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MISSION #15 SINGAPORE "PILICAN 1"  
5 Nov 44

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HEADQUARTERS TWENTIETH AIR FORCE	
Chief of Staff	
Deputy C. of S. Adm.	
Deputy C. of S. Opr.	
A. G.	

<b>XXB</b> OMBER <b>C</b> OMMAND
MISSION NO <i>15</i>
DATE <i>5 November 1944</i>

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HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

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\* XX Bomber Command \*  
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\* 15 Nov 44 JDG \*  
\* Date Initials \*  
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TACTICAL MISSION

REPORT

Field Orders No. 15

Mission No. 15

TARGET: SINGAPORE NAVAL BASE

SINGAPORE, MALAYA

5 November 1944

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Prepared by:

Intelligence Section  
XX Bomber Command

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HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

15 November 1944

SUBJECT: Report of Operations, 5 November 1944.

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

1. UNITS PARTICIPATING:

All Bombardment Groups of the XX Bomber Command were ordered to participate in a daylight attack on D-Day against the drydock and West Wall area at Singapore Naval Base, Singapore, Malaya. The mission was to be staged from the rear area bases. Groups, their locations, and their Commanding Officers were as follows:

<u>Group</u>	<u>Rear Base</u>	<u>Commanding Officer</u>
40th	Chakulia	Colonel W.H. Blanchard
444th	Dudhkundi	Colonel A.L. Harvey
462nd	Pardoba	Colonel A.F. Kalberer
468th	Kharagpur	Colonel T.S. Faulkner

2. IDENTIFICATION OF MISSION:

a. Attack No. 15.

b. Targets Planned:

- (1) Primary Target: Drydock and West wall area, Singapore Naval Base, Singapore, Malaya (AAF Target No. 92.2-17).
- (2) Primary Radar Target: Fourth Senoko Oil Depot, Singapore Naval Base, Singapore, Malaya (AAF Target 92.2-17).
- (3) Secondary Target: Pangkalanbrandan Refinery, Pangkalanbrandan, Sumatra, N.E.I. (Objective Folder 94.1-33).
- (4) Last Resort Target: Military stores area at Taungup, Burma - 18°58'N - 94°16'E (AAF Folder No. 82.2; XX Bomber Command Target No. 82.2-c).

3. STRATEGY AND PLAN OF OPERATIONS:

a. Importance of Targets:

(1) Primary Target:

The Singapore Naval Base is obviously of great importance to the operations of the Japanese fleet in southern waters. The anchorage is large enough to shelter large numbers of ships. Furthermore it has ample fueling and supply facilities and workshops and drydocks capable of performing repair work to any size ship. Number 1 Drydock, one of the world's largest is 1000 feet long and 132 feet wide, and is Singapore's principal drydock, representing 50 per cent of the capacity available for handling the largest type ships.

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(2) Primary Radar Target:

The Fourth Senoko Oil Depot consists of 39 large tanks (with a total capacity of 3,275,000 barrels) and two pumping stations.

(3) Secondary Target:

The Pangkalan Brandan refinery is now estimated to be processing 2,880,000 barrels of crude oil a year, to produce 605,000 barrels of aviation gasoline, 806,000 barrels of fuel oil, and 1,325,000 barrels of motor gas. Due to lack of tanker space, Japan has very little use for the motor gasoline while, for the same reason, the aviation gas must either be consumed locally or stored or dumped. All of the fuel oil, however, which is equivalent to 19 per cent of the enemy's total supply, is shipped from Pangkalan Brandan, since Japan requires all of this product she can obtain. Destruction of this refinery would deprive Japan of a reserve supply of aviation gasoline amounting to 16 per cent of total requirements, and of 1.9 per cent of her fuel oil unless she could transport 2,880,000 barrels of crude oil a year to Inner Zone refineries.

(4) Last Resort Target:

The Military Stores Area at Taungup, Burma, is one of the principal stores areas on the west coast of Burma.

b. Details of Planning (See Also Annex N, Field Orders):

(1) Operational Planning:

(a) On 1 November 1944 notice was received from Headquarters, Twentieth Air Force, that because of the immediate value to the enemy as a repair base for naval vessels damaged in the Philippines, Singapore Naval Base should be attacked as soon as possible. The time and method of attack were to be left to the discretion of this Command, but the suggestion was made that the attack against Rangoon be cancelled and the mission run on that date.

(b) A preliminary study by the Command flight engineer revealed that the bomb load would be nil if the mission were run as a daylight formation attack and small even though run at night. Weather prognosis for the month was unfavorable.

(c) In light of these considerations, and in view of the fact that the entire theater was working on the Rangoon mission, a request for reconsideration was made to Twentieth Air Force.

(d) Twentieth Air Force decided that the Singapore mission should be run, and by daylight, and that it would be permissible to run both the Rangoon and the Singapore missions.

(e) A forecast that the best target weather would be between dawn and 0330Z was made on D-Day minus 2. Therefore, take-off was scheduled so as to place the aircraft over the target between 0130Z and 0230Z.

(f) The bomb type was changed from that of previous missions to 1000-pound bombs as a result of the fact that the repair facilities to be struck were of heavy steel and concrete construction.

(g) The flight plan was calculated to allow all aircraft (which were to carry two 1,000 pound bombs) to return to base with a bare minimum of gasoline, by proceeding individually to the first assembly point only 90 miles from the target, making a maximum of one



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circle at that point to join formation, and then proceeding to the target individually if necessary.

(h) The bombing altitude was lowered from previous missions to 20,000 to 21,000 feet due to the need to conserve gasoline. This figure was given as pressure altitude in order that altitude of aircraft be better standardized and confusion minimized.

(i) The secondary target was selected because of its importance, because of its position relative to the route out, and also because of the fact that the crews were already familiar with it, since this target had also been the secondary target on Mission No. 5 against Palembang. The last resort target, which had been used on Mission No. 14 against Rangoon, was selected for much the same reasons.

(j) Because Mission No. 15 followed so closely to Mission No. 14, Groups were required to dispatch a minimum of only 15 aircraft each.

(2) Determination of the Bomb Load (See Annex C, Part IV, for complete details): It was specified that, each aircraft was to be loaded with a minimum of 2 1000-pound GP (TNT or Amatol-filled) bombs, fuzed one-tenth (.1) second nose and twenty-five thousandths (.025) second tail delay. Thus, it would be possible for the Groups to load either AN-M-44 or the AN-M-65, both of which are 1000-pound GP bombs. This provision was later modified to permit the Groups to reduce the weight differential (in cases in which the full bomb-carrying capacity was not utilized) by means of the addition of 500-pound GP bombs to the maximum number of 1000-pound GP bombs.

(3) Formation Flown and Assembly: Aircraft were to fly individually to the Assembly Point (Benkalis Island, 01°36'N - 101°59'E), where not more than one circle was to be made to join a formation of three. If not in formation, aircraft were to continue to the primary target individually. An altitude of 3000 feet was to be maintained until 04°30'N - 100°00'E was reached, where the climb to bombing altitude was to begin.

(4) Bombing Data: Bombing was to be by three-plane formations from 20,000 feet pressure altitude for the 40th and 462nd Groups, and from 21,000 feet pressure altitude for the 444th and 468th Groups. The assigned axis of attack for all groups was 89° Magnetic. The aiming point for all groups was the northwest end of the sliding caisson at the entrance to the naval drydock. The Fourth Senoko Oil Depot at Singapore Naval Base was to be bombed by radar in case the drydock and West Wall area could not be bombed visually.

(5) Routes to be Flown: Route was to be the same for all Groups, as follows: from base to the Assembly point (Benkalis Island, 01°36'N - 101°59'E) to the Initial Point (Pisang Island, 01°28'N - 103°15'E) to the target, returning to home bases by direct route.

