visibility 4 miles in haze. Wind south-southeast 7 miles per hour.
At Dudhkundi: Clear. Visibility 10 miles. Wind southwest 10 miles per hour.
At Piardoba: Clear. Visibility 7 miles. Wind south-southeast 8 miles per hour.

b. Route Out:

(1) The route out was direct from base to assembly points. Following instructions received from the Weather plane, the Groups assembled at Assembly Points "A", the 40th Group assembling at the South tip of Roepat Island (01°41'N - 101°35'E), and the other two Groups assembling at the North tip of Roepat Island (02°07'N - 101°39'E). Pisang Island (01 28'N - 103 15'E) was the IP for all three Groups.

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(2) There were 5 deviations from the route out. One aircraft left the briefed route out to bomb the secondary target, three aircraft jettisoned their bombs en route to the primary, and returned directly to their home base, and one aircraft jettisoned its bombs prior to reaching the Initial Point and returned to Akyab.

c. Primary Targets:

(1) Bombing results on the three primary targets were as follows:

<u>Target</u>	<u>No. A/C Bombing</u>	<u>No. of M-64 G.P. Bombs</u>	<u>No. of M-76 Inc. Bombs</u>	<u>Total tons all Bombs</u>
Samboe	11	65	22	22.56
Bukum	22	153	45	51.51
Sebarok	<u>11</u>	<u>74</u>	<u>19</u>	<u>24.27</u>
Totals	44	292	86	98.34

(2) Formations over the primary targets varied from two to six aircraft with one plane going over alone. The first formations over the three primary targets bombed Samboe Island at 120148Z, Bukum Island at 120209Z and Sebarok Island at 120218Z. The last aircraft over each target bombed Samboe Island at 120206Z, Bukum Island at 120256Z, and Sebarok Island at 120233Z.

(3) Bombing altitudes ranged from 21,000 feet indicated to 23,400 feet indicated for the lead aircraft of each formation. Headings generally varied from 100 degrees to 119 degrees magnetic, except for one formation which made its attack on Bukum Island on a heading of 275 degrees magnetic.

(4) Cloud cover hindered bombing at all 3 of the primary targets, being as follows at each of the targets:

(a) At Samboe Island, layers of nine to ten tenths altocumulus undercast with top of upper layer at 20,000 feet, and ten tenths cirrostratus overcast at 24,000 feet.

(b) At Bukum Island, coverage of six to ten tenths caused by variable layers of altostratus undercast with tops to 15,000 feet, and eight tenths cirrostratus overcast at 24,000 feet.

(c) At Sebarok Island, up to seven tenths coverage consisting of altostratus at 18,000 feet, and layers of stratocumulus at 3,000 feet and 7,000 feet with an overcast of cirrostratus, seven tenths at 28,000 feet.

(5) Because of weather conditions at the primary targets, only three formations bombed visually, all others bombing blind.

d. Secondary Target:

(1) A/C 538 of the 444th Group bombed the secondary target visually at 120115Z from 12,000 feet indicated on a heading of 42 degrees magnetic. Seven M-64 G.P. bombs and 2 M-76 incendiary bombs weighing a total of 2.28 short tons were dropped on the secondary.

(2) There was three tenths cover of small cumulus at 5000 feet and altostratus at 12,000 feet and a seven tenths overcast of thin altostratus at 15,000 feet at the secondary target.

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e. Route Back:

(1) The route back was direct from target to base.

(2) There were two deviations from the route back. A/C 668 (40th) landed at Cox's Bazaar, and A/C 801 (462nd) landed at B-1. Each proceeded at once to its home base after refueling.

(3) Weather on return to bases was broken at 7,000 feet to 12,000 feet, scattered low clouds at 4,000 feet, visibility approximately 8 miles, with light winds.

5. ENEMY ANTI-AIRCRAFT (See Annex B):

a. No anti-aircraft fire was encountered at Samboe Island, and only meager and inaccurate black heavy anti-aircraft fire was encountered at Bukum and Sebarok Islands. Fire was reported by 21 out of 36 aircraft between 120209Z and 120256Z at 22,200 to 24,300 feet (true) through 6/10 to 10/10 undercast. Fire is believed to have been continuously pointed, and there was no indication of radar controlled fire.

b. No anti-aircraft fire was encountered at the secondary target, or en route to or from the primary target area. No rockets, barrage balloons or smokescreens were observed.

c. Although RCM intercept reports would indicate that the enemy had at least 30 minutes warning, advantage was not taken of the warning, as no fighters were observed prior to the first bombs away.

6. ENEMY AIR OPPOSITION (See Annex C):

a. Enemy air opposition was reported very weak, with a total of only 34 individual encounters. No B-29's were lost due to enemy fighter action but 2 received minor damage. One Oscar was claimed damaged. The Japanese fighter force engaged was estimated at about 14 planes, mostly Oscars. All action occurred in the primary target area.

b. All encounters originated high, and 29 (85 per cent of the total) from the frontal quarters. Japanese pilots were not aggressive, but enemy gunfire was reported in an unusually high number of attacks. Only one possible serial bombing attack was reported. Coordinated attacks accounted for 85 per cent of total encounters, and a new type of attack was attempted in which 10 Oscars, flying in a slightly staggered line abreast formation, attacked a 4 plane formation of B-29's from the frontal quarter, high.

7. WEATHER (See Annex D):

a. Weather was good for formation flying.

b. Cloud cover over target which had been forecast, necessitated blind for the most part, although visual runs were made by two formations.

c. Metro winds were usually rated as good to fair.

8. COMMUNICATIONS (See Annex E):

a. Communications were very satisfactory on this mission. Bombs away messages and position reports at 400 miles away were received from all aircraft from which messages were expected and all aircraft were duly accounted for. There was no distress traffic during the entire

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mission, although 3 abort messages and 2 attack messages were received.

b. There were no violations of the Tactical Doctrine, or of cryptographic or transmission security.

c. Air-to-air homing was used by the 444th and 462nd Groups successfully. The 444th Group rendezvoused on homing signals from an average distance of 29 miles, while the 462nd averaged 60 miles. Initial pick-up was made at 200 miles by one aircraft of the 444th Group. Radio homing beacons at all 4 India bases, and at Dum Dum airport with average initial contacts from 113 to 400 miles, and extreme initial contacts from 200 to 700 miles. One aircraft of the 444th Group requested and received D/F aid.

d. There were 8 malfunctions of equipment in flight, none of which were repaired in flight. However, in four instances satisfactory alternative means of communication were substituted successfully.

e. Messages from the weather scout designating the assembly point to be used were successfully received by all aircraft, and assembly at point "A" completed.

9. RADAR (See Annex F):

a. The primary targets on this mission were excellent radar targets. Radar operators reported identifying the islands with considerable ease and at a usable range. The larger percentage of the bombing was accomplished either by radar or by the coordinated radar - bombardier blind release. The results were mainly unobserved.

b. Radar scope photography was satisfactory. A number of pictures were obtained clearly showing the target islands.

c. Equipment servicability was average with only the usual failures being reported.

10. RCM (See Annex G):

a. Three RCM search aircraft participated in this mission, searching for early warning radar en route to and from the target, and radar fire control at the target area.

b. Radar stations were observed at Penang Island, and in the Medan and Port Dickson areas en route to the target, and in the Pekan, Port Blair and Great Cocos Areas on the return trip. In the Singapore area, radar stations were noted including stations which are suspected as being shipborne and consequently, mobile, being located in the Johore Strait area.

c. There were no gun laying radar intercepts in the target area.

11. CENTRAL STATION FIRE CONTROL AND GUNNERY (See Annex H):

a. The mission is considered satisfactory in regard to gunnery. Of a total of 240 turrets and 576 machine guns on the mission, there were only 2 malfunctions of fire - control equipment and 5 malfunctions of guns.

b. A total of 4726 rounds were expended in test firing, and 3710 rounds in combat.

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12. CAMERAS AND PHOTOGRAPHS (See Annex I):

On this mission, 2 K-17, 10 K-18, 13 K-20 and 20 K-22 cameras were installed in aircraft airborne, making a total of 50 cameras of all types. Of these, only 5 failed to bomb any target. However, use of the cameras and usable negatives obtained were greatly reduced by reason of the 7/10 to 10/10 cloud cover which prevailed over the primary target in nearly all cases. Only ~~50~~ usable negatives were obtained.

13. LOSSES AND DAMAGE (See Annexes J and M):

- a. There were no losses on this mission.
- b. Two aircraft suffered minor damage as a result of enemy action. One of these two aircraft also damaged its bomb bay doors when its tanks were salvaged.

14. FUNCTIONING OF EQUIPMENT (See Annexes K and M):

a. Of the 49 aircraft airborne, 3 failed to bomb the primary target for the following mechanical reasons: (1) excessive oil consumption, (2) oil leaks and (3) high oil temperature. Two other aircraft failed to bomb the primary target, one as the result of enemy action and one because of personnel error.

b. Malfunctions not resulting in failure to reach the primary were as follows: power plant section - 3 (engines running rough - 2, cowl flaps - 1), oil system - 4 (all 4 oil leaks), fuel system - 3 (carburetor - 2, fuel pressure low - 1), electrical system - 4 (generators - 1, voltage regulator - 2, fluctuating main inverter - 1), instruments - 9 (cylinder head temperature gauge - 2, rear oil pressure gauge - 1, trailing antenna motor - 1, radio compass - 1, flight indicator - 1 AFCE - 2, radio compass aerial - 1), miscellaneous - 7 (blown blister - 1, rudder trim tab bound - 1, nacelle door - 1, oxygen system - 1, cracked blisters - 2, landing gear - 1). Total of all malfunctions in flight, 30.

c. Overall averages for fuel consumption for the mission were as follows: average 7150 gallons; maximum 7600 gallons, minimum 6950 gallons. The flight covered an average of 3926 air miles or 3831 ground miles. Figures by Groups were as follows: 40th Group average 7270 gallons, (maximum 7600 gallons, minimum 6950 gallons); 444th Group average 7184 gallons, (maximum 7485 gallons, minimum 6950 gallons) and 462nd Group average 7160 gallons, (maximum 7400 gallons, minimum 6890 gallons).

15. TARGET DAMAGE ASSESSMENT (See Annex L):

a. Of the three primary targets attacked, damage assessment is presently possible only concerning the attack by the 444th Group on Bukum Island. This assessment is based upon strike photos of variable quality, most of the photos being badly cloud obscured, and upon post-strike photos of good quality.

b. Strike photos of the attacks on Samboe and Sebarok Islands by the 40th and 462nd Groups are not available, because of the cloud cover existing at the time of the attack, and assessment must await post-attack photographs not yet available.

c. Bombing does not appear to have damaged any of the main oil storage installations on Bukum Island. Damage included destruction of a large shed, a machine shop, a filling shed, 3 piers, a section of

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trackage and pipe lines. Damage was inflicted upon the Installation office,
3 small workshops, and 3 dormitory - like structures.

R.M. RILEY

R.M. RILEY,
Brigadier General, U. S. A.,
Deputy Commander.

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C O N F I D E N T I A L

ANNEX

A

EXECUTION OF THE MISSION

- I - Information on Take-offs
- II - Details of Routes
- III - Track and Vertical Flight Path *
- IV - Bombing Data **
- V - Bomb Loading
- VI - Disposition of Bombs
- VII - Formations Flown
- VIII - Navigation Report *

* Prepared by Staff Navigator

** Prepared by Staff Bombardier

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I - INFORMATION ON TAKE-OFF

Mission No. 42

12 March 1945

Group	First A/C Off	Last A/C Off	Elapsed Time	No. of A/C Taking Off	Average Take-off Interval
40th	111707Z	111724Z	17 min.	12	93 sec.
444th	111658Z	111743Z	45 min.	22	129 sec.
462nd	111700Z	111721Z	21 min.	15	90 sec.
Totals	111658Z	111743Z	45 min.	49	

Note; Take-offs were on D-day minus 1, Zebra time.

II - DETAILS OF ROUTES

Mission No. 42

12 March 1945

A. Planned Routes

Base	40th Chakulia	444th Dudhkundi	462nd Piardoba
Assembly Point A	S tip of Roepat Is. (01°41'N - 101°35'E)	N tip of Roepat Is. (02°07'N - 101°39'E)	
Assembly Point B	Cape Rachado (02°25'N - 101°51'E)	Ketam Island (03°02'N - 101°14'E)	
Initial Point	Pisang Island (01°28'N - 103°15'E)		
Target	Samboe Is.	Bukum Is.	Sebarok Is.
Base	Chakulia	Dudhkundi	Piardoba

B. Deviations from Planned Routes

1. On Route Out:

- a. A/C 738 (40th) jettisoned its bombs and returned to base because of oil leaks in #2 and #4 engines, landing approximately two hours and twenty minutes after take-off.
- b. A/C 538 (444th) flew to 03°15'N - 100°47'E, then to the secondary target and then directly back to base.
- c. A/C 459 (462nd) jettisoned its bombs and returned directly to base because of high oil temperature, landing 3 and one half hours after take-off.
- d. A/C 336 (462nd) jettisoned its bombs after feathering #1 engine, having been hit by enemy fire between the assembly point and the I.P., and returned to Akyab.

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- e. A/C 503 (462nd) jettisoned its bombs and returned to base about 5 hours after take-off.

2. On Route Back:

- a. A/C 668 (40th) being low on fuel, turned at Cocos Island and landed at Cox's Bazaar, returning to its base after refueling.
- b. A/C 801 (462nd) being low on fuel, landed at B-1 for fuel, and proceeded to its base after refueling.

A-II-2

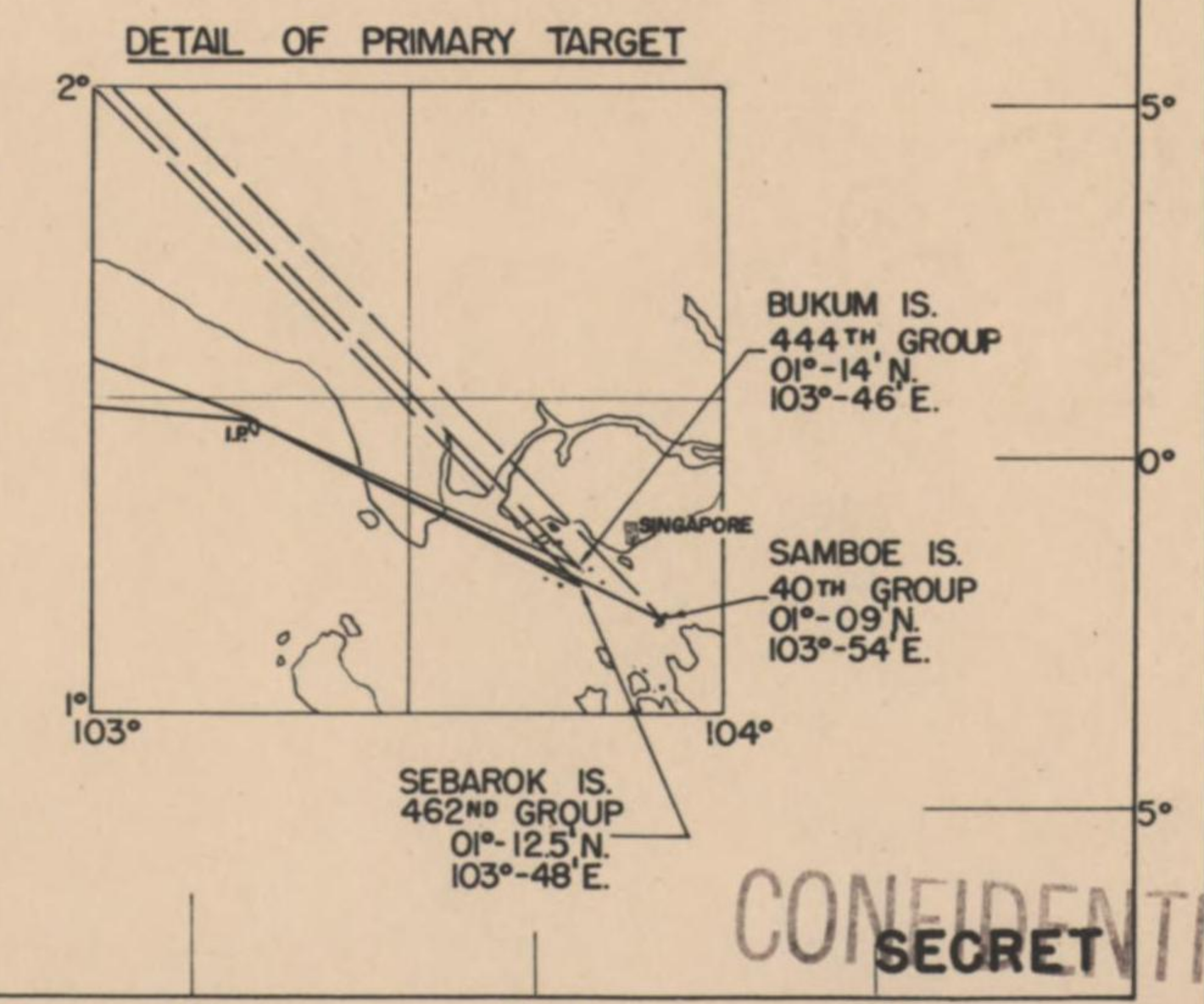
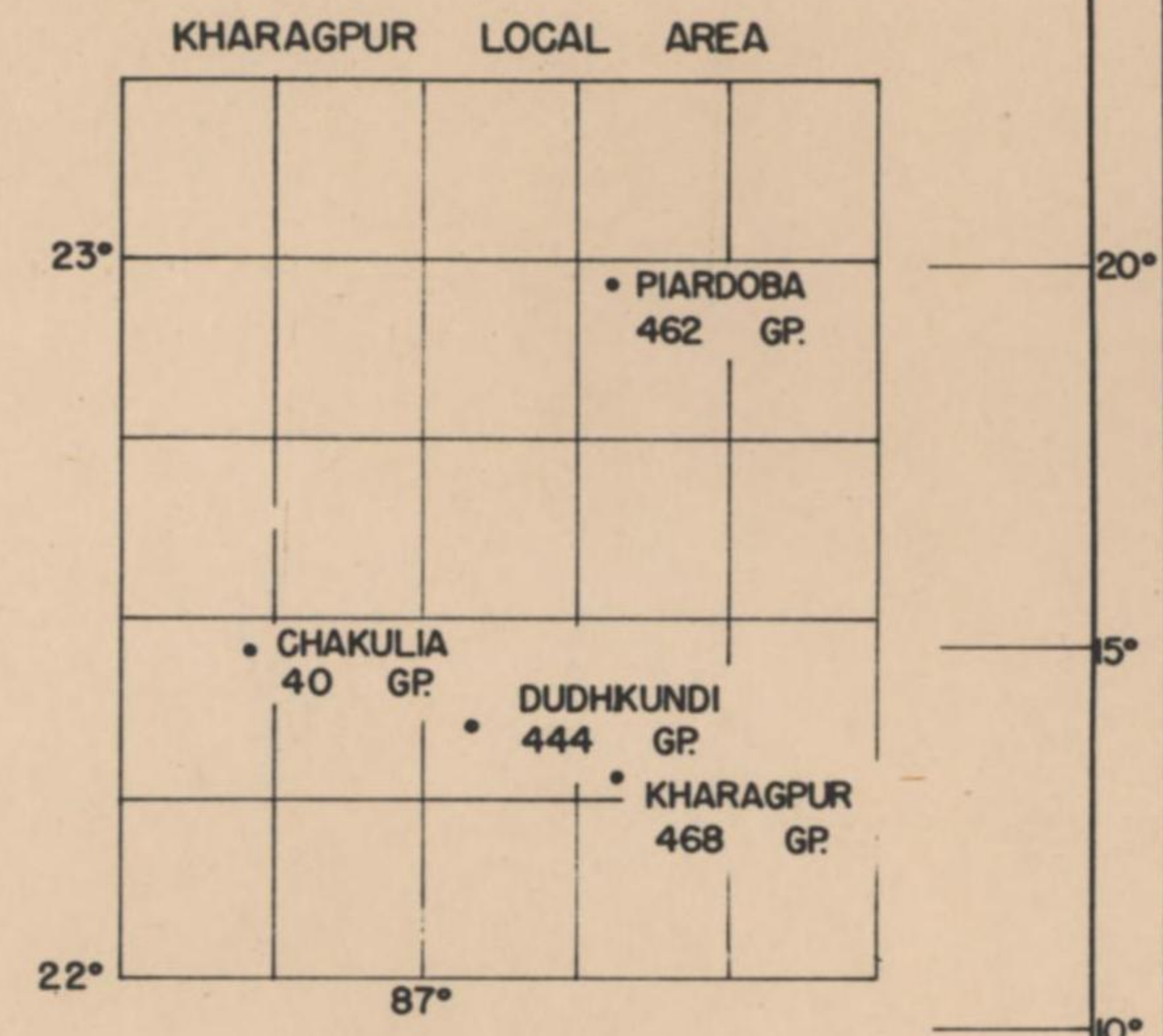
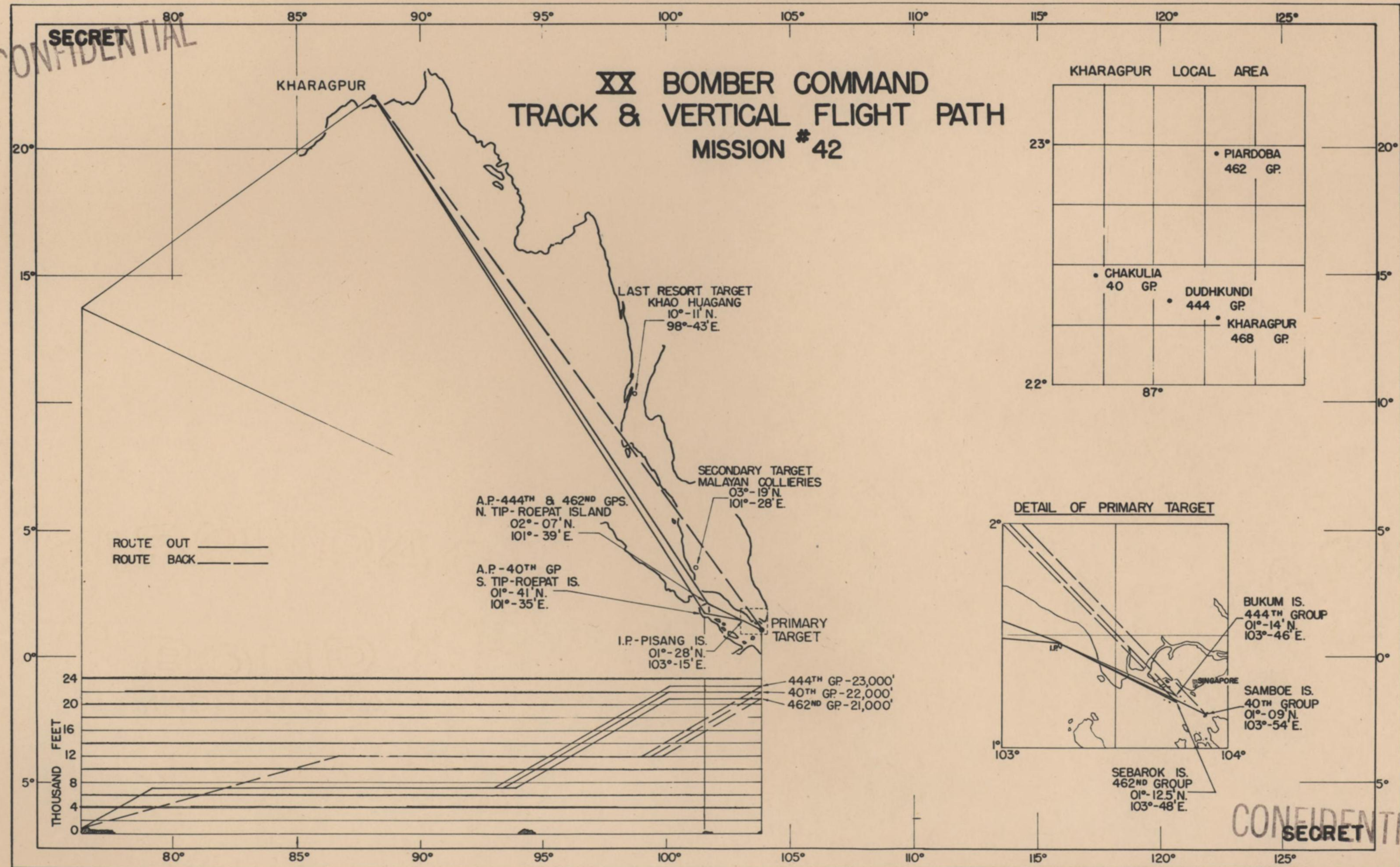
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XX BOMBER COMMAND TRACK & VERTICAL FLIGHT PATH MISSION # 42