(6) Miscellaneous Provisions:

- (a) Each group was to dispatch a minimum of 15 airplanes.
- (b) Strike photos were to be obtained by as many airplanes as possible.
- (c) Altimeters were to be set at 29.92 except for take-offs and landings.



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4. EXECUTION OF THE MISSION (See Annexes A and K):

a. Take-off (See Annex A, Part I):

(1) Times of take-off were planned as follows: 40th - 041615Z; 444th - 041627Z; 462nd - 041614Z; and 468th - 041628Z

(2) Take-off was accomplished as follows:

<u>Group</u>	<u>A/C Airborne</u>	<u>First A/C Off</u>	<u>Last A/C Off</u>
40th	17	041616Z	041705Z
444th	19	041628Z	041702Z
462nd	20	041615Z	041704Z
468th	20	041628Z	041708Z
	76	041615Z	041708Z

(3) Weather at take-off was clear at all bases except Piardoba, where scattered clouds prevailed at 4000 feet. Visibility ranged from unrestricted to 7 miles. Winds were calm except at Piardoba where a 6 miles per hour southwest wind was encountered.

b. Route Out (See Annex A, Parts II and III):

(1) Of the 76 aircraft airborne, 23 aircraft deviated from the route to the primary target for various reasons. Deviations by Groups were as follows: 40th - 3; 444th - 6; 462nd - 8; and 468th - 6. Of the 23 aircraft that did not reach the primary target, 7 bombed the secondary target, 3 bombed the last resort target, 1 bombed a target of opportunity, 6 jettisoned their bomb load, 4 returned to their bases with their bomb load, 1 crashed approximately 30 minutes after take-off and 1 is presumed to have ditched or to have crashed into the sea near the Andaman Islands en route to the target.

(2) The aircraft that crashed (A/C 444 of the 462nd Group) took off at 041642Z and after flying for approximately 10 minutes the number 3 engine cut out at 2500 feet. After the pilot had turned back to Piardoba, the aircraft began to lose altitude rapidly. Bombs were then salvoed and the crew was ordered to bail out. The aircraft crashed at 04170Z at a point 20 to 25 miles South-southeast of Piardoba.

(3) Aircraft 370 (468th Group) which is presumed to have ditched or to have crashed in the sea while en route to the target is missing. Aircraft 532 (40th Group) reported seeing a B-29 (presumably A/C 370) burst into flames at 11°17'N - 94°14'E at 042050Z. On arriving at that position approximately 10 minutes later, a white light which is thought to have emanated from a life raft was observed. Neither the aircraft nor the crew has since been located.

(4) Some aircraft experienced difficulty in finding a formation to join, resulting later in 17 aircraft proceeding to the target individually. In all, 9 formations ranging from 2 to 8 aircraft were formed by proceeding to the assembly point and making the prescribed maximum of 1 circle at that point.

c. Primary Target (See Annex A, Parts IV, VI and VII):

(1) Of the 76 aircraft airborne, 53 aircraft reached and bombed the primary target at Singapore. The first aircraft over the target - a single plane - released its bombs at 0114Z from 19,900 feet indicated on a heading of 85° Magnetic and the last aircraft over - also a single plane - dropped its bombs at 0220Z from 19,900 feet indicated on a heading of 88° Magnetic. During this period of 66 minutes, the

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aircraft bombed as follows: 17 aircraft singly and there were 4 2-plane formations, 1 4-plane formation, 2 5-plane formations, 1 6-plane formation and 1 8-plane formation. In all, 33 500-pound demolition bombs and 150 1000-pound demolition bombs were dropped in the target area - a total of 166,500 pounds (83.25 short tons). There were no bomb rack malfunctions over the primary target on this mission and all aircraft dropped their total bomb load.

(2) Over the target cirrostratus clouds varying from 2/10 to 7/10 prevailed at 23,000 feet. Occasional patches were also encountered at 21,000 feet with the result that one aircraft was forced to make a radar run after first having made a visual approach. Cumulus and alto-cumulus (4/10) with tops at 8000 feet also prevailed. Visibility was unrestricted.

(3) Fire and smoke obscured the aiming point for planes that followed the first few aircraft over the target. Offset bombing was used in numerous instances with good results.

(4) The anti-aircraft and limited fighter opposition encountered on the bombing runs did not hinder the bombardiers or interrupt the bombing runs.

(5) Bombing altitudes at the primary target varied from approximately 19,500 feet indicated to 23,500 indicated. Deviations from the exact briefed altitude were numerous but minor. The briefed axis of attack (89° Magnetic) was followed more closely with 48 of the 53 aircraft bombing on headings between 85° and 94° Magnetic. Indicated air speeds were as follows: 190-194 mph - 21 aircraft; 195-199 mph - 21 aircraft; and 200-205 mph - 11 aircraft.

d. Secondary Target:

(1) Seven aircraft in all dropped 8 500-pound demolition bombs and 18 1000-pound demolition bombs on the secondary target at Pangkalanbrandan. This 22,000 pounds of bombs (11 short tons) was released by the seven individual aircraft between 042355Z and 050100Z from altitudes varying from approximately 20,000 feet indicated to 22,000 feet indicated. Axes of attack ranged from 172° Magnetic to 261° Magnetic and indicated air speeds from 189 mph to 200 mph. All bombing was accomplished visually.

(2) Weather at the Secondary target was clear and visibility was unrestricted. Scattered cumulonimbus was seen to the east.

(3) Observed results as reported by combat crews were as follows:

(a) 40th Group (1 aircraft): Bomb hits were claimed on or adjacent to the aiming point, which was the area containing the Pretopping Plants and the Power House.

(b) 444th Group (3 aircraft): One aircraft reported that its bombs landed on the aiming point and another aircraft reported dropping its bombs just northwest of the aiming point. The third aircraft reported flames giving off black smoke up to 8000 feet.

(c) 468th Group (3 aircraft): One aircraft reported good results with 4 bursts north of the target area and 2 bursts south. Another aircraft, which reported it hit a cracking plant building saw grayish smoke but no flames. The third aircraft also indicated that a cracking plant had been hit by its bombs.



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e. Last Resort Target:

(1) Aircraft 394 (40th) bombed the last resort target at Taungup by radar at 042153Z from 17,300 feet indicated on a heading of 296° Magnetic at an indicated air speed of 203 mph. Two 1000-pound bombs were dropped. Results were unobserved.

(2) Aircraft 830 (462nd) also bombed this target by radar at 050001Z from 20,000 feet indicated on a heading of 90° Magnetic at an indicated air speed of 198 mph. Two 1000-pound bombs were dropped. Results were again unobserved.

(3) Aircraft 329 (462nd) was the third and last aircraft to bomb this target, doing so visually at 050124Z from 10,000 feet indicated on a heading of 92° Magnetic at an indicated air speed of 210 mph. Two 1000-pound and 3 500-pound bombs were dropped. Although bombing was accomplished visually, results were unobserved.

f. Target of Opportunity: Aircraft 582 (40th Group) dropped 3 1000-pound bombs on a target of opportunity (an airfield) at 02°49'N - 101°26'E. Bombing was accomplished visually at 0042Z from 18,000 feet True on a heading of 71° Magnetic at an indicated air speed of 195 mph. Bombs fell from 700 to 1000 feet left of the target as a result of a malfunctioning of the AFCE. This airfield had a group of approximately 12 buildings near the west end of the runway and buildings were also observed in the center of the field. Weather was CAVU.

g. Route Back (See Annex A, Parts II and III):

(1) Route back was flown as briefed by all except 4 of the 53 aircraft that reached the primary target. Two aircraft landed en route (at Chittagong and Cox's Bazaar) to refuel and then returned to their home bases on D-day. Two others, also as a result of shortage of gasoline, headed for and landed at China Bay, returning to their home base on D-day plus 1.

(2) Scattered cumulus from 4000 feet to 5000 feet prevailed at the India bases on return. Visibility ranged from 7 miles to unlimited and winds from calm to southwest at 6 mph.

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

a. Meager to moderate and inaccurate to accurate heavy anti-aircraft fire was reported by 95 per cent (50 out of 53) of the B-29's over the primary target area from 0115Z to 0221Z at altitudes varying from 20,000 to 23,000 feet true. Land based anti-aircraft defenses were augmented during the entire attack by a destroyer of the Takanami class and during the first half of the attack by a cruiser of the Nachi class. A marked decrease in both accuracy and intensity of fire occurring at the time of the departure of the cruiser is indicated by the reports of aircraft over the target during the first period as compared with those of aircraft passing over the area during the second period. During the first period (0115Z to 0150Z) bursts of unusual colors and shapes were reported. Colors included black, brownish black, gray, reddish brown, orange, yellow, green and white. Some of the bursts were long from top to bottom. No unusual characteristics were reported during the second period, with bursts generally reported as black or gray. Reports indicate that predicted concentration, continuously pointed fire and barrage-type fire were all used. Deviations behind and to the right were most frequent, with 39 per cent reported as level, 33 per cent as below, and 28 per cent above.



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b. Heavy antiaircraft fire was also encountered at Pangkalan-brandan (meager to moderate and inaccurate to accurate) and in the vicinity of Kukup (meager and inaccurate). At Taungup meager and inaccurate black automatic weapons or light antiaircraft fire was encountered.

c. One white searchlight beam which did not locate the aircraft was observed near Port Blair.

d. Two observations were made of high altitude balloons at Singapore, one at 15,000 feet, the other at 21,000 feet.

e. Based on RCM intercepts, it is believed that the enemy had prior warning of the attack. RCM observers intercepted early warning signals between the Andaman Islands, both on the way in to the target and during the flight away from it.

6. ENEMY AIR OPPOSITION (See Annex C):

a. Opposition is rated as weak with 34 B-29's experiencing 68 encounters from an estimated 37 enemy aircraft. Tojos, Oscars, Tonys, Hamps, Zekes, one Rufc, and several unidentified planes were reported, including one twin-engine fighter, possibly Nick.

b. There were no losses from enemy aircraft action. Claims against enemy aircraft are 1 enemy aircraft destroyed, 1 probably destroyed, and 4 damaged.

c. The majority of the encounters took place in the target area, 76 per cent of the encounters occurring after bombs away.

d. The enemy continued to show a preference for frontal attacks with 56 per cent originating from 11, 12 or 1 o'clock. Of those 42 per cent were High, 42 per cent Low, and 16 per cent Level.

e. Coordinated encounters were reported in 5 separate instances, but only 1 of these appeared to be premeditated. In this attack 4 Tojos took part, trailing in formation a single B-29, and successively executing an attack from 11 o'clock high.

f. Two aerial bombing attacks were reported, one attack being executed by 2 Tonys towing cables to which were attached cylinders 1 foot by five feet in size, and the other attack consisting of the dropping of two parachute bombs.

g. Three instances of evasive action by B-29's were reported. In two cases the B-29 turned away from the enemy aircraft; the third B-29 turned toward the attack plane to provide a poorer deflection shot.

7. WEATHER (See Annex D):

a. Except for minor effects as reported in paragraph 4, Execution of the Mission, the weather encountered had little or no effect on the outcome of the mission.

b. Weather was satisfactory for formation flying to the target and for high altitude bombing. All but one aircraft bombed the primary target visually.

c. On the return route the moderate turbulence and heavy cloud cover encountered between 14 N. and 16 N. was unsuitable for formation flying.

d. In some cases cloud cover obscured the results of bombing.



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8. COMMUNICATIONS (See Annex E):

a. The communications procedure as planned made use of such portions of the Command's Tactical Doctrine as could be made applicable to an India-based mission. One change called for the use of an encoded position message instead of a prearranged message and as are used during missions flown from China. Communications proved satisfactory except that more skip appeared in using the eight-megacycle frequencies than had been anticipated.

b. A large increase in air-ground traffic over that on Mission No. 14 occurred, caused by the numerous single bombings and the requirement of a position report from each aircraft during its return to base.

c. Six radio homing beacons were used successfully, with the average initial contact of each beacon varying from 100 miles to 419 miles, and with extreme initial contact as high as 650 miles for two of the beacons.

d. Requests for direction finding aid were made by 11 aircraft. One class I QDM was received at 1100 miles, a new record for this Command.

e. Static interference was at a low level throughout the mission. One Group reported that CW signals were sent on their air-to-air frequency whenever it was used (between 0400Z and 0900Z), a fact which has been reported to the Command's Radio Counter Measures unit.

f. A decided increase in transmission and cryptographic violations was indicated in the preliminary report of the radio intelligence unit which monitored all Groups' frequencies.

g. Total malfunctions of equipment numbered 16, of which 4 were repaired during flight.

9. RADAR (See Annex F):

a. Radar Bombing was performed by 3 aircraft on this mission; however, the Radar-Bombsight procedure was used by many other crew members in bombing the targets. Cloud cover over the primary target made the visual bombing run in many cases difficult and limited. Crew member coordination was again excellent.

b. A study was made of the AN/APQ-13 mapping range and radar check point identification. The results have been presented under Annex F, Section I, B, Radar Navigation. Operators reported the general target area identifiable on the radar scope but the primary targets slightly difficult on the briefed course.

c. Photographic results were satisfactory. The K-24 Radar Scope Camera returned the larger percentage of usable pictures. An additional number of K-24 cameras are in the process of being installed in aircraft.

d. All radar systems were operational at take-off and the AN/APQ-13 serviceability over the target was above average operation. Reports indicated no airborne failures of the Auxiliary Radar Equipment.

10. RCM (See Annex G):

a. RCM activities were confined to searching for enemy early warning en route to the target and for radar fire control over the target. Results indicate that the early warning net guarding the Malay



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Peninsula has been in operation for some time, since the majority of intercepts were of the old Mark I Model 1 type. Only one definite CHI type was reported, and a few Mark I Model 2 and Mark I Model 3 sites intercepted. In the Andaman Islands area, a 100-mc. and a 198-mc. Signals were intercepted. A chain of 100-mc. sites was logged guarding the Malacca Strait. In the target area, 6 stations, varying from 77.5 mc. to 190 mc., were intercepted. No radar signals having fire control characteristics were intercepted.

b. Several instances of jamming were reported, but in each case by only one aircraft.

c. There were no equipment failures during flight.

11. CENTRAL STATION FIRE CONTROL AND GUNNERY (See Annex H): Satisfactory gunnery is reported for Mission No. 15, although a slight increase in malfunctions was noted. Of 315 turrets reported upon, malfunctions occurred in 13. Out of 630 .50-cal. machine guns, 25 developed malfunctions. During flight a total of 27,780 rounds of ammunition were fired, 19,480 while test firing and 8,300 during combat.

12. CAMERAS AND PHOTOGRAPHS (See Annex I):

a. Eighty-one cameras of the K-18, K-20 and K-22 types were installed in aircraft scheduled to take part in the mission. Of these (based on incomplete reports) 42 photographed the primary target, and 4 photographed other targets, returning 429 usable negatives. Camera malfunctions were reported as 5.

b. A single B-29 of the 468th Group flew a reconnaissance mission on 8 November to take damage assessment photographs. CAVU weather conditions were encountered, and photographs of the Singapore Naval Base area were obtained. No fighter opposition was encountered, and anti-aircraft opposition consisted of a single burst.

13. BATTLE LOSSES AND BATTLE DAMAGE (See Table IV Annex M):

a. No aircraft was lost as a result of enemy anti-aircraft or aerial opposition.

b. Nine aircraft sustained damage from the enemy, minor in all cases. Anti-aircraft damaged 6 aircraft, enemy fighters 2, and 1 was damaged by both.