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HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT OF
STAFF BOMBING OFFICER

Date Prepared: 16 March 1945

Field Order Number 42

Date of Mission: 12 March 1945

1. Weather at the P.T. was 7/10 to 10/10 undercast. Three formations reported bombing visually with a five (5) to fifteen (15) second run. The remaining formations bombed blind. A single plane from the 444th Group bombed the S.T. visually, reporting the weather as 4/10 broken undercast.

2. The I.P. and all assigned targets were picked up and identified without difficulty by Radar. One three (3) ship formation from the 444th Group made a dry run on the assigned axis of attack; although the target was visible during the last few seconds of the run, there wasn't time to put the crosshairs on the A.P. The second run was made on a reciprocal heading and the bombs released after a visual run of about fifteen (15) seconds. All other formations bombed approximately on the briefed axis of attack.

3. Errors in bombing are attributed to the poor weather conditions at the target.

4. Reported malfunctions of bombing equipment:

462nd Group: #454 - Bombs failed to release electrically.
Two bombs failed to go out by first salvo.
Cause - Failure of bomb door safety switch to function. Equipment failure.

A-IV-1

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By *SW* NARA Date *12/13/05*

V - BOMB LOADING*

Mission No. 42

12 March 1945

Type of Bomb Load**	40th			444th			462nd			Total			Weight in lbs. per A/C	Weight in tons per A/C
	A/C	G.P.	Inc	A/C	G.P.	Inc	A/C	G.P.	Inc	A/C	G.P.	Inc.		
5 GP 2 Inc.	1	5	2	-	-	-	1	5	2	2	10	4	3615.4	1.81
6 GP 2 Inc.	11	66	22	1	6	2	4	24	8	16	96	32	4150.8	2.07
7 GP 1 Inc.	-	-	-	-	-	-	3	21	3	3	21	3	4217.0	2.11
7 GP 2 Inc.	-	-	-	21	147	42	4	28	8	25	175	50	4686.2	2.34
7 GP 3 Inc.	-	-	-	-	-	-	2	14	6	2	14	6	5156.4	2.58
8 GP 2 Inc.	-	-	-	-	-	-	1	8	2	1	8	2	5221.6	2.61
Totals	12	71	24	22	153	44	15	100	29	49	324	97	- - -	- -

* Based on A/C airborne.

** Based on M-64 G.P. bombs weighing 535.4 pounds, and M-76 Incendiary bombs weighing 469.2 pounds.

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VI - DISPOSITION OF BOMBS

Mission No. 42

12 March 1945

	40th			444th			462nd			Totals			Total Pounds	Total Tons	Total Pounds	Total Tons	Total Tons
	A/C	M-64	M-76	A/C	M-64	M-76	A/C	M-64	M-76	A/C	M-64	M-76	M-64	M-64	M-76	M-76	All Bombs
A/C bombing all targets and bombs dropped	12	71	24	22	153	44	15	100	29	49	324	97	173,469.6	86.73	45,512.4	22.75	109.48
A/C bombing Sanboe Is. and bombs dropped	11	65	22	-	-	-	-	-	-	11	65	22	34,801.0	17.40	10,322.4	5.16	22.56
A/C bombing Bukum Is. and bombs dropped	-	-	-	21	146	42	*1	7	3	22	153	45	81,916.2	40.96	21,114.0	10.55	51.51
A/C bombing Sebarok Is. and bombs dropped	-	-	-	-	-	-	11	74	19	11	74	19	39,619.6	19.31	8,914.8	4.46	24.27
A/C bombing ST and bombs dropped	-	-	-	1	7	2	-	-	-	1	7	2	3,747.8	1.87	938.4	.41	2.28
A/C jettisoning bombs	1	6	2	-	-	-	3	**19	**7	4	25	9	13,385.0	6.69	4,222.8	2.11	8.80
Totals	12	71	24	22	153	44	15	100	29	49	324	97	173,469.6	86.73	45,512.4	22.69	109.42

* A/C 730 (462nd) bombed Bukum Island with a 444th formation.

** These figures include 1 M-64 and 1 M-76 jettisoned by A/C 454 which is counted as bombing the primary target.

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VII - FORMATIONS FLOWN

Mission No. 42

12 March 1945

A. Formations Planned

1. It was directed in the Field Order that bombing should be by 3 plane formations.
2. Bombing altitudes specified were 22,000 feet for the 40th, 23,000 feet for the 444th, and 21,000 feet for the 462nd.
3. The Field Order further specified that radar bombing would be accomplished if visual bombing was not possible.

B. Formations or Aircraft over the Primary Target

Formations are shown as they were at the time of bomb release over the primary target, the statistical data being that of the lead aircraft in each formation. Diagrams show only the relative and not the exact position of the planes. The Group to which each aircraft belongs is indicated by the letters "W", "X" and "Y" as follows: "W" - 40th Group, "X" - 444th Group, "Y" - 462nd Group.

1. Aircraft over the Primary Target:

1st.

W 685

W 668

W 455

Aiming Point	- Center of Samboe Is.	Altitude	- 22,000'I
No. of A/C	- 3	Axis of attack	- 100°M
No. releasing	- 3	IAS	- 190
Time of release	- 0148Z	Bomb Load	- 18 M-64 & 6 M-76
Method	- blind	Bombs dropped	- 18 M-64 & 6 M-76

2nd

W 915

Aiming Point	- Center of Samboe Is.	Altitude	- 23,200'T
No. of A/C	- 1	Axis of attack	- 116°M
No. releasing	- 1	IAS	- 190
Time of Release	- 0154Z	Bomb Load	- 6 M-64 & 2 M-76
Method	- blind	Bombs dropped	- 6 M-64 & 2 M-76

3rd.

W 396

W 580

W 505

W 914

Aiming Point	- Center of Samboe Is.	Altitude	- 22,000'I
No. of A/C	- 4	Axis of attack	- 109°M
No. releasing	- 4	IAS	- 190
Time of release	- 0158Z	Bomb Load	- 24 M-64 & 8 M-76
Method	- blind	Bombs dropped	- 24 M-64 & 8 M-76

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4th.

W 498

W 729

W 752

Aiming Point	- Center of Samboe Is.	Altitude	- 22,000'I
No. of A/C	- 3	Axis of attack	- 113°M
No. releasing	- 3	IAS	- 190
Time of release	- 0206Z	Bomb Load	- 17 M-64 & 6 M-76
Method	- blind	Bombs dropped	- 17 M-64 & 6 M-76

5th

X 277

X 580

Aiming Point	- Center of Bukum Is.	Altitude	- 21,200'I
No. of A/C	- 3	Axis of attack	- 111°M
No. releasing	- 2	IAS	- 180
Time of release	- 0209Z	Bomb Load	- 14 M-64 & 4 M-76
Method	- blind	Bombs dropped	- 14 M-64 & 4 M-76

6th.

X 884

X 524

X 537

X 337

Y 730

X 720

Aiming Point	- Center of Bukum Is.	Altitude	- 21,000'I
No. of A/C	- 6	Axis of attack	- 108°M
No. releasing	- 6	IAS	- 190
Time of Release	- 0215Z	Bomb Load	- 41 M-64 & 13 M76
Method	- blind	Bombs dropped	- 41 M-64 & 13 M76

7th.

X 507

X 899

X 723

X 462

Aiming Point	- Center of Bukum Is.	Altitude	- 23,400'T
No. of A/C	- 4	Axis of attack	- 116°M
No. releasing	- 4	IAS	- 190
Time of release	- 0217Z	Bomb Load	- 28 M-64 & 8 M-76
Method	- blind	Bombs dropped	- 28 M-64 & 8 M-76

8th.

Y 838

Y 450

Y 531

Y 786

Aiming Point	- Center of Sebarok Is.	Altitude	- 21,000'I
No. of A/C	- 4	Axis of attack	- 110°M
No. releasing	- 4	IAS	- 190
Time of release	- 0218Z	Bomb Load	- 29 M-64 & 6 M-76
Method	- blind	Bombs dropped	- 29 M-64 & 6 M-76

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9th.

Y 896

Y 472

Aiming Point	- Center of Sebarok Is.	Altitude	- 21,400'I
No. of A/C	- 2	Axis of attack	- 111°M
No. releasing	- 2	IAS	- 190
Time of release	- 0219Z	Bomb Load	- 13 M-64 & 4 M-76
Method	- blind	Bombs dropped	- 13 M-64 & 4 M-76

10th.

X 559

X 492

X 533

X 557

Aiming Point	- Center of Bukum Is.	Altitude	- 23,000'I
No. of A/C	- 4	Axis of attack	- 114°M
No. releasing	- 4	IAS	- 190
Time of release	- 0231Z	Bomb Load	- 28 M-64 & 8 M-76
Method	- visual	Bombs dropped	- 28 M-64 & 8 M-76

11th.

X 584

X 446

X 270

Aiming Point	- Center of Bukum Is.	Altitude	- 23,000'I
No. of A/C	- 3	Axis of attack	- 119°M
No. releasing	- 3	IAS	- 190
Time of release	- 0232Z	Bomb Load	- 21 M-64 & 6 M-76
Method	- blind	Bombs dropped	- 21 M-64 & 6 M-76

12th.

Y 299

Y 454

Y 801

Y 476

Aiming Point	- Tank No. 5, Sebarok Is.	Altitude	- 21,000'I
No. of A/C	- 4	Axis of attack	- 112°M
No. releasing	- 4	IAS	- 190
Time of release	- 0233Z	Bomb Load	- 27 M-64 & 8 M-76
Method	- visual	Bombs dropped	- 26 M-64 & 7 M-76

13th.

Y 711

Aiming Point	- Center of Sebarok Is.	Altitude	- 21,000'I
No. of A/C	- 1	Axis of attack	- 117°M
No. releasing	- 1	IAS	- 193
Time of release	- 0235Z	Bomb Load	- 3 M-64 & 2 M-76
Method	- blind	Bombs dropped	- 6 M-64 & 2 M-76

14th.

X 228

X 730

X 496

Aiming Point	- Center south half of Bukum Island	Altitude	- 22,000'I
No. of A/C	- 3	Axis of attack	- 275°M
No. releasing	- 3	IAS	- 190
Time of release	- 0256Z	Bomb Load	- 21 M-64 & 6 M-76
Method	- visual	Bombs dropped	- 21 M-64 & 6 M-76

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2. Aircraft over the Secondary Target:

X 538

Aiming Point - Power House
No. of A/C - 1
No. releasing - 1
Time of release - 0115Z
Method - visual

Altitude - 12,000'I
Axis of attack - 42°M
IAS - 195
Bomb Load - 7 M-64 & 2 M-76
Bombs dropped - 2 M-64 & 2 M-76

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HEADQUARTERS
XX BOMBER COMMAND
PO-35

CONSOLIDATED
SPECIALIST MISSION REPORT
OF STAFF NAVIGATION OFFICER

Date Prepared: 14 March 1945

Field Order No. 42

Date of Mission: 12 Mar 45

1. Navigation was satisfactory on the strike against tank farms in the Singapore Area. Extensive cloud coverage over the assembly point, initial point, initial point and target, called for careful navigator - Radar Operator cooperation. It has been suggested by the 40th Group that experiments be made with the Navigator killing the course on the bombing run which leaves the Radar Operator free to call off the sighting angle and keep the set tuned to maximum target reception.

a. Average Navigation lines were as follows:

	<u>NAV TIME OUT</u>	<u>NAV TIME BACK</u>	<u>ASSEMBLY TIME</u>
40th Group	8h 41m	8h 43m	4m
444th Group	8h 58m	8h 26m	13.5m
462nd Group	9h 14m	8h 34m	12m

b. Relative time schedule was as follows:

	<u>40TH GROUP</u>	<u>444TH GROUP</u>	<u>462ND GROUP</u>
Estimated take off time	1725Z	1739Z	1729Z
take off time	1707Z	1658Z	1700Z
Estimated Time to Lv AP	0125Z	0125Z	0125Z
Lv AP	0115Z	0139Z	0147Z
Estimated Target time	0200Z	0157Z	0159Z
Target time	0148Z	0209Z	0218Z
Estimated Arrive Base	1031Z	1025Z	1036Z
Arrive Base	1030Z	1039Z	1048Z
Distance to Target (SM)	1916	1853	1893
Distance to Base (SM)	1861	1832	1858

Estimated time was based on a no-wind time.

c. The following Navigational Aid work was reported:

	<u>CEL LOP's</u>	<u>CEL Fixes</u>	<u>Radio Fixes</u>	<u>QDM's</u>
40th Group (12 planes)	61	44	2	0
444th Group (12 planes)	91	60	0	1
462nd Group (12 planes)	43	34	8	3

d. Forecast winds were fair to good. Weather forecast was good as regards expected conditions. Actual winds reported were:

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	<u>ONE HALF WAY OUT</u>	<u>T R G E T</u>	<u>ONE HALF WAY BACK</u>
40th Group	7,000' 155°12K	22,000' 144°24K	12,700' 197°12K
444th Group	5,000' 127°11K	23,000' 126°23K	10,000' 37°11K
462nd Group	3,000' 90°12K	21,000' 100°16K	15,000' 235°15K

e. Radar cooperation was reported as good in most cases.

2. There are still some SCR-718's not installed in the 444th planes which were commented on by the Navigators. Information indicates that units are available but have not been installed due to shortage of personnel. There is a growing tendency on the part of navigators to use metro winds. In addition many wing aircraft do not have a wind approaching the target. It is realized that it is most difficult for wing planes to obtain a wind in many cases. It is believed that closer navigator-radar operator coordination will make it possible to know the wind. This was particularly possible in this problem where there was such a slight change of course between the run to the IP, and the run to the target, the total distance being over 145 miles.

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ANNEX

B

ENEMY ANTIAIRCRAFT

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*****  
* Prepared by: *  
* Flak Officer *  
* XX Bomber Command *  
*****
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C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
APO 493

15 March 1945

P R E L I M I N A R Y R E P O R T

ANTI-AIRCRAFT OPPOSITION

MISSION NUMBER 42, (DAYLIGHT), 12 MARCH 1945

Primary Targets - BUKUM Island, SEBAROK Island, and SAMBOE
Island, Secondary Target - MALAYAN COLLIERIES, BATU ARANG,
and Target of Last Resort - KHAO HUNGANG, THAILAND

A. ANTI-AIRCRAFT FIRE ENCOUNTERED

1. SAMBOE Island (01°10'N-103°54'E)

Eleven aircraft bombed this island from 0148Z to 0206Z from 23,300 to 23,500 feet true altitude through 9/10 to 10/10 undercast conditions with no anti-aircraft opposition encountered. Headings of approach were from 100°M to 114°M which brought the aircraft within the maximum fire envelopes of heavy AA guns on BUKUM Island and at the southern sections of SINGAPORE TOWN. Lack of opposition would indicate non-employment of gun-laying radar.

2. SEBAROK and BUKUM Islands (01°12'N-103°49'E and 01°14'N-103°47'E)

Meager and inaccurate black heavy anti-aircraft fire was reported for 53% (21 out of 36) of the aircraft runs made between 0209Z and 0256Z at altitudes of 22,200 to 24,300 feet (true) through 6/10 to 10/10 undercast. Fire is believed to have been continuously pointed and no enemy aircraft were reported on the same course and altitude. The following table shows aircraft over the area in relation to time and heavy AA fire encountered:

Table I: Formations vs. Heavy Flak Encountered.

Formation	Number of A/C	Bomb Release Time	Time Encountered	Heavy Flak Encountered	True Altitude in Feet	Undercast	Total Bursts	Heading
1	2	0209Z	-----	-----None-----	22,800	7-10/10	--	111°M
2	6	0216Z	-----	-----None-----	22,200	7-10/10	--	108°M
3	4	0217Z	0217Z	Meager - Inaccurate	24,000	10/10	1	116°M
4*	4	0218Z	-----	-----None-----	22,200	7-10/10	--	106°M
5*	2	0219Z	-----	-----None-----	22,200	7-10/10	--	111°M
6	4	0231Z	0231Z	Meager - Inaccurate	24,100	9/10	3	114°M
7	3	0232Z	0230Z	Meager - Inaccurate	24,300	7-9/10	4	119°M
8*	4	0233Z	0232Z	Meager - Inaccurate	22,200	9-10/10	5	112°M
9*	1	0235Z	-----	-----None-----	22,300	7-10/10	--	108°M
10	3	1st Run	0240Z	Meager - Inaccurate	23,300	6/10	15	110°M
10	3	0256Z	0258Z	Meager - Inaccurate	23,300	6/10	25	273°M

*These formations (#4,5,8,9) bombed SEBAROK Island with the remainder (#1-2-3-6-7 and 10) bombing BUKUM Island, with Formation #10 making two runs over the target.

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Intensity and accuracy percentages are not listed as all fire was meager and inaccurate. Following are reports of deviations with percentages determined from the total number of affirmative reports in any one group, as above, level or below:

Table II: Deviations of Heavy Flak Encountered

Above . 13 (42 percent)	Ahead . . . 3 (23 percent)	Left 5 (25 percent)
Level . 9 (29 percent)	A breast . 0 (0 percent)	In Line. . . 4 (20 percent)
Below . 9 (29 percent)	Behind. . 10 (77 percent)	Right. . . 11 (55 percent)

Duration of fire encountered was short, lasting not longer than 1 minute, with the average time of engagement 0.6 of a minute following bomb release. The number of bursts observed at any one instant varied from 1 to 3 resulting in a total of from 1 to 25 for all encounters.

All fire is believed to have originated from land based guns. Aircraft of Formation #8 (462nd Group) reported the 4-75mm guns at 1093-0149 (Flak Map - SINGAPORE, Sheet E10402-N0110, 13 Feb 1945) in action and also 2 guns on the southeastern tip of BUKIT Island.