14. FUNCTIONING OF EQUIPMENT (See Annex K):

a. Of the 76 aircraft involved in the mission, 20 failed for mechanical reasons to get over the primary target with bombs. Of these, 5 bombed the secondary target, 3 bombed the last resort target, 1 bombed a target of opportunity, 7 jettisoned their bombs, and 4 brought their bombs back. Included in the above is one aircraft which crashed after losing an engine shortly after take-off. Not included is one aircraft which is missing.

b. A total of 149 malfunctions of equipment were reported. Engines running rough numbered 14 and were the most numerous. Inoperative or erratic generators, of which there were 11, oil leaks, totaling 10, and inoperative tachometers, 9 in number, were near the top of the list.

c. Average fuel consumption of aircraft bombing the primary target was 7190 gallons. Average reported gross starting weight was 133,400 pounds, and average weight of bombs loaded was 3250 pounds.



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15. TARGET DAMAGE ASSESSMENT (See Annex L):

a. Statement of Damage:

(1) Assessment of damage was accomplished from strike photos and from excellent reconnaissance photography obtained by the 468th Group on 8 November.

(2) Strike photos show a breach in the sliding caisson gate at or just below the waterline. Water was shown to be pouring into the dock. Although post strike photos show no evidence of damage to the sliding caisson gate, the dock remained full of water three days after the attack.

(3) The sliding caisson recess appears to have been damaged by at least one hit and several near misses.

(4) A 465-foot cargo vessel in the dock at the time of the attack was damaged.

(5) Buildings destroyed or damaged in the vicinity included the following: 1 large shop building, half destroyed; 1 small building possibly housing controls, destroyed; 1 building thought to be a foundry, heavily damaged; and 10 small buildings, destroyed or heavily damaged.

(6) Trackage and rolling stock outside the area of the aiming point were destroyed in several places.

b. Strategic Effects: A minimum of three months is estimated as the time the enemy will need to repair the damage done to the sliding caisson gate and the sliding caisson recess. For this period the enemy will be deprived of 50 per cent of that drydock capacity south of Japan itself which is capable of accomodating the largest capital ships. This will temporarily reduce his ability to repair damaged naval and merchant shipping at a time when attrition against it has gained its highest levels. Damaged ships will thus remain longer out of commission during a period when their repair is a paramount consideration.

*Curtis E. Lemay*  
CURTIS E. LEMAY  
Major General, U.S.A.  
Commanding



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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 Reports\*
- IX - Mission Operational Losses
- X - Information on Landings

\* Prepared by Staff Navigator

\*\* Page A-IV-1 prepared by Staff Bombardier

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I - TAKE-OFF INFORMATION

Mission No. 15

5 November 1944

	First A/C off	Last A/C off	Eapsed Time	No. of A/C taking off	Average Take- off Interval
40th	041616Z	041705Z	49 min.	17	184 sec.
444th	041628Z	041702Z	34 min.	19	113 sec.
462nd	041615Z	041704Z	49 min.	20	155 sec.
468th	041628Z	041708Z	40 min.	20	126 sec.
Overall	041615Z	041708Z	53 min.	76	42 sec.

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II - DETAILS OF ROUTES

Mission No. 15

5 November 1944

A. Planned Routes

	40th	444th	462nd	468th
Base	Chakulia	Dudhkundi	Piardoba	Kharagpur
Assembly Point	Benkalis Island (01°36'N - 101°59'E).			
Initial Point	Pisang Island (01°28'N - 103°15'E).			
Target	Singapore Naval Base (01°28'N - 103°50'E)			
Base	Chakulia	Dudhkundi	Piardoba	Kharagpur

B. Deviations from Planned Routes

1. 40th Group:

a. A/C 508 followed the briefed route to 05°00'N - 99°44'E, then, because of an oil leak in its #3 engine and a shortage of gasoline, turned on a heading of 290° M to 04°07'N - 98°33'E, and then on a heading of 250° M bombed the secondary target. This A/C returned to Chakulia via 04°25'N - 98°16'E and 07°35'N - 101°26'E.

b. A/C 582 followed the briefed route to 02°37'N - 101°15'E. Because of two engines cutting out, it then proceeded to a target of opportunity (airfield at 02°49'N - 101°26'E), and bombed. From that point, it proceeded to 02°51'N - 101°22'E and returned to Chakulia by the briefed route.

c. A/C 394 followed the briefed route to 18°24'N - 89°54'E, then to Preparis Island. Its #1 engine cut out, and the A/C proceeded to 16°00'N - 94°11'E and to the last resort target, which it bombed, and then returned to Chakulia by way of Halliday Island.

2. 444th Group:

a. A/C 524 flew the briefed route to 02°45'N - 100°45'E, then because of gasoline shortage, altered its course to head for the secondary target, which it bombed, and then returned to Dudhkundi by the briefed route.

b. A/C 580 flew the briefed route for 7 hours and 22 minutes, when, because of gasoline shortage, it turned toward secondary target, which it bombed, and then returned on course of 355° to the briefed route, which was followed back to Dudhkundi.

c. A/C 267 flew the briefed route to 06°00'N - 98°54'E, then turned on a heading of 180° toward the secondary target because of supercharger trouble and a blown blister. After bombing the secondary target, this A/C proceeded directly to Dudhkundi.

d. A/C 507 flew the briefed route to the primary target, bombed, and returned to Preparis Island, turned on a 360° course to Chittagong, landing

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there for refueling. It returned on the same day to Dudhkundi.

e. A/C 202 flew the briefed course to 17°20'N - 90°48'E. Because of engine failure it jettisoned its bombs and returned directly to Dudhkundi.

f. A/C 510 flew the briefed route to 19°15'E - 89°30'E, where it was forced to feather one engine. It jettisoned its bombs and returned to Dudhkundi.

g. A/C 464 took off, flew 10 miles SE of the base, and, because of an engine failure, jettisoned its bombs and returned to base.

3. 462nd Group:

a. A/C 456 flew the briefed course to the primary target and bombed. Due to abnormal gasoline consumption, the pilot decided to fly to China Bay instead of returning to the home base. Route to China Bay was as follows: 02°02'N - 103°10'E; to 04°55'N - 98°48'E; to 06°35'N - 95°05'E; to 06°38'N - 95°05'E, to China Bay. This A/C returned to Piardoba the following day.

b. A/C 506 flew the briefed course to the primary target, bombed, and on return at 05°00'N - 99°45'E altered its course because of gasoline shortage to go directly to China Bay. This A/C returned to Piardoba the following day.

c. A/C 299 followed the briefed course to 00°33'N - 100°43'E and then turned back because all 4 engines were cutting out intermittently. It returned to Piardoba after jettisoning its bombs and feathering its #1 engine.

d. A/C 830 followed the briefed course to 13°10'N - 94°10'E, and, because of #3 engine cutting out intermittently, bombed the last resort target, then returning to Piardoba.

e. A/C 329 followed the briefed course to 09°24'N - 96°55'E, and, because of #3 engine cutting out, bombed the last resort target, then returning to Piardoba.

f. The following aircraft turned back within 1½ hours after takeoff:

(1) A/C 285 - returned with bombs - #2 engine on fire.

(2) A/C 461 - returned with bombs - #1 manifold pressure down.

(3) A/C 463 - returned with bombs - #4 engine cutting out.

(4) A/C 336 - returned with bombs - #4 prop governor out.

g. A/C 444 crashed within a short time after take-off. Bombs were jettisoned and the crew parachuted. One crew member was killed when his parachute did not open.

4. 468th Group:

a. A/C 365 flew the briefed route to 03°52'N - 100°35'E. Because of two inoperative top turrets, it was decided to bomb the secondary target. After bombing, it flew to 04°22'N - 98°16'E, and returned to Kharagpur.

b. A/C 429 flew the briefed route to 07°30'N - 98°05'E. Because of gasoline shortage, it then turned on a heading of 170° to the secondary target, which was bombed, and it then returned directly to Kharagpur.