There was no possibility of radar controlled fire through R.C.M. intercepts or characteristics of fire encountered. Undercast conditions, however, seriously effected the accuracy and intensity of flak opposition.

3. MALAYAN COLLIERIES, BITU ALANG (03°17'N-101°30'E)

One aircraft bombed this area at 0115Z from 12,650 feet true altitude on a heading of 42°M through a 4/10 undercast and encountered no antiaircraft opposition.

B. GROUND-TO-AIR ROCKETS, PARACHUTE OR HIGH-ALTITUDE BALLOONS, SMOKESCREENS

None reported.

C. FLAK DAMAGE

None

D. WARNING NETS

Although aircraft were tracked by the PENANG and SINGAPORE Area early warning radars (as determined by R.C.M. Intercepts) which should have resulted in approximately 30 minutes prior warning, it is evident that this warning was not utilized. No sightings of or attacks by enemy fighters were reported prior to 0209Z, the first bombs away time against BUKIT Island.

Frank L. Scott Jr
FRANK L. SCOTT, JR.,
Colonel, Air Corps,
Chief, Intelligence Section.

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ANNEX

C

ENEMY AIR OPPOSITION

* * * * *
* Prepared by: *
* Operational Intelligence Unit *
* XX Bomber Command *
* * * * *

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I. JAPANESE FIGHTER TACTICS - MISSION NO. 42

TARGET: Oil Storage Facilities, Singapore
Area, Malaya.

TIME: Day Mission.

DATE: 12 March 1945.

1. GENERAL

a. Air opposition was rated very weak, with one of the three Groups participating reporting no enemy air action at all. Of the 45 B-29's bombing targets, 9 were intercepted. There were 5 single plane attacks and 5 coordinated attacks, resulting in a total of 34 individual encounters. No B-29's were lost due to enemy fighter action but two received minor damage. One OSCAR was claimed as damaged. The enemy fighter force opposing the mission was estimated at 12 OSCARS, 1 ZEKE 52 and 1 ZEKE 32.

b. All air action occurred in the primary target area, over a period of 16 minutes - 0221Z to 0237Z - and at altitudes from 20,000 to 23,400 feet. Twenty-four encounters (70 per cent of the total) were before bombs away, 7 (21 per cent) during bombs away, and 3 (9 per cent) after bombs away.

c. Enemy air opposition over Singapore was even weaker than had been expected. Explanation of this is difficult to make at this time, and it should be noted that enemy tactics described in succeeding paragraphs of this report do not present a typical overall picture of Japanese Air Force capabilities based on B-29 experiences flying from both INDIA and CHINA bases.

2. DIRECTION AND LEVEL OF ATTACK

Twenty-nine encounters (85 per cent of the total) originated from the frontal quarter, and encounters from all quarters were high insofar as the level of approach was concerned. This unusual picture resulted from a high proportion of coordinated attacks, all of which originated high from the frontal quarter. A summary of directions and level of approach for all encounters is shown in Table No. 1.

Table No. 1 - Direction and Level of Approach

Direction & Level of Approach	Front			Right			Rear			Left			Total
	11	12	1	2	3	4	5	6	7	8	9	10	
High	14	10	5	-	-	-	-	-	1	-	-	4	34 (100%)
Total	29 (85%)			0			1 (3%)			4 (12%)			

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3. AGGRESSIVENESS OF JAPANESE PILOTS AND EXCHANGE OF FIRE

a. Enemy attacks were not aggressively pressed. Although the majority of breakaways were in the 0 - 249 yard bracket, as shown in Table No. 2, most of these were at about 200 yards. Only 2 fighters came closer; one to 50 yards, and a second to 70 yards.

b. Enemy pilots fired, however, in an unusually high number of encounters; 33, or, 97 per cent of the total. B-29's fired in 32 of the 34 encounters (94 per cent), a normal percentage. Comparisons of B-29 and enemy gunfire at various ranges are presented in Table No. 3.

Table No. 2 - Distances to which Attacks Were Pressed

<u>Distance (yards)</u>	<u>No. of Encounters</u>	<u>Percent</u>
1000 & over	-	-
800 to 999	1	3
500 to 799	7	20
250 to 499	6	18
0 to 249	<u>20</u>	<u>59</u>
Total	34	100

Table No. 3 - Distances Opened Fire

<u>Distance (yards)</u>	<u>Enemy Fire</u>		<u>B-29 Fire</u>	
	<u>No. of Attacks</u>	<u>Percent</u>	<u>No. of Attacks</u>	<u>Percent</u>
0 to 499	1	3	2	6
500 to 799	-	-	1	3
800 to 999	11	33	15	47
1000 & over	<u>21</u>	<u>64</u>	<u>14</u>	<u>44</u>
Total	33	100	32	100

4. AERIAL BOMBING ATTACKS

Only one possible aerial bombing attack was reported. The crew did not see the bomb released nor was it observed to explode. No description of the bomb was reported.

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5. COORDINATED ATTACKS

a. There were 5 coordinated attacks, resulting in 29 individual encounters, 85 per cent of the total. The numbers of enemy aircraft in each attack varied from 2 to 10 planes. Attacks were not aggressively pressed nor did they appear to be skillfully executed.

b. An unusual attack in which 10 OSCARS were engaged was reported by a formation of 4 B-29's. The formation was on its bomb run when the OSCARS were observed about 3 miles ahead, forming what proved to be a slightly staggered line abreast formation. The attack developed immediately after the OSCARS were in position. They approached together from 10 to 1130 o'clock, about 10° high, and each OSCAR opened fire at 1000 yards. As they neared the formation, elements of 2 and 3 planes seemed to have singled out individual B-29's in a predetermined order. The attack was not closely pressed, however, the OSCARS breaking away on all sides of the formation without coming closer than 200 yards. No hits were scored on any B-29 in the formation. The same attack was repeated with 7 OSCARS about seven minutes later, after bombs away and the formation was on the route home. The OSCARS formed behind cloud cover and attacked from the same direction and angle. Again no hits were scored, and breakaways were at about the same distance.

6. RAMMING ATTACKS

There were no reports of enemy attempts to ram, nor any instances of near collisions.

7. ROCKET ATTACKS: None.

8. EVASIVE ACTION BY B-29'S: None.

9. NEW AIRCRAFT: None.

10. NEW WEAPONS: None.

11. NEW OR UNUSUAL TACTICS

None, other than the coordinated attack described in a previous paragraph.

12. CLAIMS AGAINST ENEMY AIRCRAFT

A preliminary claim of 1 OSCAR damaged was reported. Four B-29's were in formation over SEBAROK ISLAND when this OSCAR attacked high from 11 o'clock. The B-29's opened fire at about 1000 yards and the OSCAR broke off his attack at 400 yards.

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13. SUMMARY

a. Enemy air opposition was reported very weak, with a total of only 34 individual encounters. No B-29's were lost due to enemy fighter action but 2 received minor damage. One OSCAR was claimed damaged. The Japanese fighter force engaged was estimated at about 14 planes, mostly OSCARS. All action occurred in the primary target area.

b. All encounters originated high, and 29 (85 per cent of the total) from the frontal quarter. Japanese pilots were not aggressive, but enemy gunfire was reported in an unusually high number of attacks. Only one possible aerial bombing attack was reported. Coordinated attacks accounted for 85 per cent of total encounters, and a new type of attack was attempted in which 10 OSCARS, flying in a slightly staggered line abreast formation, attacked a 4 plane formation of B-29's from the frontal quarter, high.

c. Negative reports were made on ramming attacks, rocket attacks, evasive action by B-29's, new aircraft, and new weapons.

14. MARKINGS OF ENEMY AIRCRAFT

The majority of enemy aircraft encountered were silver colored. One or two appeared to be O. D. camouflaged.

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C O N F I D E N T I A L

ANNEX

D

WEATHER INFORMATION

- I - Weather Information
- II - Chart - Weather as Forecast and
as Encountered
- III - Synoptic Map

C O N F I D E N T I A L

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I - WEATHER INFORMATION

Mission No. 42

12 March 1945

	As Forecast	As Encountered
Base at Take-Off	Clear. Visibility 4-5 miles in haze.	<u>TIARDOBA</u> : Clear. Visibility 7 miles. Wind SSE 8 mph. <u>DULIKUNDI</u> : Clear. Visibility 10 miles. Wind SW 10 mph. <u>CHAKULIA</u> : Clear. Visibility 4 miles in haze. Wind SSE 7 mph.
Route Out	<u>BASE TO 16°N</u> : Clear. Visibility 5-8 miles in haze. <u>16° TO 11°N</u> : 7/10 stratus and/or stratocumulus tops 6000'. 1/10 altocumulus base 9000' top 10,000'. At 14°N, there will be a weak frontal area composed of stratus layer (non-turbulent) base 3000' top 3000'. <u>11° TO 9°N</u> : Weak convergent area, 8/10 stratocumulus base 3000' top 5000'; 2/10 cumulus base 3000' top 14,000'; 1/10 altocu base 9000' top 10,000'. <u>9° TO 5°N</u> : 8/10 stratus and stratocumulus base 3000' top 6000'. 3/10 altocumulus base 10,000' top 11,000'. 3/10 altostratus base 14,000' top 16,000'. 2/10 altostratus base 19,000' top 21,000'. <u>2/10 cirrostratus</u> at 28,000'. <u>5° TO 2°N</u> : Convergent area. 4/10 stratocumulus base 3000' top 5000'. 3 to 10/10 multiple layer altocumulus, base of lower layer 8000'; top of upper layer 18,000'. 9-10/10 altostratus base 20,000' top 23,000'. Light rime icing in these clouds. 8/10 cirrostratus base 26,000'.	<u>BASE TO 16°N</u> : Clear. Visibility 6-10 miles in haze. <u>16° TO 11°N</u> : 2/10 stratus increasing to 6-7/10 stratocumulus last half tops 5000'. Between 14 and 12°N, weak frontal zone with 7/10 altocumulus at 9000' and a few cumulonimbus tops unknown. <u>11° TO 9°N</u> : Weak convergent area. 7/10 stratocumulus tops 5000'. 2/10 altocumulus at 10,000'. Few cumulonimbus in area tops unknown. <u>9° TO 5°N</u> : 1/10 stratocumulus tops 5000' increasing to 6/10 in southern part of area with patches of stratus mixed in with the stratocumulus. 4/10 altostratus at 11,000'. 2/10 altostratus at 20,000'. <u>5° TO 2°N</u> : Convergent area. 6/10 stratocumulus tops 5000'. 8-10/10 multiple layers of altocumulus from 8000' to 16,000'. 9-10/10 altostratus at 17,000', tops 18,500'. Overcast with breaks cirrostratus base variable from 23,000' to 25,000'. Few cumulonimbus in vicinity of 4.5°N, tops near 20,000'.
Target Area	4/10 stratocumulus base 3000' tops 5000'. 6/10 altocumulus in layers bottom 8000' top 16,000'. 8/10 altostratus base 18,000', top 23,000'. 8/10 cirrostratus base 25,000'. Mean Temperature to 22,000': 8 Deg C. Pressure at Target: 29.80 inches.	<u>SBBAROK</u> : 7/10 cirrostratus at 28,000'. Overcast altostratus at 18,000'. 7/10 stratocumulus in two layers, one at 3000' and other at 7000'. <u>BUKUM</u> : 8/10 cirrostratus at 24,000'. Variable layers of altostratus with tops to 15,000'. Coverage varied from 6/10 to 10/10. <u>SAMBOE</u> : 10/10 cirrostratus at 24,000'. Layers of altocumulus

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	As Forecast	As Encountered
Target Area (Cont'd)		giving 9-10/10 coverage with top of upper layer at 20,000'. SECONDARY TARGET: 7/10 thin altostratus at 15,000'. 3/10 altostratus at 12,000'. 3/10 small cumulus at 5000'. Visibility 15 miles.
Route Back	Essentially the same as route out. Less low cloudiness over water areas.	2° TO 6°N: 2-5/10 cumulus tops 7000'. 3-8/10 altocumulus layers between 9,000' and 17,000'. 10/10 altostratus at 19,000'. 9/10 cirrostratus at 25,000'. 6° TO 8°N: 1/10 stratus top 5,000'. 8/10 altostratus at 20,000'. 7/10 cirrostratus at 25,000'. 8° TO 11°N: 3/10 cumulus tops 5000'. 3/10 altocumulus at 14,000'. 7/10 altostratus at 19,000'. 5/10 cirrostratus at 25,000'. Few cumulonimbus tops 20,000' in vicinity 9°N. 11° TO 16°N: 2-3/10 cumulus and/or stratus tops 5000' to 3000'. 2/10 altocumulus at 14,000'. 5/10 altostratus at 19,000'. 1/10 altocumulus at 19,000'. 3/10 cirrostratus at 25,000'. 2/10 cumulus at 12°N, tops 8000'. 16°N TO B.S. Clear to scattered altocumulus near coast. Visibility 8-10 miles in haze.
Base on Return	Scattered cumulus, bases 4000' top varying 5000' to 7000'. Visibility 8 to 10 miles.	FLARDOBA: Broken at 9000'. Visibility 8 miles. Wind N 15 mph. DUEHKUNEE: Broken at 7000' with lower scattered at 4000'. Visibility 8 miles. Wind S 8 mph. CHAKULLI: Broken at 12,000', with lower scattered at 5000'. Visibility 6 miles in haze. Wind ESE 4 mph.

A. Winds Aloft - Forecast

Altitude	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
1,000'	320/10K	40/10K	70/10K	70/10K
5,000'	290/15K	150/12K	100/10K	90/12K
10,000'	270/17K	180/12K	120/20K	120/17K
15,000'	270/23K	200/20K	140/20K	110/20K
20,000'	270/30K	210/25K	160/20K	100/22K
25,000'	270/40K	210/30K	150/22K	100/25K

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C O N F I D E N T I A L

B. Winds Aloft - Encountered

Altitude	14°N	11°N	6°N	4°N	Target	11°N Ret.
3,000'	40/10K	90/12K	100/13K			
7,000'		155/12K				
13,000'						197/12K
15,000'	240/10K					150/15K
17,000'				220/25K		
21,000'					100/22K	
22,000'					144/24K	

C. Temperatures (Centigrade)

As Forecast

Altitude	Target
1,000'	24
5,000'	18
10,000'	10
15,000'	2
20,000'	-5
25,000'	-12

As Encountered

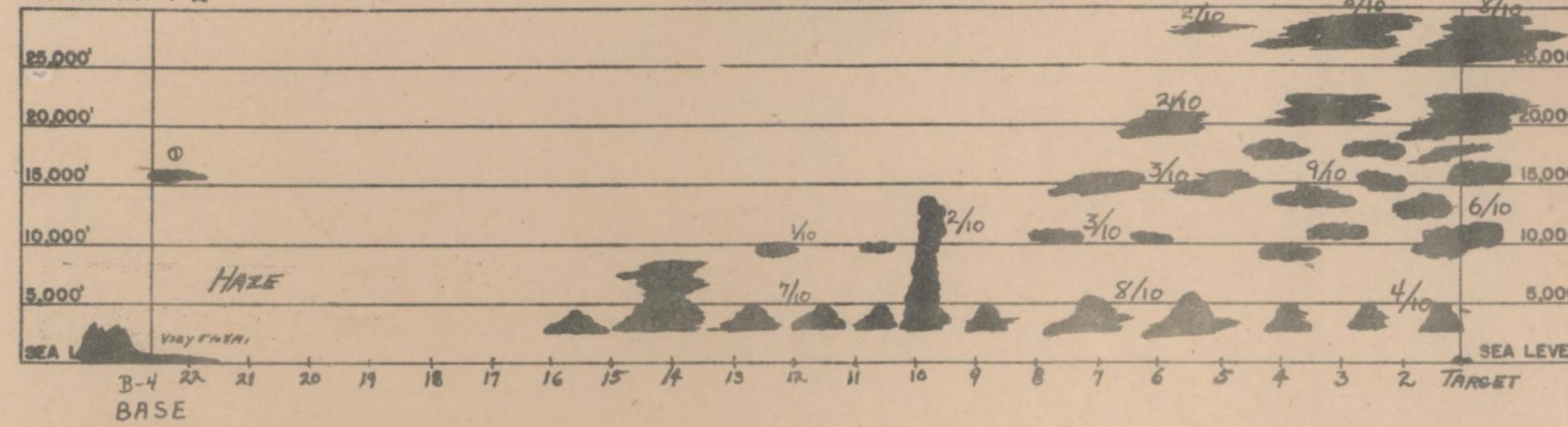
Altitude	15°N	10°N	8°N	6°N	4°N	Target
3,000'	22	21		19		
5,000'	18		20			
10,000'	9					
15,000'	4	2				
17,000'					0	
21,000'						-7
22,000'						-6
24,000'						-7

D-I-3

C O N F I D E N T I A L

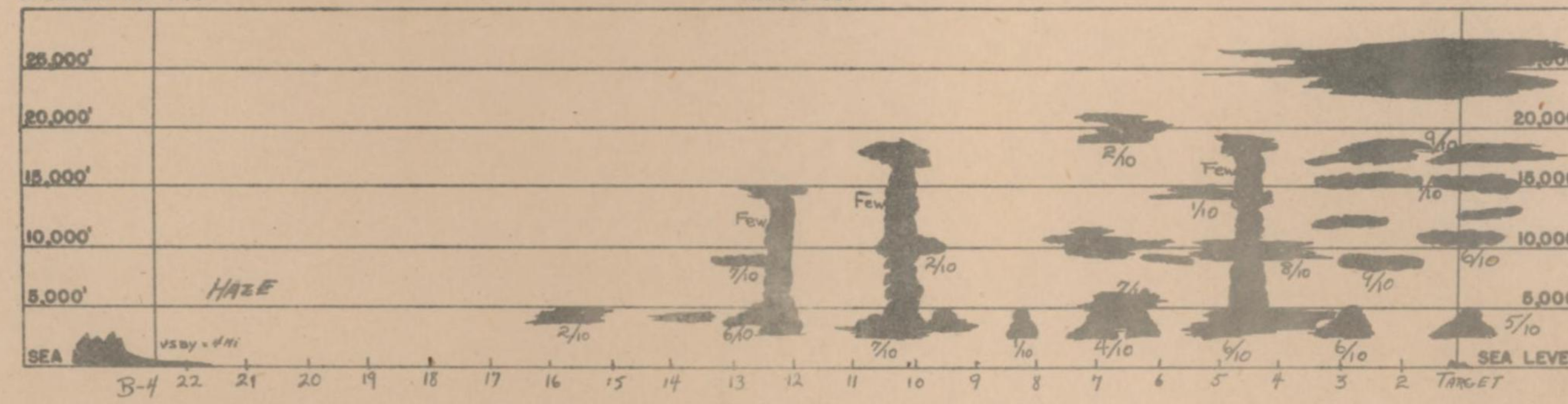
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Weather as Forecast

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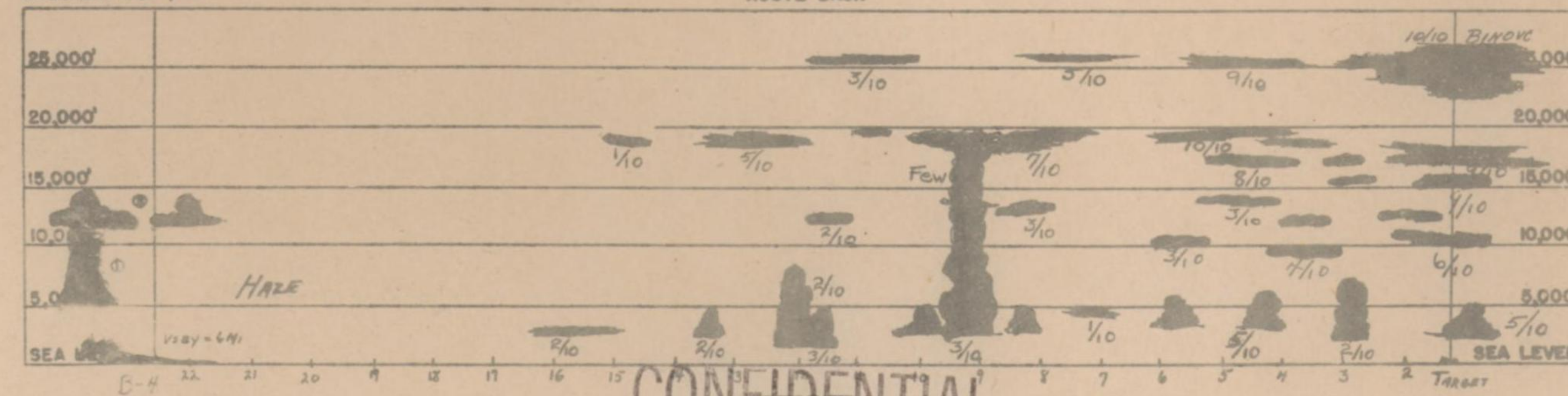
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Weather as Encountered
Route Out



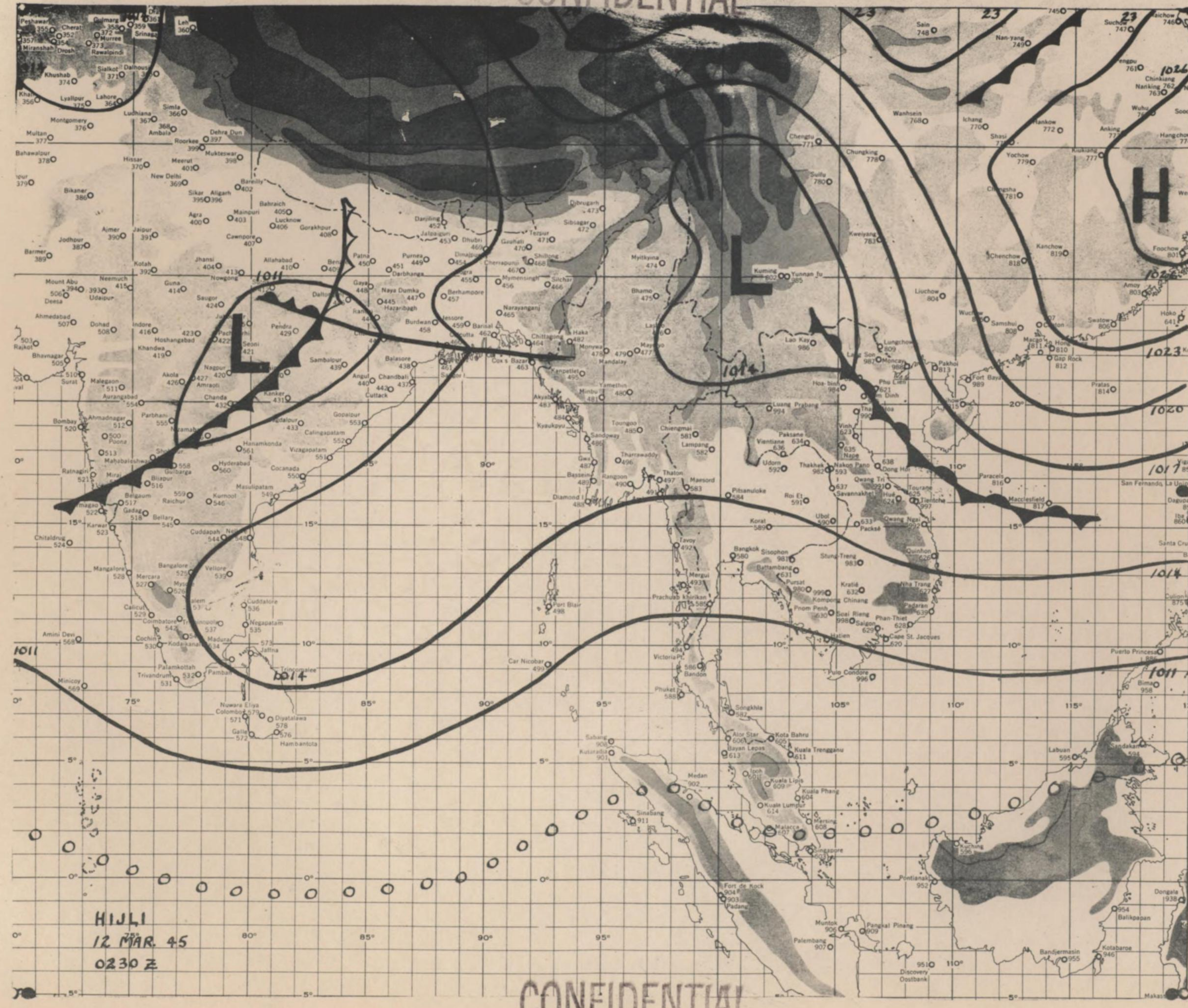
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Weather as Encountered
Route Back



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HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT
OF STAFF RADIO OFFICER

Date prepared: 16 March 1945. Mission Number: 42.

Date of Mission: 12 March 1945.

I - TRAFFIC STATISTICS

1. Based on the greatest number of such messages which could be received (i.e., one per aircraft) the following tabulations indicate the number of aircraft accounted for by bombs away messages and position reports transmitted, when 400 miles out, on return to base:

a. Bombs away messages:

	<u>40th</u>	<u>444th</u>	<u>462nd</u>	<u>Total</u>
No of a/c from which msg could be expected:	11	22	12	45
No of msgs received:	4	6	3	13 13
No of a/c accounted for by messages:	11	22	12	45
Pct of a/c accounted for by messages:	100%	100%	100%	100%

b. Position reports:

No of a/c from which msg could be expected:	11	22	13	46
No of msgs received:	8	9	13	30
No of a/c accounted for by messages:	11	22	13	46
Pct of a/c accounted for by messages:	100%	100%	100%	100%

2. Three abort messages were received from aircraft, two from aircraft of the 462nd Group and one from an aircraft of the 40th Group. Two attack messages were transmitted by aircraft of the 444th Group and two by aircraft of the 462nd Group.

3. No distress traffic involving aircraft on this mission was logged.

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II - VIOLATIONS

4. No violations of cryptographic or transmission security were reported.

5. All aircraft complied with provisions of the Tactical Doctrine insofar as communications was concerned.

III - FREQUENCIES

6. Take-off was at approximately 1700 GMT, with the assigned two megacycle frequency remaining in use until daylight hours. Aircraft then switched to the assigned eight megacycle channels. As the target area was approached some fading occurred on the eight megacycle frequencies, the signal level dropping to an S-2 level. A number of aircraft passed traffic on the assigned twelve megacycle frequencies during this period, but the majority stayed on the eight megacycle frequency, preferring the use of that frequency even with its reduced signal level. Heavy static was encountered when the aircraft flew through local storms, but outside of these disturbed areas, the static level never rose above a W-1 level.

7. Six interfering stations were reported on the two assigned eight megacycle frequencies, three being reported on each frequency. Interference, however, was intermittent, and at no time was strong enough to interfere with the passing of air-ground traffic.

8. No attempts at jamming or deception on the part of the enemy were reported.

IV - RADIO AIDS TO NAVIGATION

9. Statistical data on radio aids to navigation is as follows:

a. Radio Homing Beacons:

<u>Location</u>	<u>Power</u>	<u>No of a/c reporting</u>	<u>Average Initial contact</u>	<u>Extreme Initial contact</u>
Kharagpur	1200W	11	375	600
Dudhkundi	25W	8	113	200
Chakulia	1200W	13	400	700
Paardoba	2000W	6	300	500

b. Four aircraft of the 444th Group reported using the radio range installation at Dum Dum airport at Calcutta. Initial contact with the range signal averaged 425 miles for the four aircraft reporting. One aircraft reported initially picking up the signal at 600 miles. The Dum Dum range is of the SRA type with 400 watts power output.

c. One aircraft of the 444th Group requested direction finding aid. A class one QDM was received from the D/F station at Kharagpur from a distance of 210 miles.

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d. Air-to-air homing was not used by aircraft of the 40th Group. Five aircraft of the 462nd Group rendezvoused on homing signals from an average distance of sixty miles, one aircraft reporting that homing signals were initially picked up at a distance of 200 miles. The 444th Group had seven aircraft transmit homing signals, to aid in effecting rendezvous for the three aircraft formations in which this mission was flown. Ten aircraft utilized the signals transmitted by five of the aircraft to effect rendezvous from an average distance of twenty-nine miles. Transmissions made by remaining aircraft were not utilized by aircraft rendezvousing on them.

V - MALFUNCTIONS TO RADIO EQUIPMENT

10. 40th Bomb Group:

a. Aircraft 685 and 752 had the antenna lead-in for the compass sense antenna break in flight. Command set antenna was used as a substitute by means of a jumper wire from this antenna to the compass antenna.

b. Aircraft 498 had the power cable for the liaison transmitter short out. Not repairable in flight.

11. 444th Bomb Group:

a. Aircraft 884 had the trailing wire antenna bunch up in the bomb bay when attempt was made to extend it. Not repaired in flight.

b. Aircraft 899 had BC-348 receiver blocked by noise which came from Engineers fan. Fan was noisy due to bad shielding. Not repaired in flight.

c. Aircraft 564 had faulty radio compass in that compass needle hunted slowly each time compass was used. Not repaired in flight.

12. 462 nd Bomb Group:

a. Aircraft 299, 454 and 730 had the antenna lead-in for the compass sense antenna break in flight. Command set antenna was used as substitute by means of a jumper wire from the command antenna to the compass receiver.

b. Aircraft 838 had a malfunction of the AN/ART-15 Transmitter when the antenna current and tuning meter became faulty. This malfunction was not repaired in flight, but one of the SCR-274N Command transmitters was tuned to the Groups assigned eight megacycle frequency and all traffic was passed with that transmitter.

c. Aircraft 472 reported erratic interphone operation which could not be repaired in flight. SCR-274N Radio Set was used as an emergency interphone in its place.

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C O N F I D E N T I A L

VI - SPECIAL PROCEDURES

13. Because of inclement weather conditions enroute to the target, two assembly points were chosen, and a weather scout aircraft dispatched before the main striking force, whose duty was to pick the assembly point with the most favorable weather and pass this information back to the striking force. Two prearranged messages were chosen "APAAA" if assembly point "A" were to be used and "APBBB" if assembly point "B" were to be used. Weather scout found assembly point "A" open and message "APAAA" was passed back to the already airborne striking force on 6690 kilocycles, using the AN/ART-13 transmitter and CW transmission. Message was successfully received by all aircraft of the striking force and assembly at point "A" completed.

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C O N F I D E N T I A L

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ANNEX

F

RADAR

I - RADAR INFORMATION*

Section A - Navigation and Bombing

Section B - Scope Photography

Section C - Serviceability

II - RADAR TABLES*

Table A - Bombing

Table B - Photographic Results

Table C - Serviceability

Table D - Malfunctions

III - RADAR PHOTOGRAPH ANALYSIS CHARTS**

* Prepared by Radar Section, XX Bomber Command

** Prepared by Target Intelligence Unit,
XX Bomber Command

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By *SW* NARA Date *12/13/05*

C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION
REPORT OF

XX BOMBER COMMAND RADAR OFFICER

Date Prepared: 17 March 1945 Field Orders No. 42
Date of Mission: 12 March 1945

I - RADAR INFORMATION

A - Navigation and Bombing

1. The primary targets on this mission were ideal radar targets. The 40th Bomb Group was assigned the oil facilities on Samboc Island, the 444th Bomb Group the oil facilities on Bukum Island and the 462nd Bomb Group the oil facilities on Sebarok Island. All three islands are located in the Singapore Strait just south of the city of Singapore.

2. Samboc Island is approximately 5050 feet long and 1750 feet wide, Bukum Island approximately 6800 feet long and an average of 1500 feet wide, and Sebarok Island 2400 feet long and 750 feet wide. Radar operators reported identifying the islands with considerable ease and at an average range of twenty-seven (27) miles. The axis of attack and initial point were considered also satisfactory for a radar approach and radar bombing.

3. A total of thirty-three (33) aircraft or seventy-three (73) per cent bombed the primary targets by either radar or the coordinated radar-bombardier blind release. Weather conditions were 8/10 to 10/10 cover hence results were mainly unobserved. Two bomb plots were received, however, of the radar bombing on Bukum Island. One plot showed damage on the southern end of the island while the second plot showed the bombs to have no range error and to be 3000 to 5000 feet to the right. The error in this case is believed due to an incompletely killed drift. Results on the bombing on the other two islands have not been received to date.

4. Storm conditions were again noted on the route as well as considerable cloud coverage over the assembly and initial points. Radar equipment was used during these periods extensively for navigation. Radar Operator - Navigator - Bombardier coordination was excellent.

B - Scope Photography

1. Photographic coverage was satisfactory. The islands as well as the approach could be clearly identified on a number of the pictures received.

2. Twenty-one (21) cameras were installed returning nine (9) sets of useable pictures. The bombing run could be traced on five (5) sets of photographs.

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C O N F I D E N T I A L

C - Serviceability

1. Radar equipment serviceability was average. All systems were operational at take-off and ninety-four (94) per cent over the target area.

2. Malfunctions were of the usual type. Only three (3) systems were completely inoperative and five (5) partially due to minor failures.

3. Auxiliary equipment was operational without any failures being reported.

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C O N F I D E N T I A L

II - RADAR TABLES

A - Bombing

DATA	40th Gp		444th Gp		462nd Gp		Total	
	No.	%	No.	%	No.	%	No.	%
Total A/C Bombing	11	-	22	-	12	-	45	-
A/C Bombing P.T. *	11	100	21	96	12	100	44	98
Visual	0	0	7	33	4	33	11	25
Radar	0	0	14	67	0	0	14	32
Blind	11	100	0	0	8	67	19	43
A/C Bombing S.T. *	0	0	1	4	0	0	1	2
Visual	0	0	1	4	0	0	1	2
A/C Bombing L.R.T. *	0	0	0	0	0	0	0	0
Total A/C Bombing By Radar or Blind *	11	100	14	64	8	67	33	73

* Percentage based on total A/C bombing
 Other %'s based on A/C bombing subject target

B - Photographic Results

DATA	40th Gp		444th Gp		462nd Gp		Total	
	No.	%	No.	%	No.	%	No.	%
No. Cameras Installed	8	-	7	-	6	-	21	-
K-24 Cameras	1	-	3	-	6	-	10	-
K-35 Cameras	7	-	4	-	0	-	11	-
No. Cameras in Abort, Early Return & Miss- ing A/C *	3	38	0	0	0	0	3	14
No. Cameras Complet- ing Mission *	5	62	7	100	6	100	18	86
No. Cameras in Radar & Camera Malfunction A/C #	0	0	1	16	3	50	4	22
Sets Pic. Returned #	5	100	4	57	1	17	10	55
No. Negatives Returned	29	-	50	-	4	-	83	-
Sets Pic. Useable**	4	80	4	100	1	100	9	90
Sets Pic. Tracing Bomb Run **	1	20	4	100	0	0	5	50

* Percentage based on cameras installed.
 # Percentage based on cameras completing mission.
 ** Percentage based on sets of pictures returned.

C - Serviceability

DATA	40th Gp		444th Gp		462nd Gp		Total	
	No.	%	No.	%	No.	%	No.	%
A/C Airborne	12	-	22	-	15	-	49	-
APQ-13 Operative at Take-Off *	12	100	22	100	15	100	49	100
A/C Bombing	11	-	22	-	12	-	45	-
APQ-13 Operative Over Target #	11	100	19	86	12	100	42	94
Q-13 Unrep. Failures Completely Inoper. #	0	0	3	13	0	0	3	7
Partially Inoper. #	2	18	0	0	3	25	5	11
Total	2	18	3	13	3	25	8	18
Q-13 Repaired in Flt. Auxilliary Equipment Failures	0	-	0	-	0	-	0	-

* % based on A/C airborne # % based on A/C bombing

C O N F I D E N T I A L

D - Malfunctions

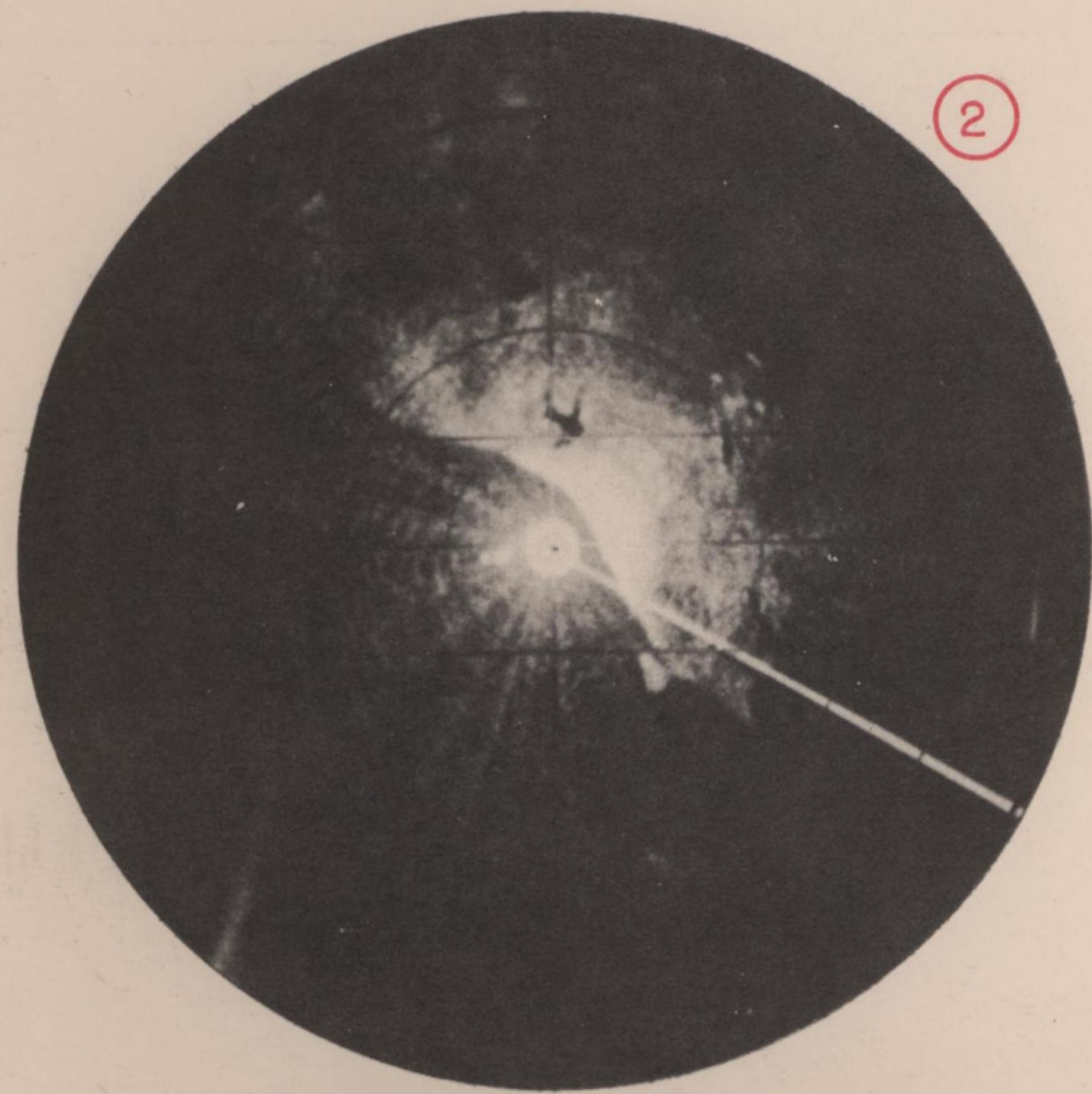
DATA	40th Group	444th Group	462nd Group	Total Group
<u>Between Take-Off & Target</u>				
Completely Inoperative: R.F. Unit Failure	-	3	-	3
Partially Inoperative: Pressurization	2	-	-	2
No Sweep on 100-Mile Range	-	-	1	1
Lubberline Out	-	-	1	1
<u>Between Target and Landing</u>				
Partially Inoperative: Spoking on 100-Mile Range	-	-	1	1

537-12/3/45

ALL ALTITUDES 21,300. SWEEPS 30 MILES.