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c. A/C 284 flew the briefed route to 07°45'N - 98°30'E. Because of a gasoline shortage, it then flew to secondary target, bombed, and returned directly to Kharagpur.

d. A/C 407 flew from base to 16°20'N - 93°50'E, when, because of its #1 engine running rough, it jettisoned its bombs and returned to Kharagpur.

e. A/C 6208 flew to 12°16'N - 93°50'E, where it was forced to feather one engine. It then jettisoned its bombs and returned to Kharagpur.

f. A/C 486 bombed the primary target, having flown the briefed route. On return, it landed at Cox's Bazaar for gasoline and returned the same day to Kharagpur.

g. A/C 370 is missing, and is presumed to have ditched or crashed into the sea near the Andaman Islands.

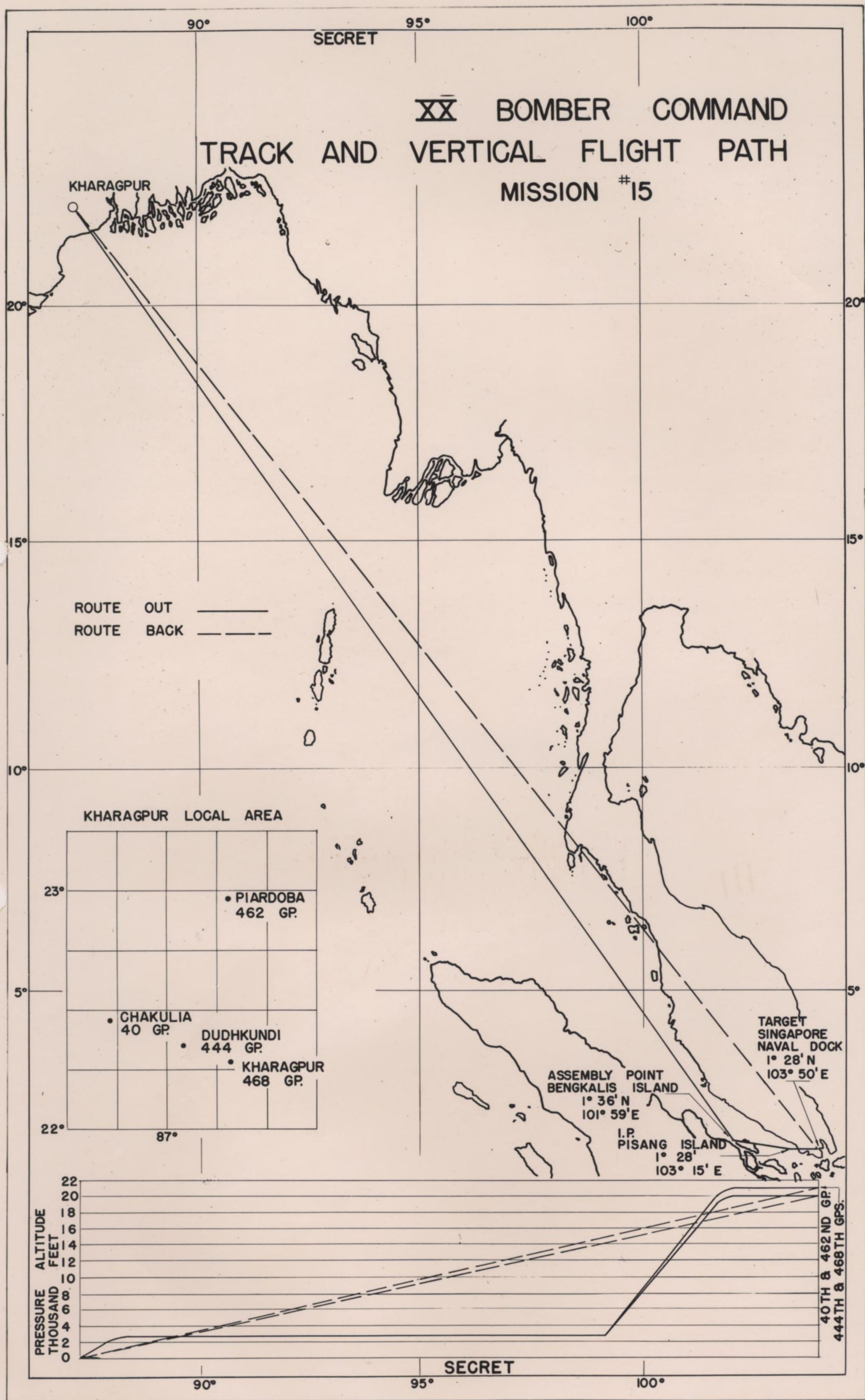
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HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

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By auth of CG XXBC

JPB 8 Nov 44  
Initials Date

CONSOLIDATED  
SPECIALIST MISSION REPORT OF  
STAFF BOMBARDIER

Date Prepared: 8 November 1944

Field Order No. 15  
Date of Mission: 5 Nov 44

1. Visibility of the primary target ranged from CAVU for the first planes over the target to 5/10 cloud coverage for the last planes. Fire and smoke obscured the aiming point for planes which followed the lead formation. Off-set bombing was used to a great extent on this mission, with very good results.
2. Reports indicate some aircraft had difficulty in finding a formation in which to join, resulting in bombing the target individually.
3. Antiaircraft and fighters were encountered on the bombing runs but did not cause bombardiers undue concern or hinder the bombing accuracy.
4. Malfunction of bombing equipment are as follows:
  - (a) 40th Bomb Group.
    - (1) Aircraft #394 - One bomb hung in right forward rack of rear bomb-bay which could not be released electrically or manually. Cause: undetermined as yet.
  - (b) 444th Bomb Group - None.
  - (c) 462nd Bomb Group.
    - (1) Aircraft #270 - C-1 Autopilot was inoperative, necessitating a manual run. Cause: undetermined as yet.
  - (d) 468th Bomb Group.
    - (1) Aircraft #365 Three bombs would not release electrically: Cause: faulty A-2 release.

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IV - BOMBING DATA (continued)

A. Time of Bomb Release at FT.

Z Time	40th	444th	462nd	468th	Total
0110 - 0119	1	-	-	-	1
0120 - 0129	1	-	-	1	2
0130 - 0139	2	-	4	-	6
0140 - 0149	7	9	4	7	27
0150 - 0159	-	2	3	5	10
0200 - 0209	2	-	1	1	4
0210 - 0219	1	2	-	-	3
Total	14	13	12	14	53

B. Bombing Altitudes at FT.

Altitude - Indicated	40th	444th	462nd	468th	Total
19,500' - 19,999'	8		1	1	10
20,000' - 20,499'	4		8	2	14
20,500' - 20,999'	1		2	4	7
21,000' - 21,499'	1	1	1	6	9
21,500' - 21,999'		1			1
22,000' - 22,499'		8		1	9
22,500' - 22,999'		2			2
23,000' - 23,499'		1			1
Total	14	13	12	14	53

Briefed Altitude (Pressure altitude)    20000'    21000'    20000'    21000'

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C. Axes of Attack on PT.

Axis - (Magnetic)	40th	<del>44th</del>	462nd	468th	Total
80° - 84°	0	0	0	2	2
85° - 89°	9	7	8	8	32
90° - 94°	5	6	2	3	16
95° - 100°	0	0	2	0	2
107°	0	0	0	1	1
Total	14	13	12	14	53

Briefed axis of attack (all groups): 89°M.

D. Indicated Air Speeds over PT.

IAS (mph)	40th	44th	462nd	468th	Total
190 - 194	9	9	0	3	21
195 - 199	3	0	10	8	21
200 - 205	2	4	2	3	11
Total	14	13	12	14	53

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E. Aircraft Bombing Targets other than PT.