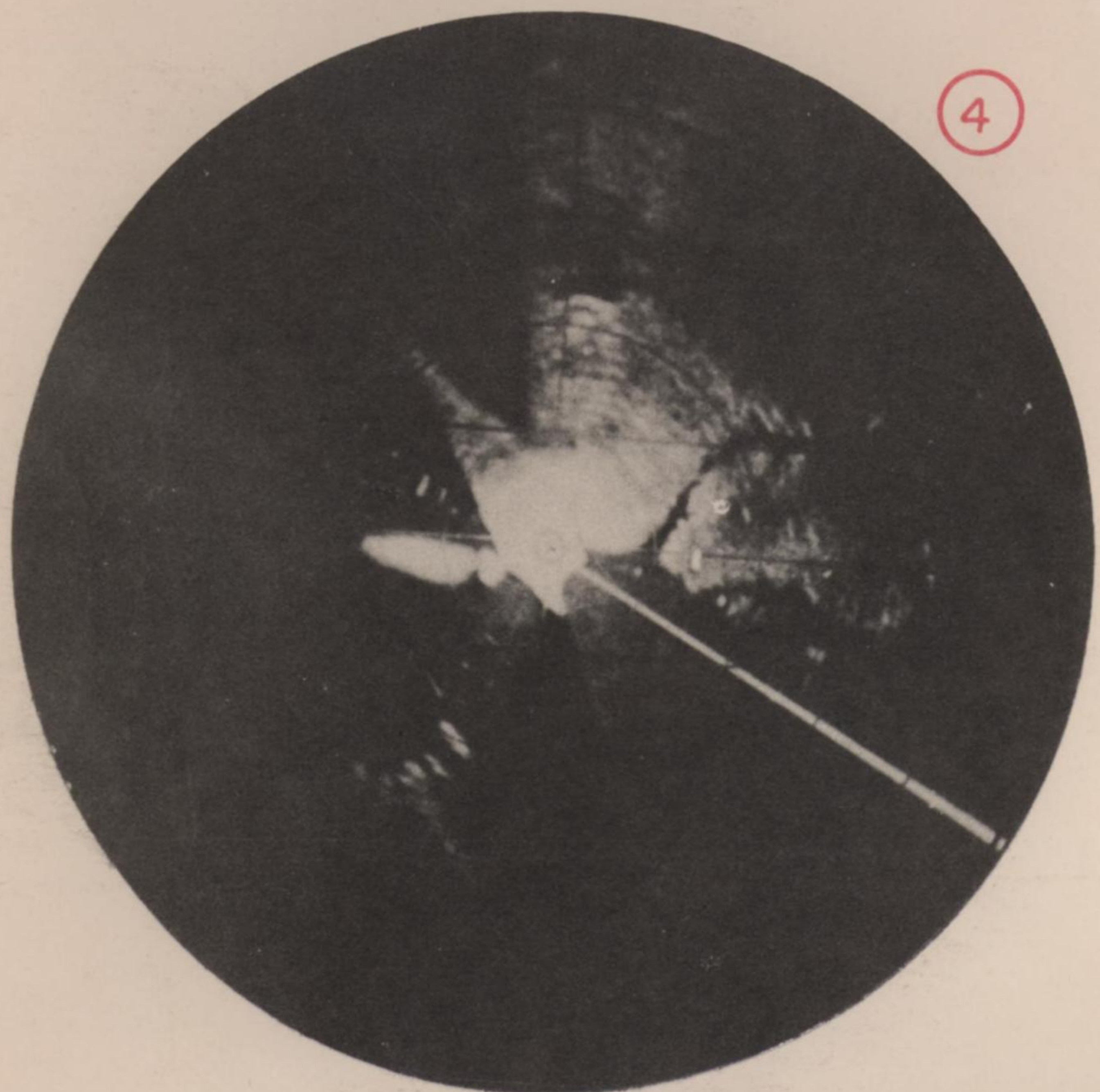
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RADAR PHOTOGRAPH ANALYSIS
SINGAPORE AREA - MALAY STATES
MISSION NO. 42

DECLASSIFIED
Authority NND 760063
By SPJ NAKA Date 12/13/85

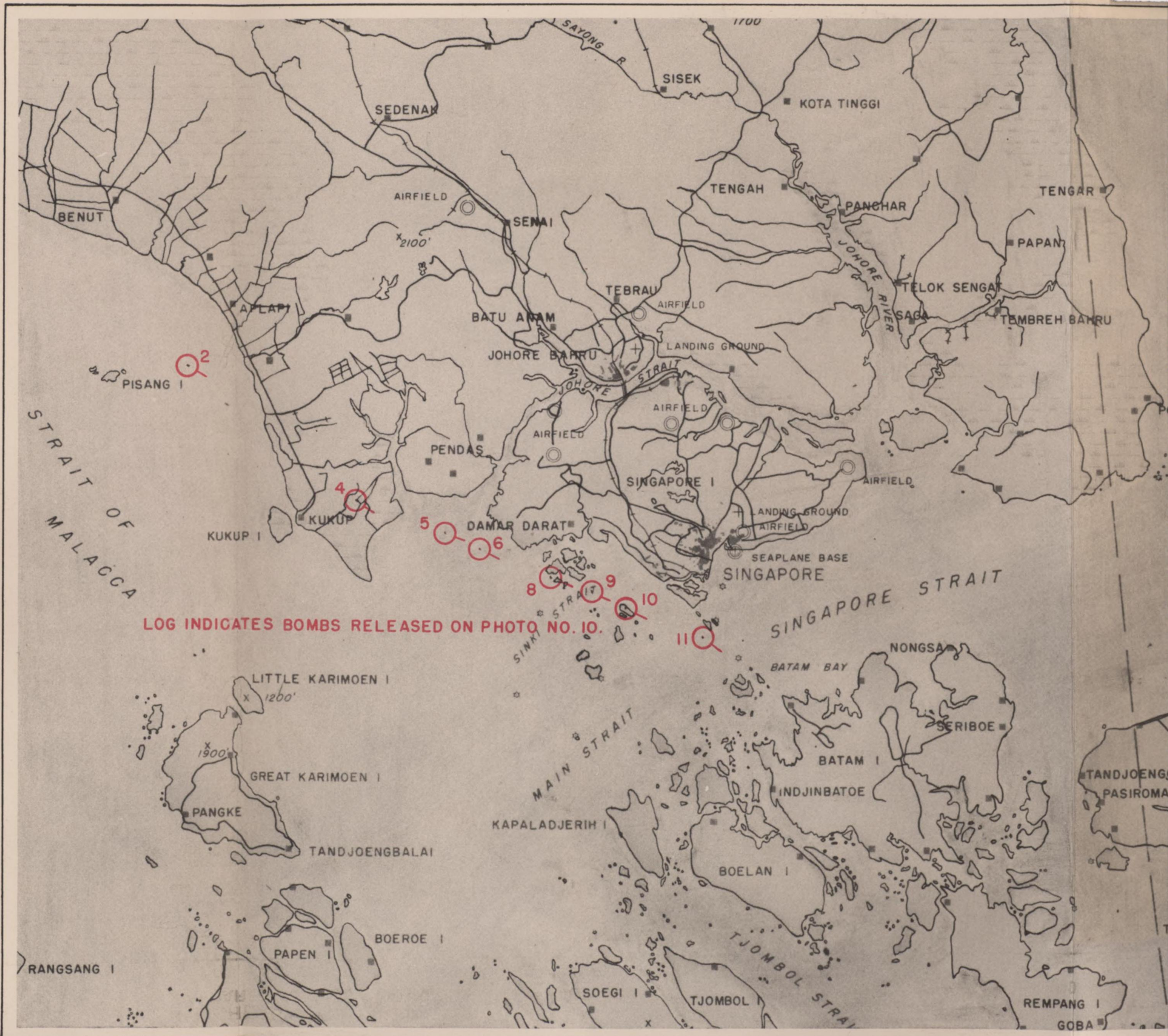


2

HEADING 118° MAG.



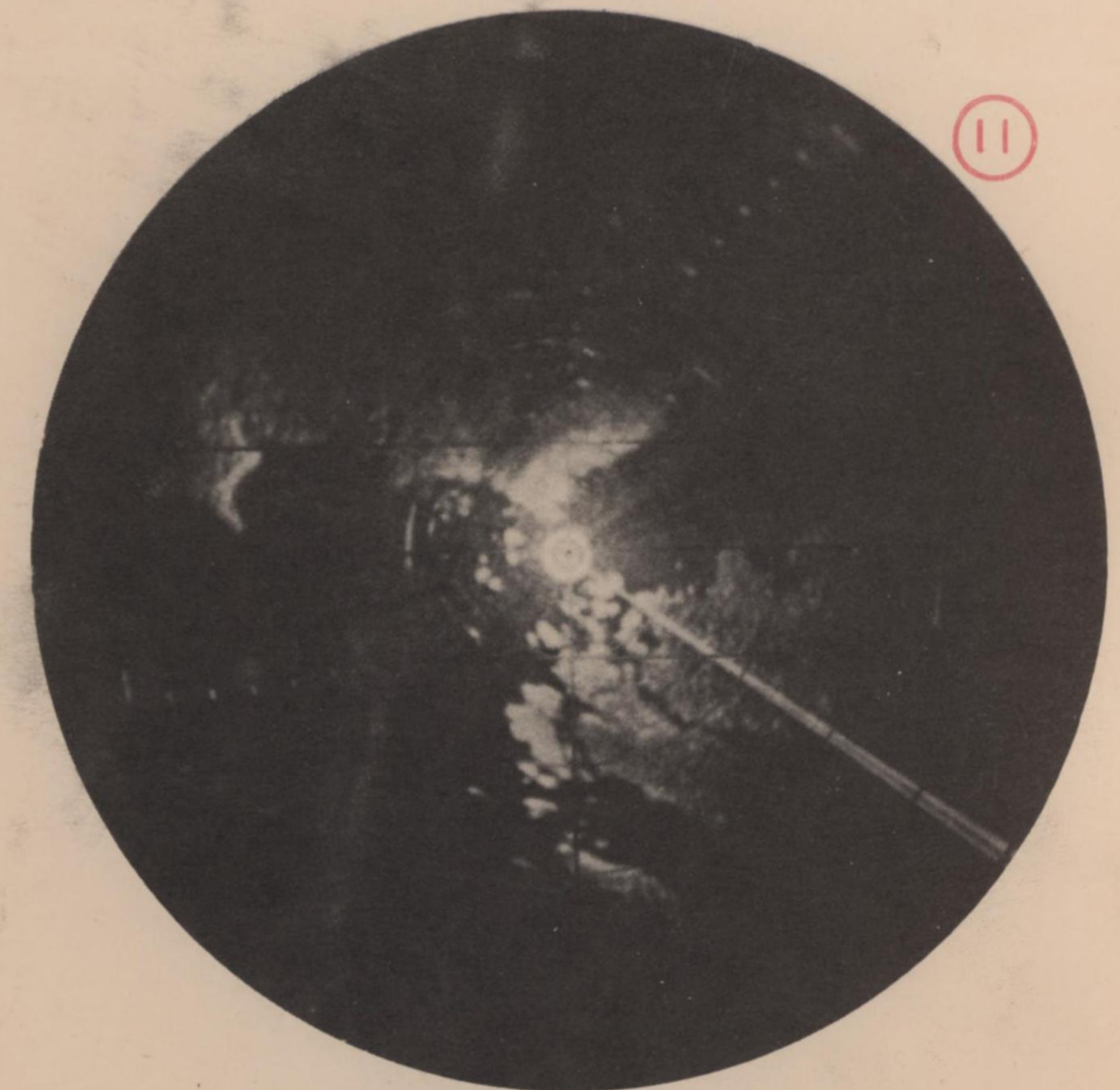
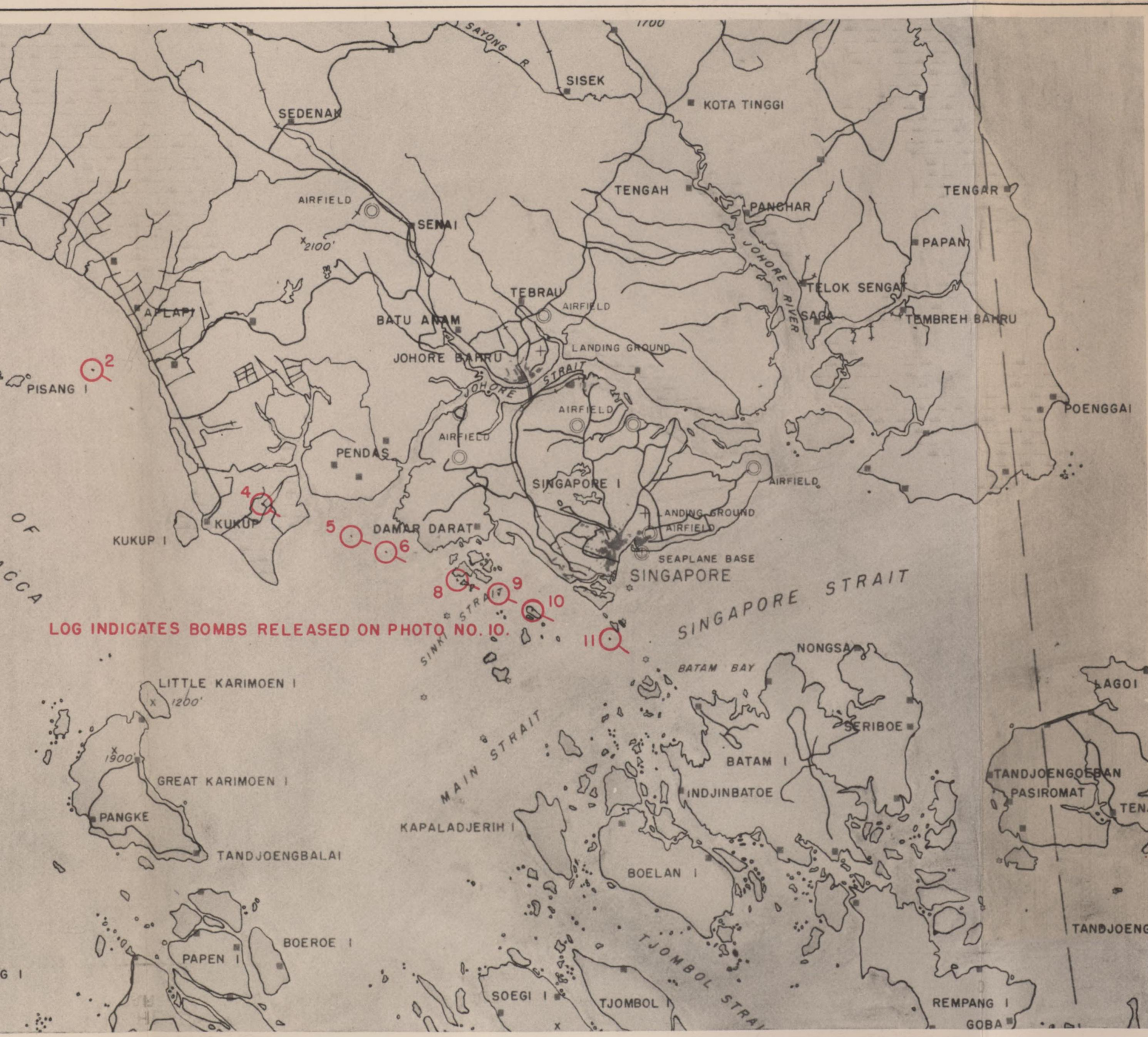
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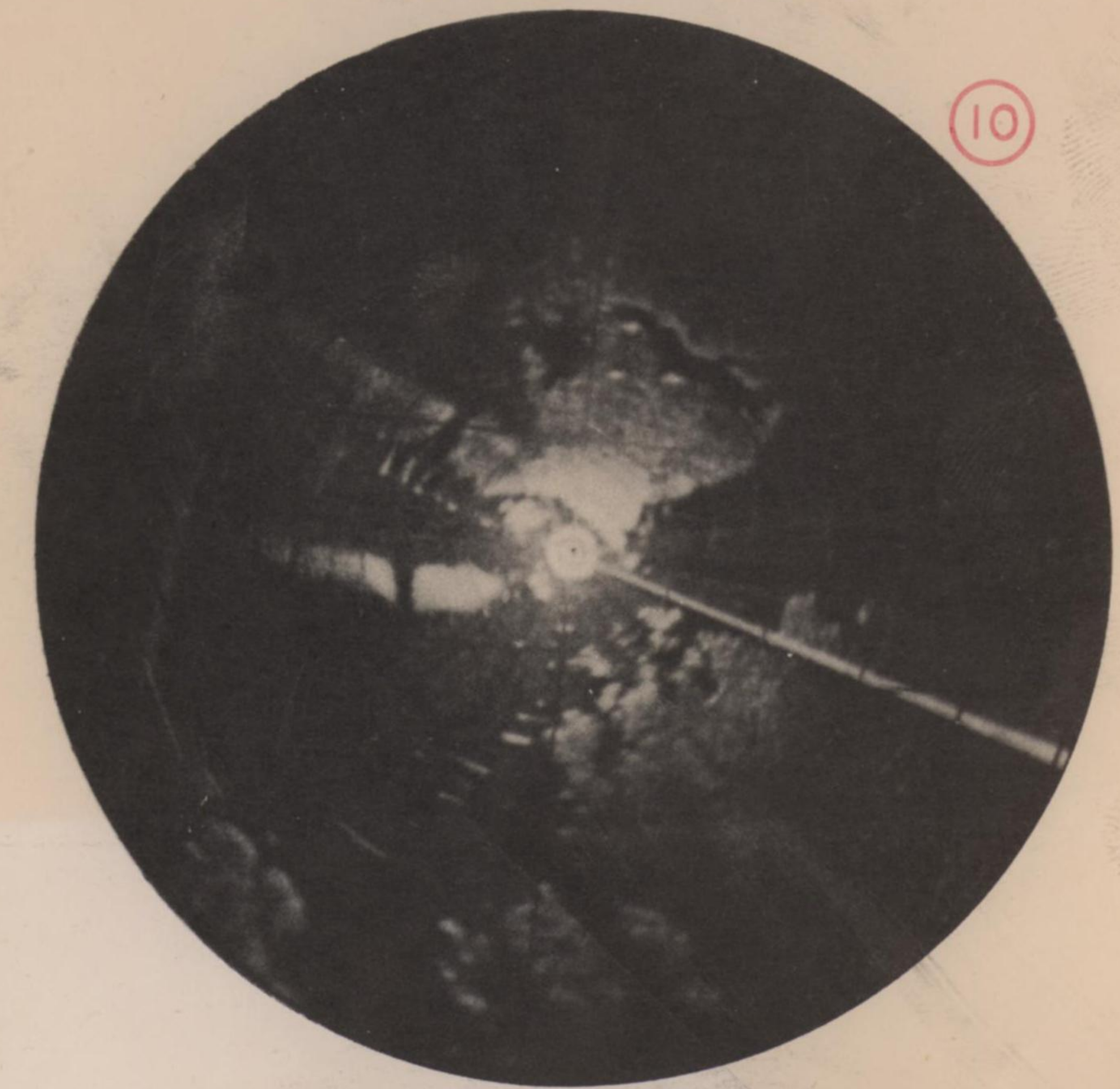
LOG INDICATES BOMBS RELEASED ON PHOTO NO. 10.

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 RADAR PHOTOGRAPH ANALYSIS
 SINGAPORE AREA - MALAY STATES
 MISSION NO. 42

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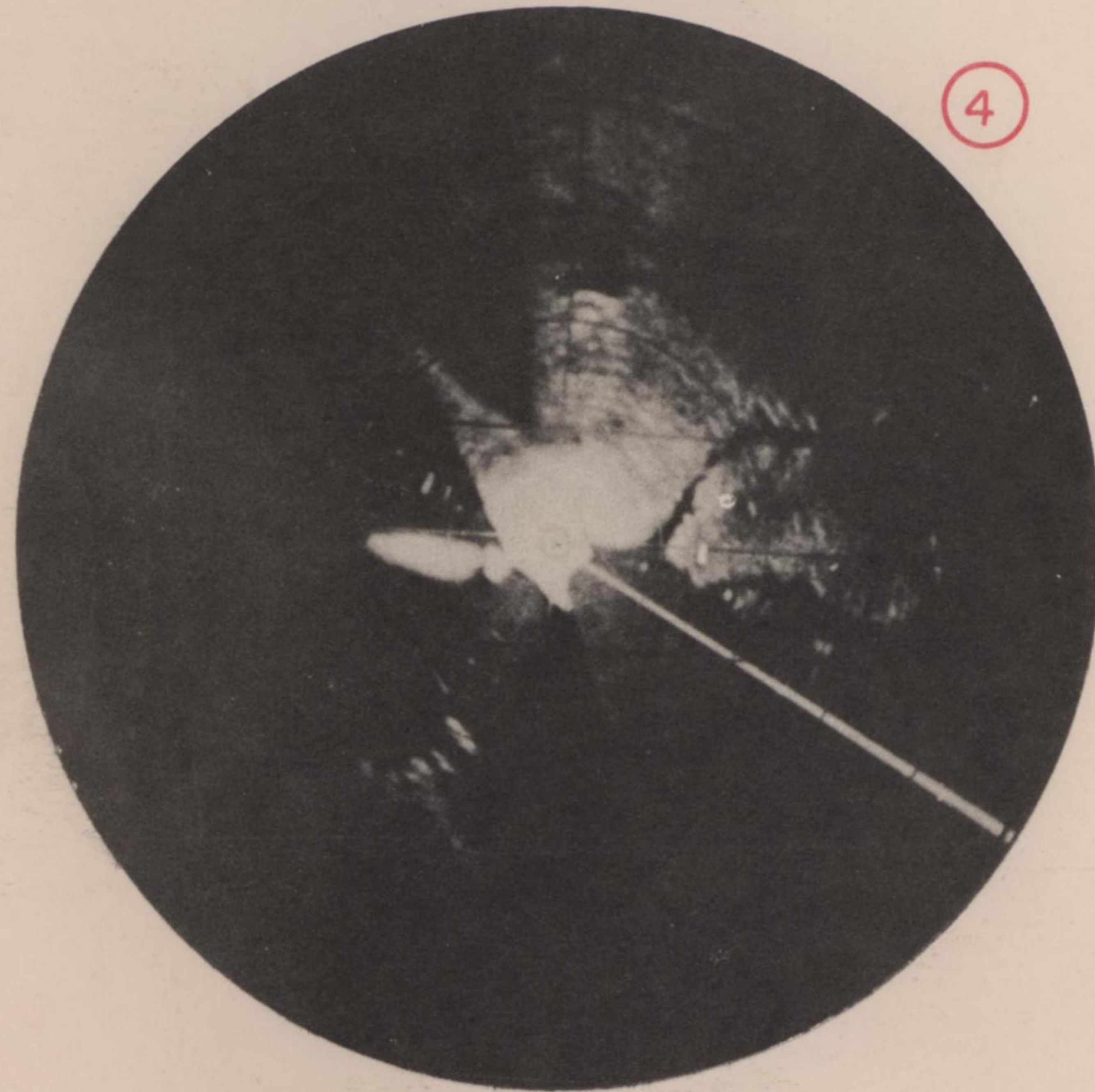
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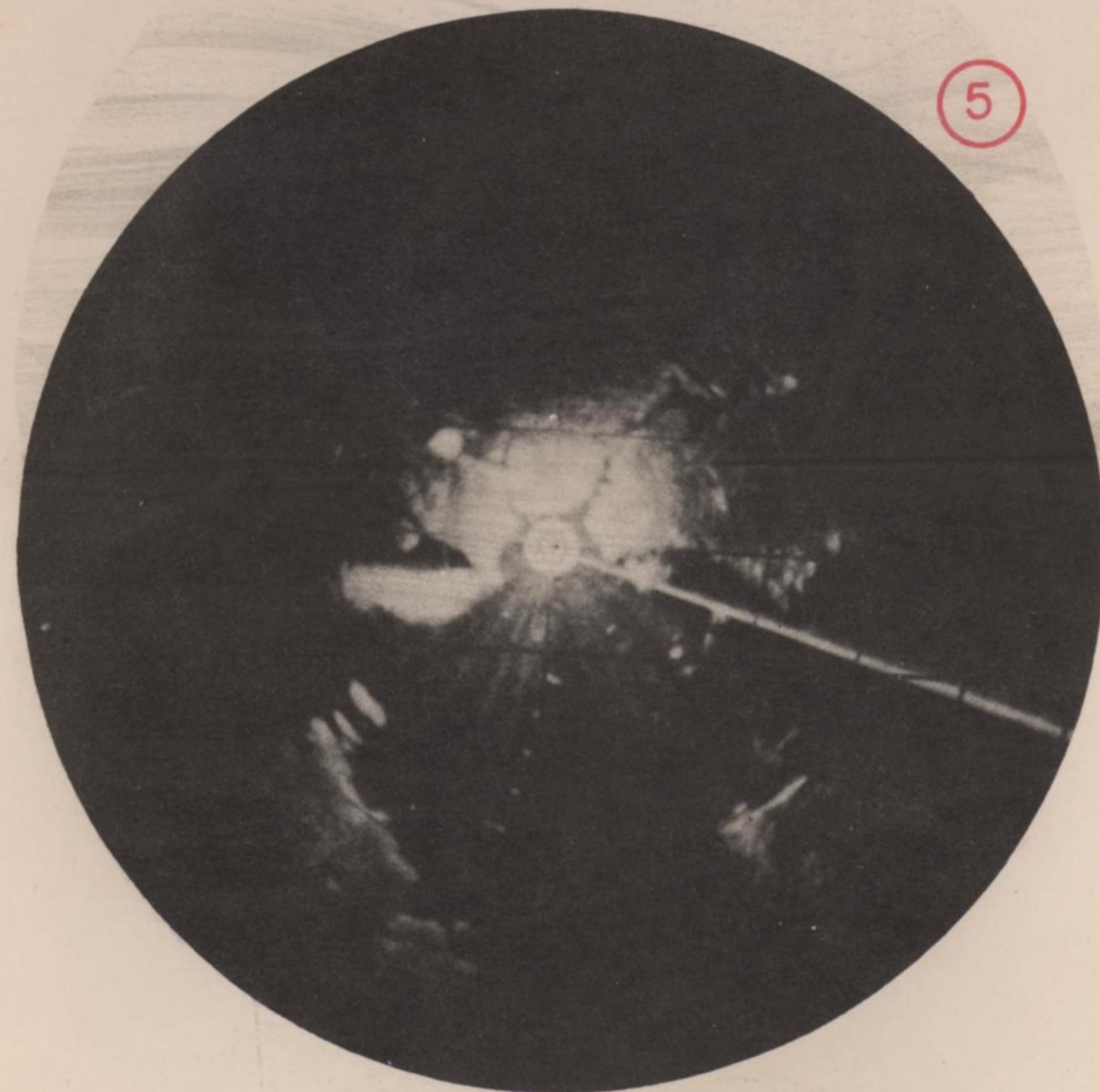
HEADING 112° MAG