Group	A/C	Target	Bombs Dropped			Type of Release	Time of Release	Altitude	Axis of Attack	IAS (mph)
			M65	M44	M64					
40th	508	ST (Pangkalanbrandan)	3	-	-	Visual	0034Z	19,900'I	248° M	189
	394	LRT (Taungup)	2	-	-	Radar	2153Z	17,300'I	296° M	203
	582	TO (Airfield at 02°49'N - 101°26'E)	3	-	-	Visual	0042Z	18,000'T	71° M	195
444th	267	ST (Pangkalanbrandan)	2	-	-	Visual	0021½Z	22,400'I	172° M	200
	524	ST (Pangkalanbrandan)	1			Visual	0100Z	21,000'I	182° M	190
	580	ST (Pangkalanbrandan)	-	4	-	Visual	0043Z	21,300'I	180° M	200
462nd	830	LRT (Taungup)	-	2	-	Radar	0001Z	20,000'I	90° M	198
	329	LRT (Taungup)	-	2	3	Visual	0124Z	10,000'I	92° M	210
468th	284	ST (Pangkalanbrandan)	2	4	-	Visual	0003Z	22,300'	183° M	195
	429	ST (Pangkalanbrandan)	4	-	-	Visual	2355Z	20,700'T	179° M	200
	365	ST (Pangkalanbrandan)	2	-	4	Visual	0057Z	22,000'T	261° M	190

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V - BOMB LOADING

Mission No. 15

5 November 1944

No. Bombs			40th		444th			462nd			468th			Total			Avge load Pounds	Total A/C Carrying	
M65	M44	M64	A/C	M65	A/C	M65	M44	A/C	M44	M64	A/C	M65	M64	A/C	M65	M44			M64
-	5	-	-	-	-	-	-	2-a	10	-	-	-	-	2	-	10	-	5000	2
-	4	-	-	-	2	-	8	4	16	-	-	-	-	6	-	24	-	4000	29
-	2	4	-	-	-	-	-	1	2	4	-	-	-	1	-	2	4	4000	
4	-	-	-	-	3	12	-	-	-	-	8	32	-	11	44	-	-	4000	
2	-	4	-	-	-	-	-	-	-	-	11	22	44	11	22	-	44	4000	
-	2	3	-	-	-	-	-	2	4	6	-	-	-	2	-	4	6	3500	2
-	3	-	-	-	-	-	-	4	12	-	-	-	-	4	-	12	-	3000	22
-	2	2	-	-	-	-	-	1	2	2	-	-	-	1	-	2	2	3000	
3	-	-	7	21	10	30	-	-	-	-	-	-	-	17	51	-	-	3000	
-	2	1	-	-	-	-	-	2	4	2	-	-	-	2	-	4	2	2500	3
2	-	1	-	-	-	-	-	-	-	-	1	2	1	1	2	-	1	2500	
-	2	-	-	-	-	-	-	4	8	-	-	-	-	4	-	8	-	2000	18
2	-	-	10	20	4	8	-	-	-	-	-	-	-	14	28	-	-	2000	
Total			17	41	19	50	8	20	58	14	20	56	45	76	147	66	59	3191	76

a. In addition to load of 5 x M44s, A/C 463 also carried 1 x M18, 500-lb. incendiary bomb.

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VI - DISPOSITION OF BOMBS

Mission No. 15

5 November 1944

	40th - a			444th - b			462nd - c			468th - d			Group Totals			
	A/C	500#	1000#	A/C	500#	1000#	A/C	500#	1000#	A/C	500#	1000#	A/C	500#	1000#	Total Wt. (pounds)
A/C Airborne and Bomb Load	17	-	41	19	-	58	20	14	58	20	45	56	76	59	213	242,500
Bombed PT (Singapore)	14	-	32	13	-	40	12	5	36	14	28	42	53	33	150	166,500
Bombed ST (Pangkalanbrandan)	1	-	3	3	-	7	0	0	0	3	8	8	7	8	18	22,000
Bombed LRT (Taungup)	1	-	2	0	-	0	2	3	4	0	0	0	3	3	6	7,500
Bombed Airfield at 02°49'N - 106°26'E	1	-	3	0	-	0	0	0	0	0	0	0	1	0	3	3,000
Jettisoned Bombs	0	-	0	3	-	11	2	4	4	2	5	4	7	9	19	23,500
Returned Bombs	e	-	1	0	-	0	4	2-f	14	0	0	0	4	2-f	15	16,000
Unknown	0	-	0	0	a	0	0	0	0	1	4-g	2-g	1	4	2	4,000
Total	17	-	41	19	-	58	20	14	58	20	45	56	76	59	213	242,500

- a. All bombs AN - M65 - 1000# G.P.
- b. All bombs AN - M65 except 4 AN - M44 (1000# G.P.) on PT and 4 AN - M44 on ST.
- c. 500# bombs are AN - M64; 1000# bombs are AN - M44.
- d. 500# bombs are AN - M64; 1000# bombs are AN - M65.
- e. A/C 394 dropped 2 M - 65 bombs on LRT, brought back 1.
- f. Although not called for in Field Order, A/C 463 carried and subsequently returned 1 500# M-18 incendiary bomb, which is not included in above calculation.
- g. A/C 370, missing.

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VII - FORMATIONS FLOWN

Mission No. 15

5 November 1944

A. Formation Required

Aircraft were to be flown individually to the assembly point, where 3-plane formations were to be assembled. Not more than one circle was to be made at this point. If unable to join a formation of 3 A/C, aircraft were to proceed to the primary target and bomb individually. An altitude of 3000 feet indicated was to be maintained until reaching a point at approximately 04°30'N - 100°00'E, at which point the climb to bombing altitude was to begin.

B. Assembly Point

The assembly point for all groups was to be Benkalis Island at 01°36'N - 101°59'E.

C. Formations over the Target

1. Formations are shown below as they were at the time of bomb release. Time, altitude, and heading is that of the lead aircraft. The following diagrams are intended to show relative position only. "W" represents an aircraft of the 40th Group; "X" the 444th; "Y" the 462nd; and "Z" the 468th. All altitudes are given as indicated, all headings as magnetic.

a.	Time	: 0114Z		
	Altitude:	19,900'		W (503)
	Heading :	85°		
b.	Time	: 0121Z		
	Altitude:	21,000'		Z (265)
	Heading :	87°		
c.	Time	: 0122Z		
	Altitude:	19,900'		W (290)
	Heading :	92°		
d.	Time	: 0132Z		Y (479)
	Altitude:	20,000'		Y (456) Y (475)
	Heading :	89°		W (298)
				W (322)
e.	Time	: 0133Z		
	Altitude:	20,000'		Y (393)
	Heading :	90°		
f.	Time	: 0142Z		Y (338)
	Altitude:	21,550'		Y (506)
	Heading :	87½°		
g.	Time	: 0143Z		W (587)
	Altitude:	20,000'		Z (487) Y (278)
	Heading :	88°		W (589)
				W (831) W (276)

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h. Time : 0144Z Z (355)  
Altitude: 20,600' Z (454) Z (397)  
Heading : 84 Z (354)

i. Time : 0146Z W (237)  
Altitude: 20,000'  
Heading : 84

j. Time : 0147Z X (485)  
Altitude: 22,300' X (353) X (352)  
Heading : 90 X (538)  
X (204)

k. Time : 0148Z Y (213)  
Altitude: 20,200'  
Heading : 85

l. Time : 0148Z X (492)  
Altitude: 22,900' X (472) X (507)  
Heading : 90 X (462)  
Z (486) W (294)  
Z (424) W (313)

m. Time : 0149Z L (5208)  
Altitude: 22,000'  
Heading : 90

n. Time : 0149½Z Z (417)  
Altitude: 21,200'  
Heading : 89

o. Time : 0150Z Z (494)  
Altitude: 21,000'  
Heading : 90

p. Time : 0150Z Z (279)  
Altitude: 21,060'  
Heading : 88

q. Time : 0151Z X (362)  
Altitude: 21,125'  
Heading : 88

r. Time : 0151Z X (419)  
Altitude: 22,300'  
Heading : 87

s. Time : 0151Z Y (382)  
Altitude: 20,000' Y (581)  
Heading : 89

t. Time : 0156Z Y (270)  
Altitude: 19,900' X (584)  
Heading : 94

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u.	Time : 0200Z	
	Altitude: 19,950'	W (574)
	Heading : 94	
v.	Time : 0200Z	
	Altitude: 21,200'	Z (542)
	Heading : 107°	
w.	Time : 0203Z	
	Altitude: 20,950'	W (331)
	Heading : 91	
x.	Time : 0208Z	
	Altitude: 21,100'	Y (531)
	Heading : 86	
y.	Time : 0218Z	X (411)
	Altitude: 22,800'	
	Heading : 89	X (300)
z.	Time : 0220Z	
	Altitude: 19,900'	W (269)
	Heading : 88	

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Auth: CG, XX BC

Initials: 4-Pr

Date: 8 Nov 44

HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

CONSOLIDATED  
SPECIALIST MISSION  
REPORT OF

XX BOMBER COMMAND NAVIGATION OFFICER

Date Prepared: 7 November 1944

Field Order No. 15

Date of Mission: 5 Nov 44

1. This mission was excellent from a Navigation standpoint and again proved the high calibre of the navigators. Celestial Navigation was used to a very high degree by all navigators and with very good results.

a. Average Navigation times out and back:

		<u>NAV TIME OUT</u>	<u>NAV TIME BACK</u>
40th	-	9h 09m	7h 58m
444th	-	8h 50m	7h 57m
462nd	-	9h 05m	8h 07m
468th	-	8h 55m	7h 34m

b. Metro information was generally good although forecast winds in some few cases were thought to be faulty. Average winds and altitudes follow:

		<u>ONE HALF OUT</u>	<u>TARGET AREA</u>	<u>ONE HALF BACK</u>
40th	-	3000' 180 @ 10K	20,000' 55 @ 15K	Varied with the altitude flown.
444th	-	3000' 135 @ 10K	21,000' 65 @ 17K	
462nd	-	4000' 202 @ 11K	20,000' 45 @ 14K	
468th	-	3000' 214 @ 11K	21,000' 83 @ 18K	

c. The following statistical information is presented as a general indication of the extent to which Aids are being used by the various groups:

		<u>BASE NO.*</u> <u>OF A/C</u>	<u>CEL</u> <u>LOP'S</u>	<u>RADIO</u> <u>LOP'S</u>	<u>CEL</u> <u>FIXES</u>	<u>RADIO</u> <u>FIXES</u>	<u>QDM'S</u>
40th	-	14	74	0	42	0	0
444th	-	13	65	0	30	1	0
462nd	-	12	45	5	21	0	7
468th	-	14	95	0	36	6	7
		53	279	5	129	7	14

2. Comments by Groups:

\*No. a/c each Group bombing primary target.

a. All Navigators should be complimented for the manner in which they handled a long and difficult navigation problem, one, which at its best, was a tiresome and trying ordeal.

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S E C R E T

IX - MISSION OPERATIONAL LOSSES

Mission No. 15  
5 November 1944

A. Aircraft 444 of the 462nd Group crashed approximately 20 miles from Piardoba on a bearing of  $114^{\circ}$ , having lost its #3 engine shortly after taking off at 041642Z. Bombs were jettisoned and the crew parachuted. The radio operator was killed because his parachute did not open. None of the other crew members suffered serious injury. The aircraft was a complete loss.

B. Aircraft 370 of the 468th Group is missing and is believed to have ditched or crashed into the sea near the Andaman Islands. The only clue regarding the loss of this aircraft is found in the report of aircraft 582 of the 40th Group. This aircraft while at 1000 feet altitude at 042050Z observed what was thought to be a B-29 burst into flames and hit the ocean at  $11^{\circ}17'N - 94^{\circ}14'E$ . On arriving at this position a white light approximately one quarter of a mile from the wreckage was seen, possibly indicating a life raft. Aircraft 582 radioed this information to a submarine which acknowledged receipt of the message. No further information is available although search missions have been conducted by B-29 aircraft.

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X - INFORMATION ON LANDINGS

Mission No. 15

5 November 1944

A. Landed at XX Bomber Command Bases:

1. A/C bombing primary target:

	<u>First A/C Down</u>	<u>Last A/C Down</u>
a. 40th	0900Z	1013Z
b. 444th	0910Z	1051Z
c. 462nd	0934Z	1024Z
d. 468th	0847Z	0940Z

2. A/C failing to bomb primary target:

a. 40th Group:

- (1) A/C 508 - 0640Z - bombed secondary target.
- (2) A/C 394 - 0030Z - dropped 2 x M65 bombs on LRT, brought 1 x M65 back.
- (3) A/C 582 - 0810Z - bombed target of opportunity.

b. 444th Group:

- (1) A/C 580 - 0658Z - bombed secondary target.
- (2) A/C 524 - 0746Z - bombed secondary target.
- (3) A/C 267 - 0640Z - bombed secondary target.
- (4) A/C 202 - 2217Z - (4 Nov) jettisoned bombs.
- (5) A/C 510 - 1930Z - (4 Nov) jettisoned bombs.
- (6) A/C 464 - 1725Z - (4 Nov) jettisoned bombs.

c. 462nd Group:

- (1) A/C 830 - 0107Z - bombed last resort target.
- (2) A/C 329 - 0124Z - bombed last resort target.
- (3) A/C 463 - 1721Z - (4 Nov) brought bombs back.
- (4) A/C 386 - 2025Z - (4 Nov) brought bombs back.
- (5) A/C 461 - 1656Z - (4 Nov) brought bombs back.
- (6) A/C 285 - 1716Z - (4 Nov) brought bombs back.
- (7) A/C 299 - 0730Z - jettisoned bombs.

d. 468th Group:

- (1) A/C 284 - 0559Z - bombed secondary target.
- (2) A/C 365 - 0640Z - bombed secondary target.
- (3) A/C 429 - 0603Z - bombed secondary target.
- (4) A/C 208 - 0032Z - jettisoned bombs.
- (5) A/C 407 - 2124Z - (4 Nov) jettisoned bombs.

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S E C R E T

B. Landed Elsewhere:

1. 40th Group:

- a. A/C 290 landed at Barrackpore at 0930Z due to gasoline shortage. Returned to Chakulia on the same day, 1048Z.

2. 444th Group:

- a. A/C 507 landed at Chittagong due to gasoline shortage, returning to Dudhkundi on the same day.

3. 462nd Group:

- a. A/C 506 landed at China Bay because of gasoline shortage. Returned 6 November to Piardoba, 1013Z.

- b. A/C 456 landed at China Bay because of gasoline shortage. Returned 6 November to Piardoba, 1356Z.

4. 468th Group:

- a. A/C 486 landed at Cox's Bazaar at 0800Z due to gasoline shortage. Returned to Kharagpur on the same day, 1245Z.

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ANNEX

B

ENEMY ANTI-AIRCRAFT

\* \* \* \* \*  
\* Prepared BY: \*  
\* ANTI-AIRCRAFT OFFICER \*  
\* XX BOMBER COMMAND \*  
\* \* \* \* \*

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indicate the probable accuracy and intensity of heavy antiaircraft opposition that may be encountered from similar naval units under similar conditions.