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 Authority NND 760063
 By SP NAKA Date 12/13/05

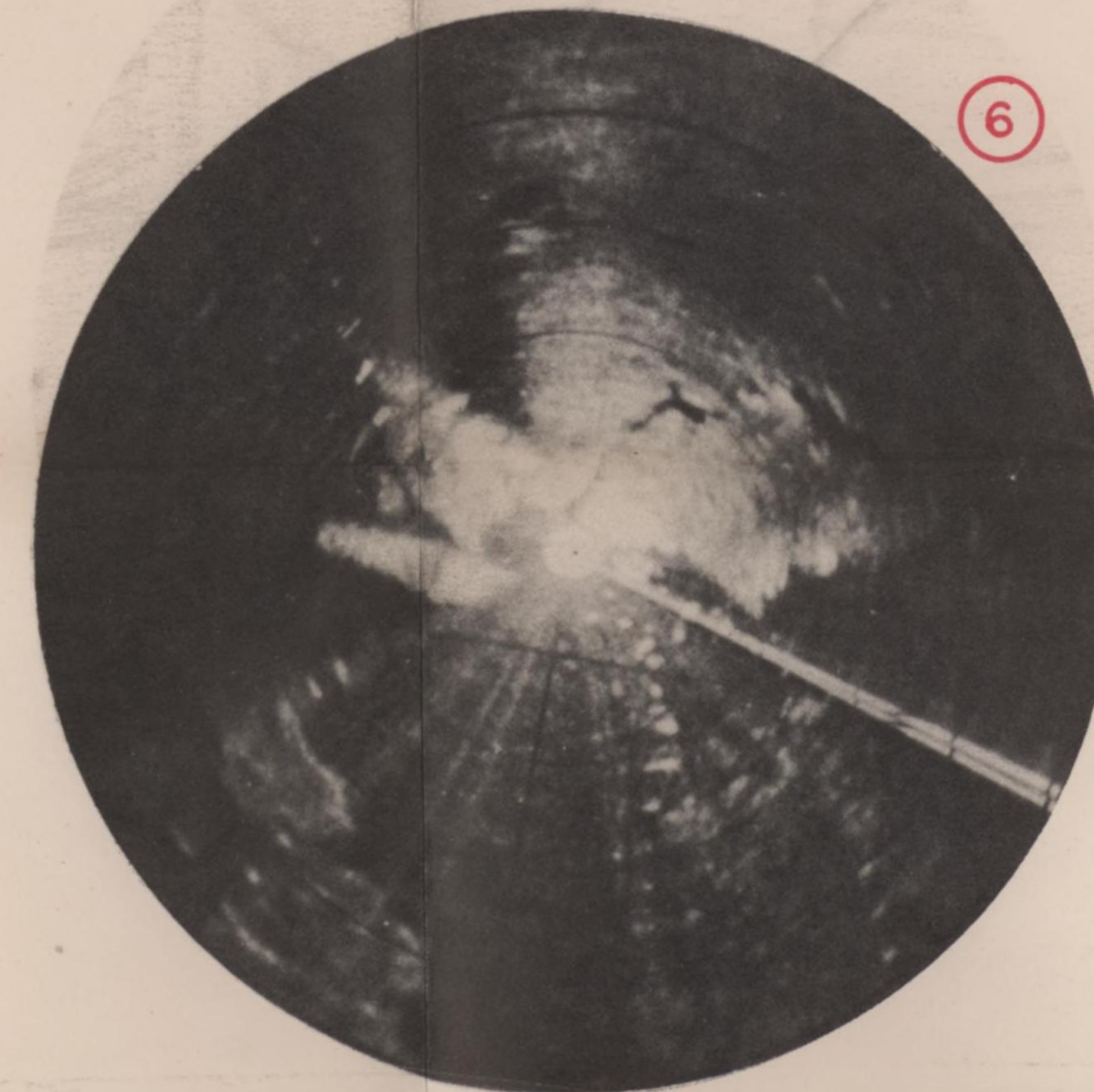
HEADING 118° MAG.



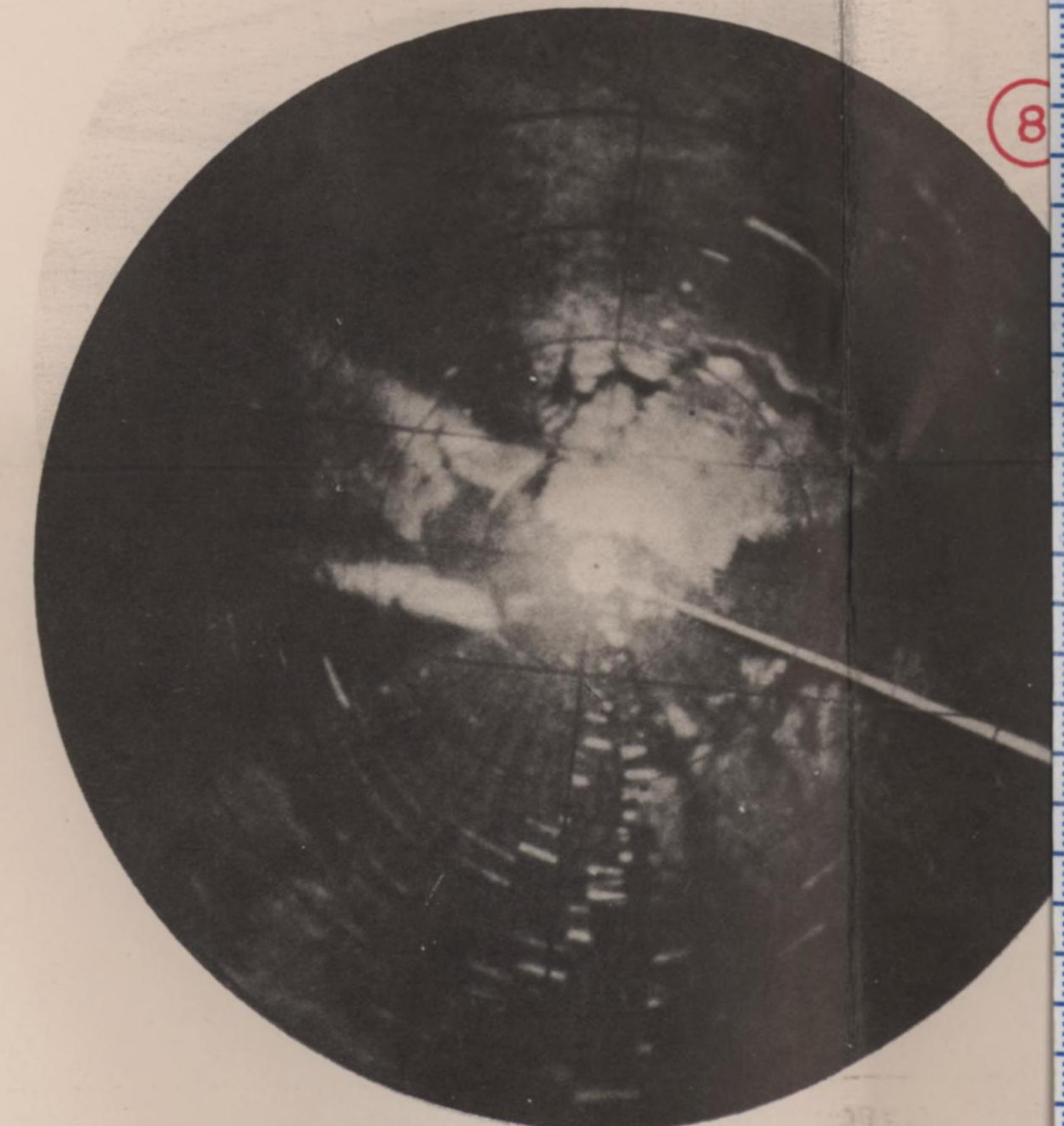
HEADING 122° MAG.



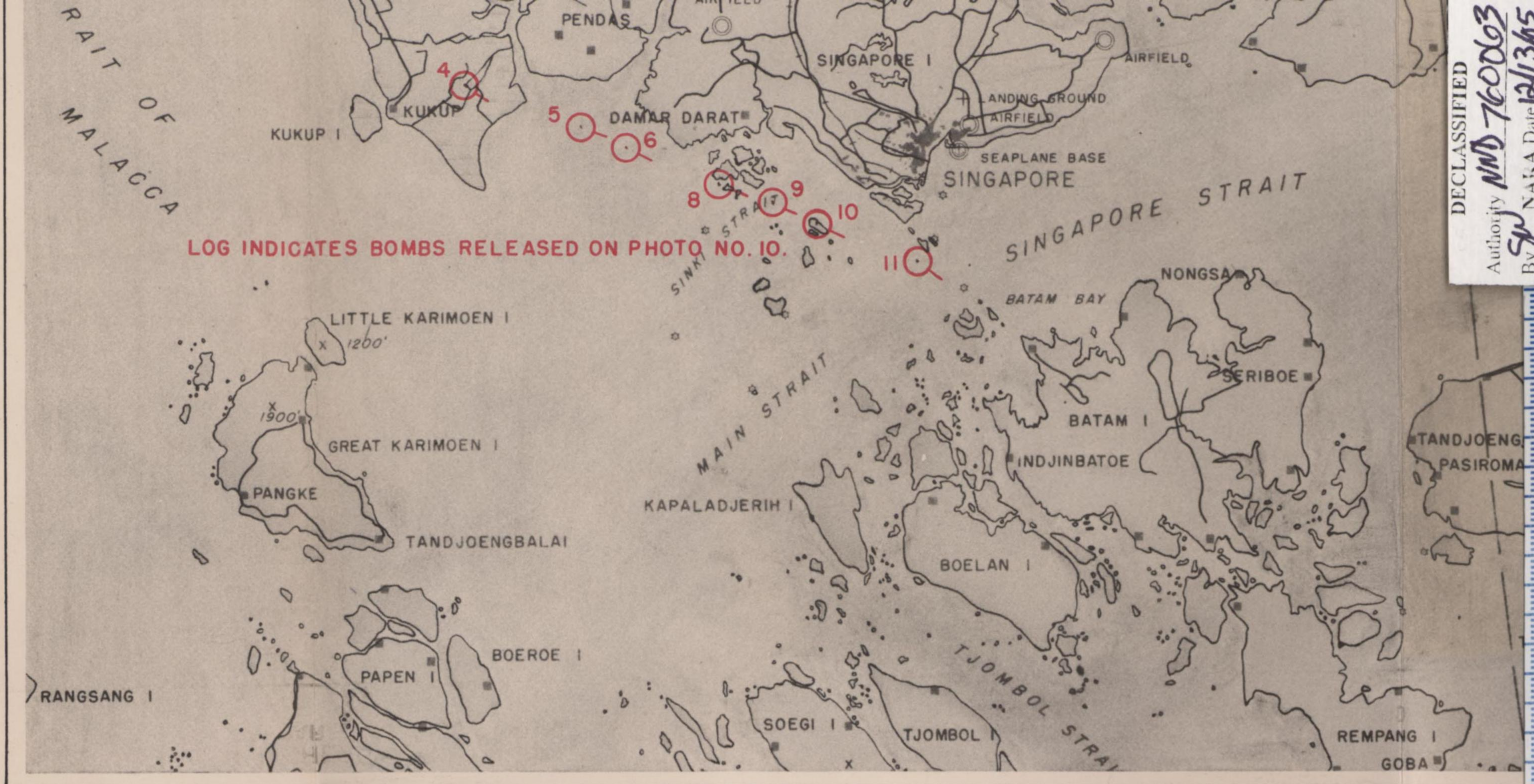
HEADING 109° MAG.



HEADING 117° MAG.
PREPARED BY RADAR INTELLIGENCE, TARGET UNIT, INTELLIGENCE SECTION - XX BOMBER COMMAND

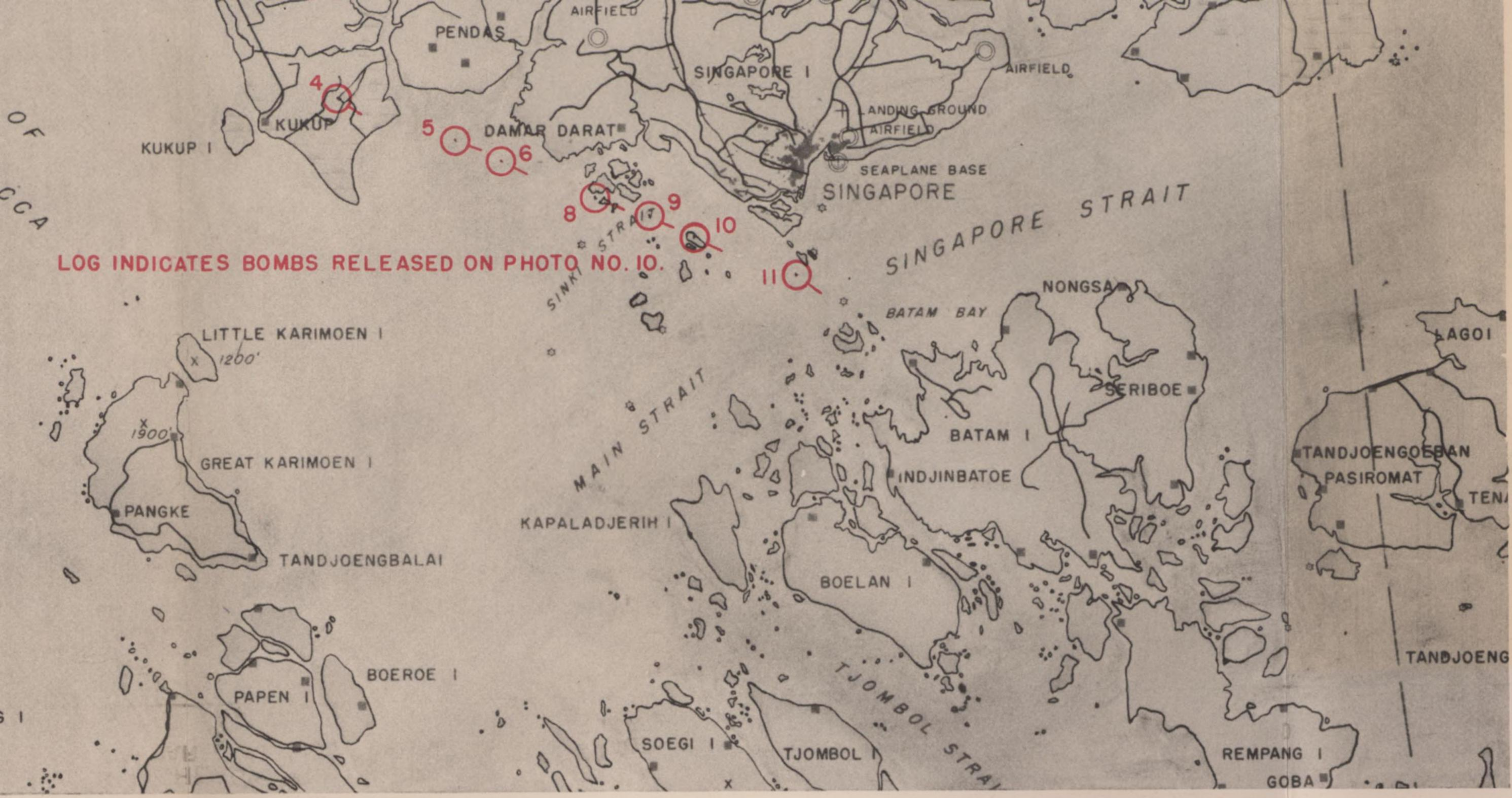


HEADING 112° MAG.

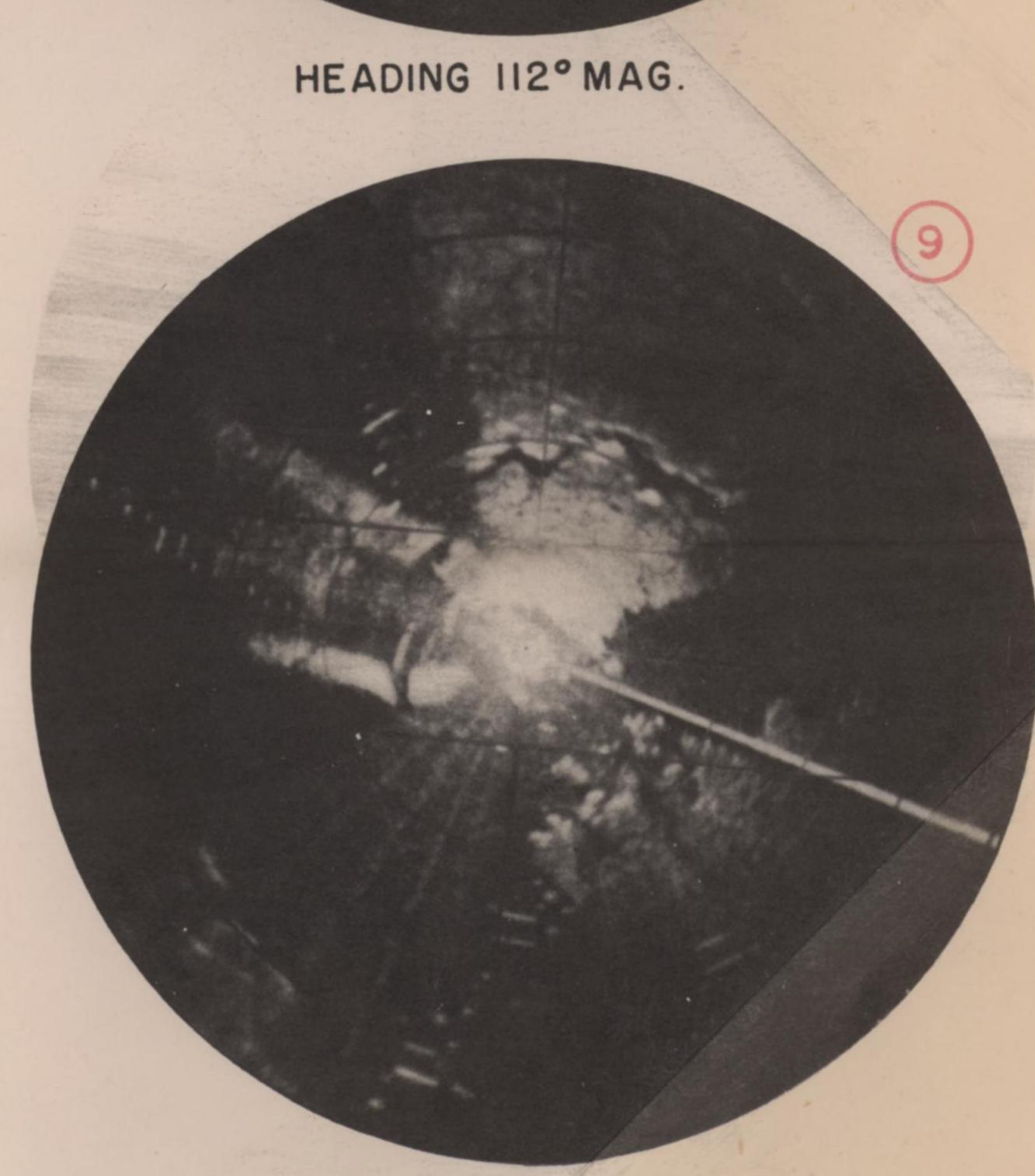
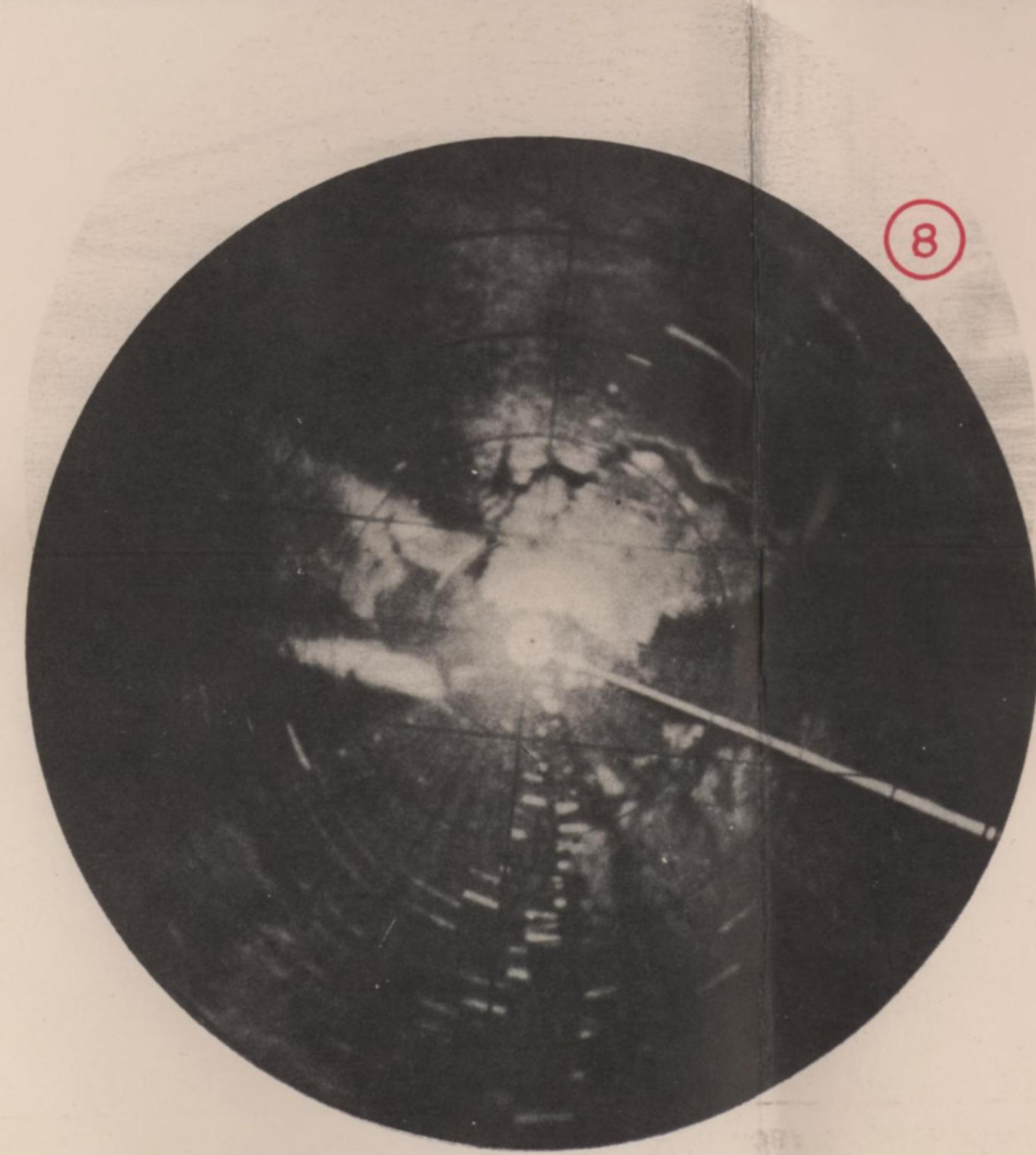
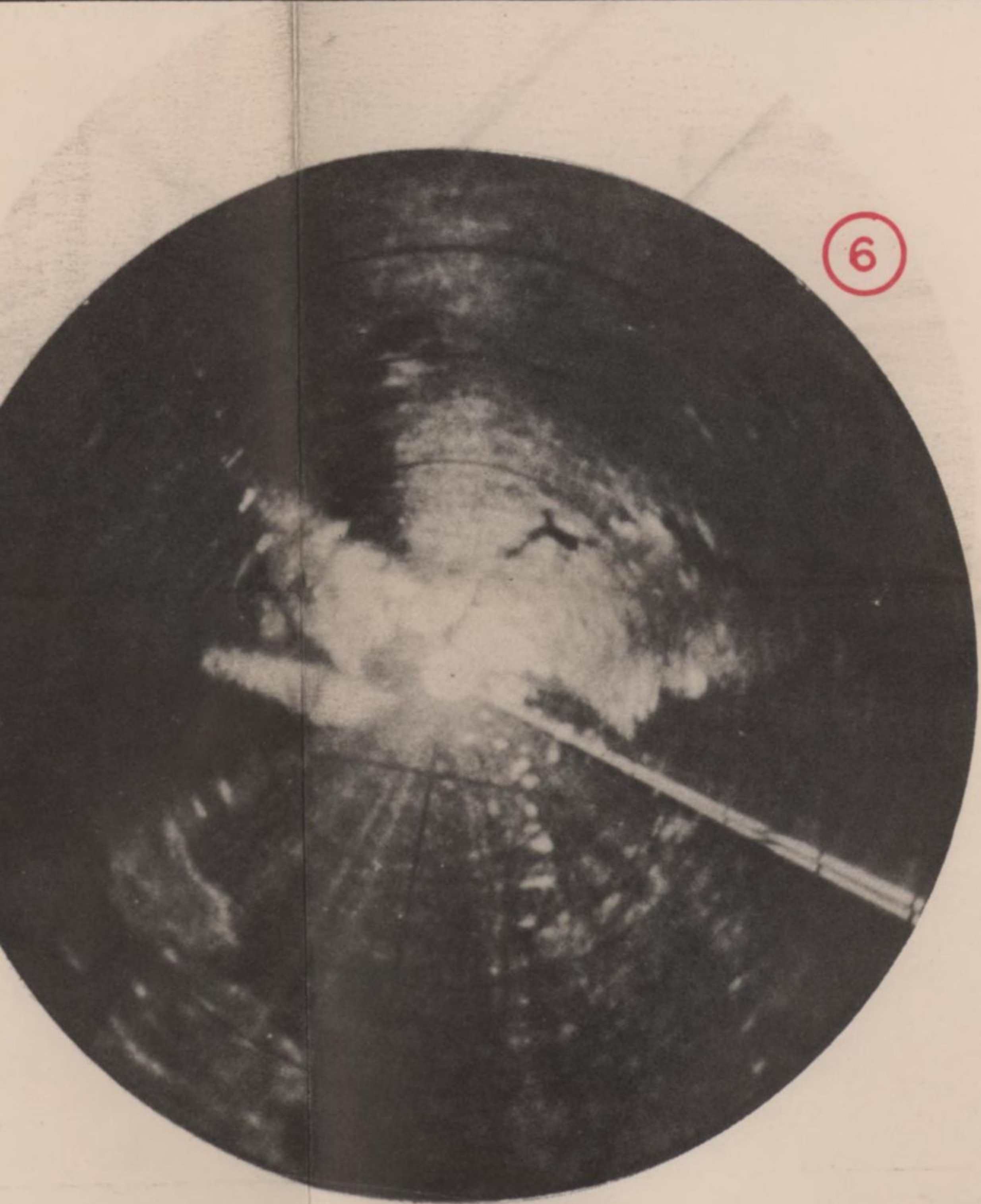


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By SPJ NAKA Date 12/13/05

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LOG INDICATES BOMBS RELEASED ON PHOTO NO. 10.



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By SPJ NAKA Date 12/13/05

C O N F I D E N T I A L

ANNEX

G

RCM INFORMATION

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*****  
* Prepared by: *  
* RCM Section *  
* XX Bomber Command *  
*****
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C O N F I D E N T I A L

C O N F I D E N T I A L

TWENTIETH AIR FORCE
Office of the Deputy Commander, IB & C
AFO 493

23 March 45

SUBJECT: RCM Report - Combat Mission No. 42, Singapore,
2 March 45 - Daylight.

TO : Commanding General, Twentieth Air Force,
Washington 25, D. C.

A. General

Three RCM search aircraft, each with one RCM observer, participated in this mission. The observers searched for early warning radar enroute to and from the target and for radar fire control equipment while in the target area.

B. Results

The Penang-Medan early warning radar sites were first intercepted as the aircraft entered the Malacca Strait area. In addition, the Mk 1 Model 1 radar sites guarding the Singapore area were also in operation. This warning should have alerted the enemy of the impending strike. The initial fighter attack did not occur, however, until 33 minutes after first bombs away.

1. Penang Island Area: The two Mk 1 Model 1 radar sites known to be in this area were in operation and were logged as tracking. No rotation was noted.

a. 102/460/15: Two good sets of D/F cuts were again obtained on this radar site with the intersection of cuts indicating that the radar site is located on the mountain peak (100°16'E 5°21'N). The radar came on strong at 2330Z, approximately 6½ hours after take off.

b. 103/490/13: This radar was also logged as tracking and two sets of D/F cuts indicate that the radar site is located at approximately 101° E 6°N. There is some indication that the operation of this radar is coordinated with the 102/460/15, Penang radar.

-1-

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2. Medan area: 77/490/46. Two sets of D/F cuts were made on this radar which again indicates Medan as the location of the radar site. This radar is undoubtedly used to pass bearing and range data to fighters based at the Medan airfield.

3. Port Dickson Area:

a. 106/1038/11. Four D/F cuts were obtained on this radar enroute to the target. Intersection of cuts is at approximately 101°55'E 2°32'N which substantiates the D/F cuts obtained on this radar on Mission No. 33. The radar was logged as weak and searching.

b. Two D/F cuts indicate that a 140/1030/13 radar site is also located in this area. This radar will be carried as suspected pending further verification.

4. Singapore Area:

a. 100/375/55. On Mission 41, fair D/F cuts located this radar south of Singapore in the Boelan Island area. However, on this mission 6 good D/F cuts place the radar site in the naval yard area at approximately 103°50'E 1°25'N. It is interesting to note that on missions to the Anshan-Mukden area, a radar site with similar characteristics was D/F'ed to the Liaotung Gulf and it was assumed that the radar was on a barge (picket boat). It is possible that the 100/375/55 radar site is also installed on a barge (picket boat) and between missions 41 and 42 the picket boat location changed from the Boelan Island area to the Johore Strait area.

b. 98/500/7: D/F cuts indicate that this Mk I Model 1 radar site is located on the Southwest tip of the Malay Peninsula at approximately 103°30'E 1°20'N. Due to the similarity in characteristics to the 100/500/10 radar previously D/F'ed to Singapore Island (105°48'E 1°18'N), the radar site D/F'ed to the Malay Peninsula will be carried as suspected pending further verification.

c. Due to the usual naval activity in the Singapore area, Mk 2 Model 1 shipborne radar is often intercepted. D/F cuts indicate two shipborne

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radar sites in the Johore Strait area: 187/735/14; 192/730/12. One other set of D/F cuts intersect in the Malacca Straits: 199/980/12-15.

d. The 106 Mc. Mk 1 Model 1 was not in operation.

5. 200/1025/11.5: A Mk 1 Model 2 radar site was D/F'ed to Sumatra at approximately 101°16'E 00°55'N. The location is not ideal for a radar site. This radar, however, may be used to pass bearing and range data to fighters based on Pasir-Pengarajan and Pakan-Baroo airfields. This radar site will be carried as suspected pending further verification.

6. Pekan Area (103°25'E 3030'N): 100/347/58. D/F cuts indicate that a modified Mk 1 Model 1 is located in the Pekan area on the east coast of the Malay Peninsula. On Mission #27, intercept data suggested a 100/540/35 radar to be located in this same area. This radar site will be carried as suspected pending further verification.

7. Port Blair Area: 97/785/12. Enroute home two good sets of cuts were obtained on this radar site. Mt. Harriet is a possible location.

8. Great Coco Area: It is believed that this 195/970/10 radar is no longer in operation although occasional intercepts with similar characteristics are often logged in this area. It is possible that these occasional intercepts originate from the allied radar picket boat which was D/F'ed west of the North Andaman Island area. The picket boat has the following characteristics: 196/1025/11.

9. D/F cuts were obtained on allied land and naval radar sites.

10. Gun Laying Radar:

a. In the target area, all anti-aircraft fire was meager and inaccurate and believed to have originated from land based guns. This inaccuracy, coincident with no gun laying radar intercepts, indicates the non-employment of gun laying radar.

b. A 200/980/3.5 intercept made at the assembly point could possibly have originated from gun laying equipment. However, no anti-aircraft fire was encountered.

C O N F I D E N T I A L


C. Enemy Countermeasures

There were no reports of jamming or deception by the enemy.

D. Equipment

1. A PE-218 inverter failed one hour after bombs away and in-flight maintenance failed to rectify the malfunction.
2. A D/F antenna slipped out of the drive unit due to a loose holding nut.

FOR THE DEPUTY COMMANDER:


LEO I. HERMAN
Colonel, Air Corps
Actg. Adjutant General

-4-

C O N F I D E N T I A L

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By *SW* NARA Date *12/13/05*

C O N F I D E N T I A L

ANNEX

E

CENTRAL STATION FIRE CONTROL AND GUNNERY

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* * * * *
* Prepared by *
* * * * *
* Staff Gunnery Officer *
* * * * *
* XX Bomber Command *
* * * * *
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C O N F I D E N T I A L

C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
AFO 493

CONSOLIDATED
SPECIALISTS MISSION
REPORT OF
STAFF GUNNERY OFFICER

Date prepared: 15 March

Date of Mission: 12 March 1945
Field Order Number: 42

1. Enemy opposition on this mission was rated very weak. Japanese pilots were not aggressive, generally, although two B-29's received minor damage. The mission is considered satisfactory in regard to gunnery.

2. The following statistical data is submitted:

	<u>40th</u>	<u>444th</u>	<u>462nd</u>
Ammunition used test firing	1266	2180	1280
Ammunition used in combat	0	2310	1400
Malfunctions of C.F.C. equipment	0	2	0
Total turrets on mission	55	110	75
Malfunctions of cal.50 MGS	1	3	1
Total MGS on mission	132	264	180
Total airplanes (included in report)	11	22	15
Total percent malfunctions C.F.C. 1% cal. 50 MGS 1%			

H-I-1

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By SW NARA Date 12/13/05

C O N F I D E N T I A L

ANNEX

I

CAMERAS AND PHOTOGRAPHS

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By *SW* NARA Date *12/13/15*

I - CAMERAS AND PHOTOGRAPHS

Mission No. 42

12 March 1945

Group	40th				444th				462nd				Totals			
	K-17	K-18	K-20	K-22	K-17	K-18	K-20	K-22	K-17	K-18	K-20	K-22	K-17	K-18	K-20	K-22
Cameras airborne	1	3	12	4	0	6	4	6	1	1	2	10	2	10	12	20
No. in A/C failing to bomb any target	0	0	1	0	0	0	0	0	1	0	1	2	1	0	2	2
No. in A/C bombing targets	1	3	11	4	0	6	4	6	0	1	1	8	1	10	16	18
No. photographing targets	1	2	2	3	0	5	4	6	0	1	1	5	1	8	7	14
Failing to photograph - for mechanical reasons	1X	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Failing to photograph - for other reasons - Y	0	1	9	1	0	1	0	0	0	0	0	3	0	2	9	4
No. of usable negatives - Z	0	12	4	32	0	9	0	12	0	0	0	2	0	21	4	36 46

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- X - B-7 intervalometer failed to function properly; photos probably of little value because of cloud cover.
- Y - 7/10 to 10/10 cloud cover over the PT made photography useless in most cases; pictures were not taken in all cases listed here, because of the cloud cover at the PT.
- Z - The number of usable negatives was greatly reduced by reason of the extensive cloud cover, many photos registering only clouds.

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ANNEX

J

AIRCRAFT LOSSES AND DAMAGE

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By *SW* NARA Date *12/13/05*

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I - AIRCRAFT LOSSES AND DAMAGE

Mission No. 42

12 March 1945

A. Aircraft Losses

There were no aircraft lost on this mission.

B. Aircraft Damaged

Two aircraft received minor damage as a result of enemy action. A/C 711 (462nd) had a small hole in the fuselage at the Navigator's station, and A/C 336 (462nd) had holes in the cowlings of its #1 engine. In addition A/C 336 suffered minor damage to the bomb bay doors when its tanks were salvoed.

J-I-1

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ANNEX

K

FUNCTIONING OF EQUIPMENT

- I - Functioning of Equipment
- II - Performance Data *

* Prepared by Staff Flight Engineer

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By *SW* NARA Date *12/13/05*

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I - FUNCTIONING OF EQUIPMENT

Mission No. 42

12 March 1945

1. Aircraft Airborne	49
2. A/C bombing primary target	44
3. A/C failing to bomb primary - mechanical	
a. Bombed secondary target	1
(1) A/C 538 (444th) - excessive oil consumption #1 and #2 engines	
b. Jettisoned bombs	2
(1) A/C 733 (40th) - oil leaks #2 and #4 engines, cooler base cracked on #2, and distributor leaking on #4	
(2) A/C 459 (462nd) - high oil temperature	
4. A/C failing to bomb primary - other reasons	
a. Jettisoned bombs	2
(1) A/C 336 (462nd) - enemy action resulting in damage to #1 engine	
(2) A/C 503 (462nd) - personnel error	
Total	49

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HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT
OF STAFF FLIGHT ENGINEER

Date Prepared: 14 March 1945

Field Order No. 42
Date of Mission: 11 Mar 45

1. The summary of performance of the aircraft bombing the primary target is contained in the attached table.
2. Bomb loads were greater than any previously carried to the Singapore Area. This was achieved by increasing the starting gross weights to approximately 135,000 pounds.

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SUMMARY OF PERFORMANCE
 FIELD ORDER NO. 42
 PRIMARY TARGET

Group		Overall	40th	444th	462nd
*No. of Aircraft		42	10	21	11
Total Time		17:40	17:27	17:39	17:54
Time to Target		8:58	8:45	9:00	9:14
Fuel Burned	Ave.	7150	7270	7184	7160
	Max.	7600	7600	7475	7400
	Min.	6950	6950	6950	6890
Fuel Carried	Ave.	7900	7900	7900	7900
	Max.	7900	7900	7900	7900
	Min.	7900	7900	7900	7900
Burnable Reserve	Ave.	700	630	715	740
	Max.	1010	950	950	1010
	Min.	300	300****	330	500
**Air Miles		3926	3927	3911	3945
Ground Miles		3831	3875	3810	3830
**Gal/Air Mile		1.84	1.88	1.83	1.81
***Bombing Alt.		21,500	22,000	21,500	21,000
Starting Gross Weight	Ave.	134,940	134,275	135,193	135,100
	Max.	135,637	134,686	135,637	135,484
Weight of Bombs	Min.	133,688	133,688	133,587	134,555
	Ave.	4405	4115	4660	4465
No. of Bombs	Max.	5260	4170	4715	5260
	Min.	3625	3625	4170	4170
	M-64	6.7	5.9	6.9	6.7
	M-76	1.9	2	2	1.8

*Aircraft that bombed the primary target and returned to their own base.
 **Air miles are of doubtful accuracy due to difficulty in determination.
 ***Pressure altitude.
 ****Returned from target with three cowl flaps of one engine wide open and one nacelle door partly open.

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ANNEX

L

TARGET DAMAGE ASSESSMENT

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* * * * *
* Prepared by: *
* * * * *
* Target Intelligence Unit *
* * * * *
* XX Bomber Command *
* * * * *
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C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
AFC 493

20 March 1945

DAMAGE ASSESSMENT REPORT NO. 43

TARGET: Bukum Island Tank Farm, Singapore Area (01°14'N--103°46'E)

GENERAL STATEMENT:

This report relates to damage resulting from a daylight attack by 22 aircraft of XX Bomber Command on 12 March 1945, Mission No. 42. This was a multiple attack on oil storage installations in the Singapore Area with the 40th Bomb Group attacking Samboe Island, the 444th Bomb Group attacking Bukum Island, and the 462nd Bomb Group attacking Seberok Island. Damage inflicted on Samboe and Seberok Islands will be the subject of separate reports when post-attack photography is available. Assessment of damage herein described is derived from good quality photography obtained by the 468th Bomb Group, XX Bomber Command, on 14 March 1945.

The attack was accomplished by 6 formations of from 2 to 6 aircraft over the target from 0209Z to 0256Z. Altitudes of bombing ranged from 20,500' to 23,200'. Weather encountered varied from 8/10 to 10/10 undercast. Total tonnage dropped on the target was approximately 51 short tons of bombs. Of the 6 formations conducting the attack all except 2 were forced to use radar bombing procedures because of heavy clouds. The bombs from the 2 formations releasing visually scored hits along the NE section of the Island, items (1) through (8), (see attached annex). Damage listed under item (9) was effected from bombs released using radar technique.

Damage inflicted included the destruction of a long shed type building, 1 leg of a wharf, a small machine shop, a filling shed, 3 covered piers, and a small unidentified building. Another pier was damaged as were 2 dormitory-like structures, 3 small workshops, and the Installation office. Bombs falling near the north-central part of the Island destroyed a section of trackage and pipe lines and scattered a quantity of loose stores about.

REFERENCES: (1) I.S.T.D. Report No. B.R. 877 J, Plan No. 95.

WEIGHT OF ATTACK: 21 Aircraft 444th Bomb Group, 1 Aircraft 462nd Bomb Group.
146-134 GF, 42-176 IB, approximately 51.23 short tons.

PHOTOGRAPHY: (1) Strike photos 5MB44, 12 March 1945, quality and scale variable (badly cloud obscured).
(2) XX BC Mission 5MR37, 24 February 1945, scale approximately 1:11,000, quality excellent (pre-strike).
(3) XX BC Mission 5MR47, 14 March 1945, scale approximately 1:8,500 and 1:11,000, quality good (post-strike).

ANNEXES: (1) Photo Damage "Blow-out".

REMARKS: Numbers in parentheses preceding statements below refer to corresponding numbers on the attached photo plot, Annex 1.

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-1-

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By *SW* NARA Date *12/13/05*

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DETAILS OF DAMAGE:

- (1) A near miss off of an oil tank may have effected damage but no damage is apparent from the air photos.
- (2) A long narrow shed type building on the site of Godown No. 12 has been destroyed. A section of the Decaville Tracks and a pipe line trench just N of the shed have been destroyed by several direct hits. A considerable quantity of loose stores to the S and W of the shed are seen scattered about. At least some of the stores are believed to be oil drums.
- (3) The eastern-most leg of R.C. Wharf No. 4 has been destroyed.
- (4) Approximately 1/3 of a dormitory-like structure has been destroyed and a small part of a similar building has been damaged. .
- (5) A small machine shop has been destroyed and three nearby sheds have been damaged.
- (6) Several direct hits destroyed approximately 1/2 of the Installation office and damaged the remainder.
- (7) The Filling Shed near Factory No. 1 has been almost entirely destroyed.
- (8) A small tank just NE of item (7) has been damaged. At least one hit nearby may have effected damage. Cloud obscured strike photos showed a large secondary explosion at this point indicating hits on volatile material, probably a pipe line.
- (9) Three covered piers have been destroyed and another damaged. A smaller unidentified building has also been destroyed. This damage resulted from bombs released by radar.
- (10) A small barrack-like building just S of the northern-most tank farm has been destroyed or removed.

Frank L. Scott, Jr.
FRANK L. SCOTT, JR
Colonel, Air Corps
Chief, Intelligence Section

PREPARED BY: TARGET UNIT
INTELLIGENCE SECTION

C O N F I D E N T I A L

-2-

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By *SW* NARA Date *12/13/05*

ANNEX I
D. A. REPORT NO. 48
BUKUM ISLAND
TARGET UNIT, XX B.C.
0 500' 1000'
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Authority *NND 760063*
By *SW* NARA Date *12/13/05*

C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
APO 493

26 March 1945

DAMAGE ASSESSMENT REPORT NO. 53

TARGET: Malayan Collieries, Batu Arang, Malaya (03°19'N-101°28'E)

GENERAL STATEMENT:

This report relates to damage resulting from a series of four day-light attacks by aircraft of the XX Bomber Command. The Malayan Collieries was a target of opportunity on Mission 37, and was designated the secondary target on Missions 38, 41, and 42.

Aircraft and bomb dispositions are shown in the following table;

Mission:	37	38	41	42
Date:	19 Feb 1945	24 Feb 1945	2 March 1945	12 March 1945
Bomb Group & No. of A/C:	444th: 4 A/C	40th: 1 A/C 462nd: 1 A/C 468th: 2 A/C	444th: 2 A/C 468th: 1 A/C	444th: 1 A/C
Bombs Dropped:	24 M-65 1000 pound G.P., fuzed .1 nose and .025 tail	38 M-17 (E-4) aimable cluster 500 pound incendiary bombs	23 M-64 500 pound Amatol filled bombs	2 AN-M-64 TNT filled G.P. bombs and 2 M-76 P.T. incendiary bombs
Short Tons:	12.23 tons	8.72 tons	6.25 tons	1.00 tons
Bombing Altitudes:	12,000'	15-21,000'	12-23,000'	12,000'
Time Over Target:	190247Z	240129Z/ 240233Z	020225Z/ 020319Z	120115Z
Weather:	CAVU/3/10 undercast	CAVU/3/10 undercast	10/10 undercast	CAVU
Method of Bombing:	Visual	Visual	Radar, visual ETA	Visual
Assessment of Damage Accomplished from:	Strike Photos and Mission 5MR32 on 19 February 1945 taken by 40th Bomb Group of XX Bomber Command, excellent quality	Strike Photos and Mission 5MR-37 on 24 February 1945, taken by the 462nd Bomb Group of XX Bomber Command, excellent quality	Mission 5MR-47 on 14 March 1945, taken by 462nd Bomb Group of XX Bomber Command, poor quality	Same photos as used for Mission 41.

Damage caused by attack of Mission 37 on 19 February 1945, resulted in the complete demolition of 13 residences and minor damage to 4 residences located approximately 2600 feet S.W. of the industrial group of buildings of the Malayan Collieries (see (1) on Annex (1)).

C O N F I D E N T I A L

C O N F I D E N T I A L

Damage caused by attack of Mission 38 on 24 February 1945, resulted in one shop building, 110' x 314', being 50% destroyed and 13% damaged. Two shops, 72' x 264' and 39' x 115', were destroyed and one warehouse, 30' x 105' was destroyed. Six residences were destroyed (see (2) on Annex (1)).

Damage caused by the attacks of Mission 41 on 2 March 1945, and of Mission 42 on 12 March 1945, resulted in additional destruction of approximately 1,700 sq. ft. to the 110' x 314' shop previously damaged. One residence was destroyed (see (3) Annex (1)).

REFERENCES: (1) AAF Target Chart, Malay States, No. 92.1-60.

WEIGHT OF ATTACK:

Mission:	37	38	41	42
Aircraft:	4 Aircraft	4 Aircraft	3 Aircraft	1 Aircraft
Bomb Load:	24 M-65 1000 pound G.P. bombs fuze .1 nose, and .025 tail.	38 M-17 (E-4) aimable cluster 500 pound incendiary bombs.	23 M-64 500 pound Amatol filled bombs	2 AN-M-64 TNT filled G.P. bombs. 2 M-76 P.T. incendiary bombs.

PHOTOGRAPHY:

Mission:	37	38	41	42
	(1) Strike Photos 5MB37, 19 Feb 1945, quality fair, scale approximately 1:6250	(1) Strike Photos 5MB38, 24 Feb 1945, quality excellent, scale approximately 1:10,000	(1) XX Bomber Command Mission 5MR37, 24 Feb 1945, quality excellent, scale approximately 1:10,000 (Pre-strike)	Same as used for Mission 41.
	(2) XX Bomber Command Mission 5MR32, 19 Feb 1945, quality excellent, scale approximately 1:5500 (Post-Strike)	(2) XX Bomber Command Mission 5MR32, 19 Feb 1945, quality excellent, scale approximately 1:5500 (Pre-strike)	(2) XX Bomber Command Mission 5MR47, 14 March 1945, quality poor, scale approximately 1:6500 (Post-strike)	
		(3) XX Bomber Command Mission 5MR37, 24 Feb 1945, quality excellent, scale approximately 1:10,000 (Post-strike)		

ANNEXES: (1) Damage Plan Mosaic.

DETAILS OF DAMAGE: For details of damage see Damage Plan Mosaic, Annex 1.

PREPARED BY: TARGET UNIT
INTELLIGENCE SECTION

FRANK L. SCOTT, JR
Colonel, Air Corps
Chief, Intelligence Section

C O N F I D E N T I A L

LEGEND



DESTROYED



DAMAGED

ANNEX I
D. A. REPORT NO. 53
MALAYAN COLLIERIES
BATU ARANG, MALAYA AREA
TARGET UNIT, XX B. C.
CONFIDENTIAL



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ANNEX

M

CONSOLIDATED MISSION STATISTICAL SUMMARY

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* * * * *  
*  
* Prepared by: *  
* * * * *  
* Statistical Control Section *  
* * * * *  
* XXI Bomber Command *  
* * * * *  
* * * * *
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C O N F I D E N T I A L

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY
 Mission Number Forty Two
 12 March 1945

Table I and II - Aircraft Participating *

Group	Mission No.	Field Order No.	**A/C Sched For Miss.	A/C Taking Off	Airborne A/C Failing to Bomb Designated Primary Target								Time of First Takeoff	Time*** of Latest Return	Aver. Time of Flight ***	
					Total No.	Percent	Reason								A/C Bombing Primary	Airborne A/C Not Bombing Primary
							Mech.	Pers.	Wea.	Not in Form	Misc.	E/Action				
40th	42	42	15	12	1	8.3%	1						1707Z	1124Z	17:33	2:48
444th	42	42	30	22	1	4.5%	1						1658Z	1200Z	17:39	15:43
462nd	42	42	15	15	3	20%	1	1				1	1700Z	1113Z	17:51	4:13
TOTAL	42	42	60	49	5	10.2%	3	1				1	1658Z	1200Z	17:41	6:44

* Mission was run from Rear Area Bases; Tables I and II consolidated because there was no Rear to Forward Area Movement.
 ** Field Order #42 required 40th Gp to furnish 15 A/C; 444th Gp to furnish 30 A/C; 462nd Gp to furnish 15 A/C; see Table X.
 *** Excludes aircraft which landed at other fields.

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Table III - Bombing Runs

Group	No. of A/C Bombing	Target Bombed	Time of Release		Altitude of Release		Visual Bomb A/C Sighting For		Radar Bomb A/C Sighting For		Blind Bomb A/C Sighting For		On The Leader			A/C Dropping on A/C	
			Earliest	Latest	Highest	Lowest	R&D	Range	R&D	Range	R&D	Range	Visual	Radar	Blind	AFCE	Manual
40th	11	Samboe	0143Z	0206Z	23600	22000					4				7	4	7
444th	21 1	Bukum Batu Arang	0209Z 0115Z	0256Z 0115Z	23400 12000	20500 12000	2 1				4		5		10	6 1	15
462nd	11 * 1	Sebarok Bukum	0218Z 0215Z	0235Z 0215Z	21400 21200	20900 21200	1				3		3		4 1	4	7 1
TOTAL	44 1	Singapore Batu Arang	0148Z 0115Z	0256Z 0115Z	23600 12000	20500 12000	3 1				11		8		22	14 1	30

Primary Target - 40th Gp. - Samboe Island; 444th Gp. - Bukum Island; 462nd Gp. - Sebarok Island; all Primary targets are in the Singapore Area.

Secondary Target - Malayan Collieries, Batu Arang, Malay.

Last Resort Target - Main Rutted Area at Khao Huagang, Thailand.

* Flew in formation with 444th and bombed 444th primary.

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Table IV - Bomb Loading & Disposal

Group	*Type of Bombs	Bomb Loading on A/C Airborne in R.A.			On Targets					Bomb Disposal		
		Fusing		Average No. Loaded	Total Loaded	Samboe	Bukum	Sebarok	Batu Arang	Jettisoned	Returned	Unknown
		Nose	Tail									
40th	500# M64	.1	N.D.	5.9	71	65				6		
	500# M76	Inst	N.D.	2.0	24	22				2		
444th	500# M64	.1	N.D.	7.0	153		146		7			
	500# M76	Inst	N.D.	2.0	44		42		2			
462nd	500# M64	.1	N.D.	6.7	100		7	74		19		
	500# M76	Inst	N.D.	1.9	29		3	19		7		
TOTAL	500# M64	.1	N.D.	6.6	324	65	153	74	7	25		
	500# M76	Inst	N.D.	2.0	97	22	45	19	2	9		

* AN-M64 - 500# G.F. - Actual weight 535.4 pounds.
 AN-M76 - 500# Incendiary - Actual weight 469.2 pounds.

NOTE: Bomb weight information supplied by Ordnance Section, XX Bomber Command.

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Table V - Aircraft Lost and Damaged

Aircraft Lost

Negative Report.

Aircraft Damaged

Major Damage

Negative Report.

Minor Damage

<u>Group</u>	<u>Serial Number</u>	<u>E/A</u>	<u>A/A</u>	<u>Own Guns</u>	<u>Other</u>	<u>Explanation</u>
462nd	24711	X				Hole in fuselage at Navigators Station.
	65336	X			X	#1 Cowling and Bomb door when tanks were salvaged.
		2 *			1	

* One aircraft damaged by E/A and other.

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Table VI - Attacks & Passes by Enemy Aircraft

DIRECTION	ALTITUDE									TOTAL		
	HIGH			LOW			LEVEL			40th	444th	462nd
	40th	444th	462nd	40th	444th	462nd	40th	444th	462nd			
0800												
0900												
1000		3	1								3	1
1100		12	2								12	2
1200		4	6								4	6
0100		1	4								1	4
0200												
0300												
0400												
0500												
0600												
0700		1									1	
TOTAL		21	13								21	13

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Table VII - Personnel Losses

Crew Position	Killed			Missing			Seriously Wounded			Slightly Wounded			Total Casualties			Total Participating		
	40	444	462	40	444	462	40	444	462	40	444	462	40	444	462	40	444	462
Pilot																13	22	15
Co-pilot																12	22	15
Navigator																12	22	15
Bombardier																12	22	15
Flt. Engineer																12	22	15
Radar																12	22	15
Radio																12	22	15
CFC Spec																12	22	15
Right Gnr																12	22	15
Left Gnr																12	22	15
Tail Gnr																12	22	15
R C M																		
Others																1	5	6
Photo																		
TOTAL																134	247	171

NEGATIVE REPORT

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Table VIII - Expenditures of Ammunition and Claims Against Enemy Aircraft

Group	Ammunition Expended Per Plane In Combat Firing					Total Expended	Claims Against Enemy Aircraft			Per 1000 Pounds Expended in Combat		
	Upper Front	Lower Front	Upper Rear	Lower Rear	50 cal. Tail		Destroyed	Probably Destroyed	Damaged	Destroyed	Probably Destroyed	Damaged
40th	0	0	0	0	0	0	0	0	0	-	-	-
444th	26	14	21	32	13	2310	0	0	0	-	-	-
462nd	54	4	23	4	8	1400	0	0	1	-	-	.71
TOTAL	28	8	16	16	8	3710	0	0	1	-	-	.27

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Table IX - Gasoline Loading and Consumption

Group	Average Gross Weight Per Plane Before Rear Area Takeoff	Average Gals Gas Loaded Per A/C Before Rear Area Takeoff	* Average Gallons Consumed on Mission		* Average Gallons Remaining in A/C After Mission	
			Per Aircraft Bombing Primary	Per Aircraft Not Bombing Primary	Per Aircraft Bombing Primary	Per A/C Not Bombing Primary
40th	134249	7900	7269	1650	631	6250
444th	135187	7891	7174	6100	716	1300
462nd	135123	7900	7161	3900	739	4000
TOTAL	134926	7896	7193	3890	702	4010

* Excludes A/C which did not return directly to home fields.

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Table X - Airborne A/C Failing to Bomb Primary Target

A/C Serial Number	Specific Mechanical Malfunction	Other Reasons	Local Action To Prevent Recurrence
<u>40th Group</u>			
24738	Bad oil leak in #2 and #4 Engines. On #2 engine an oil hose to the oil cooler was cracked and on #4 the distributor was leaking.		Required maintenance performed.
<u>444th Group</u>			
24538	Excessive Oil Consumption on #1 and #2 engines.		Engines replaced U.R. # 45-112, 45-113 submitted.
<u>462nd Group</u>			
63459	Oil Cooler--high oil temperature. Solder found in regulator.		Changed Oil Cooler. U.R. #45-127 submitted.
63503		Pilot reported #3 Engine torching and #2 Engine cutting out. Checked out O.K. on 5 hour test flight. Considered personnel error.	
65336		Enemy shells struck the engine cowling resulting in several holes. Pilot feathered the engine.	

Scheduled Aircraft Failing To Become Airborne On Mission

Group	A/C Ser. No.	Reason
40th	24620	A Lead had broken in a cannon plug and #2 prop governor would not operate.
	63527	Liaison radio transmitter would not put out nor would the dynamotor operate.
	24739	#2 prop would not hold high RPM; this was a new governor and inspection proved it to be set at 2600 RPM instead of 2800 RPM.
444th	65202	Prop governor went out at takeoff.
	63411	#1 Engine failure on take-off. Crashed and blocked the runway.
	24861	A/C 63411 blocked the runway and A/C was unable to take-off.
	24897	Same as 24861.
	24731	Same as 24861.
	24472	Same as 24861.
	63422	Same as 24861.
	93857	Same as 24861.

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Table XI - Engineering Malfunctions

Part I - Engineering Malfunctions Preventing Airborne A/C From Bombing Primary

		40th	444th	462nd	Total
POWER PLANT & ACCESSORY SECT.	Excessive Oil Consumption		1		1
<hr/>					
OIL SYSTEM	Oil Leaks	1			1
	Oil Temperature Regulator			1	1
<hr/>					
TOTAL		1	1	1	3

NOTE: For details, see Table X - "Summary of A/C Failing to Bomb Primary".

Part II - Engineering Malfunctions Not Preventing A/C From Bombing Primary

		40th	444th	462nd	Total
POWER PLANT & ACCESSORY SECT.	Engine Running Rough			2	2
	Cowl Flaps	1			1
<hr/>					
OIL SYSTEM	Oil Leaks	1	2	1	4
<hr/>					
FUEL SYSTEM	Carburetor			2	2
	Fuel Pressure Low	1			1
<hr/>					
ELECTRICAL SYSTEM	Generators	1			1
	Voltage Regulator		1	1	2
	Fluctuating Main Inverter	1			1
<hr/>					
INSTRUMENTS	Cylinder Head Temp. Gage		1	1	2
	Rear Oil Press. Gage			1	1
	Trailing Antenna Motor		1		1
	Radio Compass	1			1
	Flight Indicator		1		1
	AFCE	1	1		2
	Radio Compass Aerial Broken	1			1
<hr/>					
MISCELLANEOUS	Blown Blister		1		1
	Rudder Trim Tab Bound			1	1
	Nacelle Door Malfunction	1			1
	Oxygen System	1			1
	Cracked Blisters	2			2
	Landing Gear	1			1
<hr/>					
TOTAL		13	8	9	30

NOTE PERTAINING TO BOTH PART I AND PART II:

Only engineering malfunctions are listed. All other malfunctions, such as radar, are excluded. If one aircraft had more than one engineering malfunction, all malfunctions have been listed.

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Table XIII - Utilization of Useful Load
 (Based on A/C Bombing P.T.)

Group	No. of Ground Miles	Number of A/C Considered	Type of A/C	Average Gross Weight at Takeoff For Mission	Average Basic Weight of A/C	Average Useful Load	Average Number of Bombs Loaded	* Average Weight of Bombs Loaded	Average Weight of Gas Loaded at 6 Pounds Per Gal	Average Miscellaneous Weight
40th	3875	11	Center Wing Tanks	134240	75228	59012	M-64 5.9 M-76 2.0	4101	47400	7511
444th	3810	21	Center Wing Tanks	135192	75448	59744	M-64 7.0 M-76 2.0	4635	47352	7757
462nd	3830	12	Center Wing Tanks	135123	75115	60008	M-64 6.8 M-76 1.9	4558	47400	8050
TOTAL	3831	44	Center Wing Tanks	134935	75302	59633	M-64 6.7 M-76 2.0	4481	47377	7775

* AN-M64 - 500# G.P. - Actual weight 535.4 pounds.
 AN-M76 - 500# Incendiary - Actual weight 469.2 pounds.

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