Also, this comparison should clearly indicate that antiaircraft fire from naval units of this class should be respected and avoided when possible. In addition, this encounter also confirmed the reported policy of Japanese naval units taking evasive action rather than concentrating on the supply of maximum effective antiaircraft fire when under air attack, or thought to be under air attack. This encounter has provided the first definite information on the relative efficiencies of land-based vs. naval heavy antiaircraft fire, although reports from other headquarters, particularly the S.W.P.A., have always stated that naval antiaircraft opposition has been superior to that of land-based guns. Further comparisons will be drawn when sufficient evidence is available.

The reports of approximate intensity and accuracy which follow are divided into the two time periods while reports of deviations are not since resulting information of the two periods were practically identical. Thirty-six aircraft were over the target during period (1) and 18 during period (2). The numbers indicate aircraft reporting in the affirmative while percentages are determined from the total reports concerning accuracy, intensity, or deviations in one direction only as: above, level, or below.

<u>Reports of Accuracy</u>				<u>Reports of Intensity</u>			
Period	(1)	(2)	Total	Period	(1)	(2)	Total
Struck . . . . .	7	0	7 (12%)	Intense . . . . .	4	0	4 (8%)
Rocked . . . . .	6	0	6 (11%)	Moderate . . . . .	15	0	15 (30%)
Missed . . . . .	28	15	43 (77%)	Meager . . . . .	16	16	31 (62%)

Reports of Deviations

Above . . . . .	23 (28 percent)	Ahead . . . . .	18 (30 percent)	Left . . . . .	11 (27 percent)
Level . . . . .	32 (39 percent)	Abreast . . . . .	13 (22 percent)	In Line . . . . .	12 (29 percent)
Below . . . . .	27 (33 percent)	Behind . . . . .	29 (48 percent)	Right . . . . .	18 (44 percent)

For the first time period or from 0115Z to 0150Z bursts of unusual color and shapes were reported. Colors included black, brownish-black, gray, reddish brown, orange, yellow, green and white. The yellow bursts were further described as approximately the same size as the usual black flak bursts normally encountered but they "appeared to hang in the air for a longer time." Some of the black bursts were also reported as "burning with red fire for approximately two seconds before bursting into black." In addition, it was stated that some of the bursts were "long from top to bottom" and not round in shape.

For the second time period or from 0150Z to 0221Z bursts were reported as being generally black with some gray and no unusual characteristics were noted.

The undercast varied from 1/10 to 6/10. Although it is not believed that enemy aircraft were reporting data to antiaircraft installations, approximately ten that did not attack were sighted within 200 yards of our aircraft.

It is possible that the enemy was delivering Continuously Pointed fire by a portion of the defense at all aircraft of formations supplemented by both Barrage and Predicted Concentrations types. The number of bursts observed at any one time varied from 4 to 15, to 30 to 50, to over 100. It may be that heavy antiaircraft guns based on merchant shipping utilized Barrage fire when relatively large formations were detected, that naval units used a Predicted Concentration or Continuously Pointed type fired in salvos, and that land-based guns used Continuously Pointed fire.

Reports clearly indicate that all three types were in use, but on definite statement can be made as to when or by whom they were used. One air-

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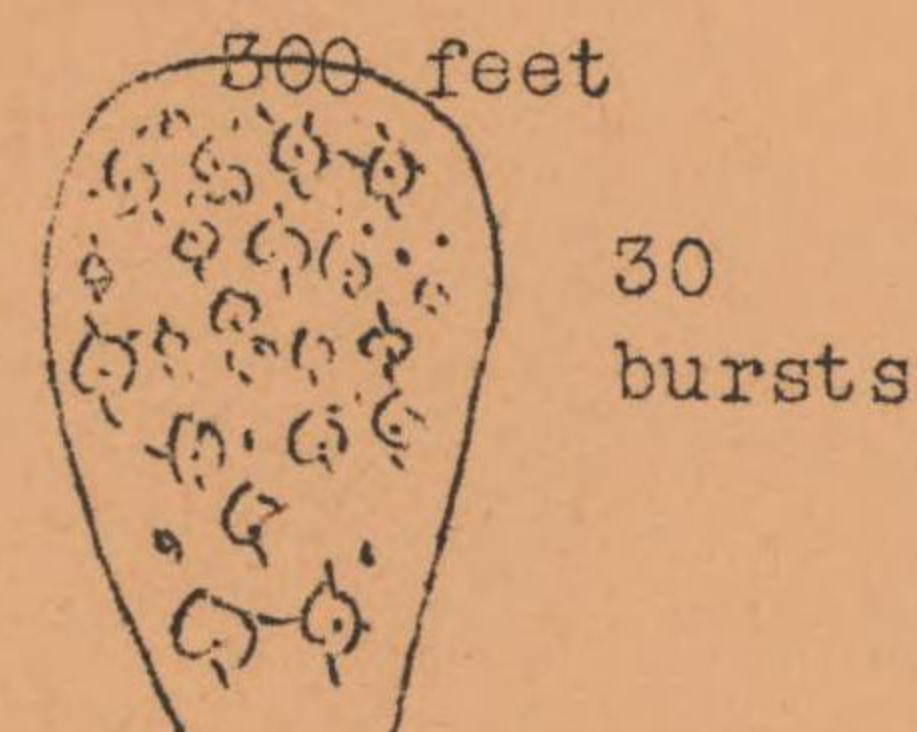
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craft reported, at 0121Z, that "ground fire seemed low whereas naval fire was in heavy concentrations quickly climbing to altitude in cone shaped clusters. Thirty to fifty bursts were seen in the air at one time and the bursts could be heard." Another aircraft at 0147Z reported "that heavy antiaircraft fire came in 6 successive bursts at increasing altitudes; increasing in accuracy." It was also reported that "at 0148Z the preceding formation encountered Predicted Concentration fire in the following pattern;"

It was also stated that "two crews of damaged aircraft thought the naval vessels to be using barrage type of fire with as many as 150 bursts reported covering an air volume approximately 5000 feet in diameter. Another crew thought the fire was Predicted Concentration observing up to 30 bursts in a very small area." The majority of the antiaircraft fire was encountered in the vicinity of the bomb release line.



No definite possibility of gun-laying radar was evident through R.C.M. intercepts, extent of the undercast, or the characteristics of fire.

Following are reports concerning the origin of heavy antiaircraft fire:

- (1) Ships outside of the drydock.
- (2) Site north of the SENOKO OIL DEPOT
- (3) Site south of the NAVAL STORES BASIN.
- (4) Site in the housing area South of the Workshops area.
- (5) From the heavy cruiser in JAHORE STRAITS.
- (6) Site near the JAHORE CAUSEWAY.
- (7) Eight HAA around the airfield in the NAVAL STORES BASIN area.
- (8) From site in the barracks area west of the NAVAL STORES BASIN.
- (9) From site northwest of the NAVAL STORES BASIN.

Not all of the above locations were confirmed on existing photo cover up to 8 November 1944. The following lists the approximate location of sites that were identified.

- (1) 4 HAA on BUKUM ISLAND (01°14'N - 103°47'E).
- (2) 4 HAA on BLAKANG MATI ISLAND (01°15'N - 103°49'E).
- (3) 4 HAA at SINGAPORE at 01°16.7'N - 103°49.6'E
- (4) 4 HAA near KALANG AIRDROME at 01°17.5'N - 103°52.8'E.
- (5) 1 Possible HAA at the NAVAL BASE (01°27.7'N - 103°49.6'E).
- (6) 1 Possible HAA at the NAVAL BASE (01°27.8'N - 103°49.4'E).
- (7) 2 Possible HAA at 01°27.1'N - 103°47.9'E.
- (8) 6 Possible HAA at 01°30.8'N - 103°47.4'E.

b. Vicinity of KUKUP (01°19'N - 103°26'E):

One aircraft at 0152Z reported meager and inaccurate gray heavy antiaircraft fire at an altitude of 21,000 feet through 3/10 undercast. Deviations were reported as left, but this fire was directed at another aircraft. No enemy aircraft were reported on the same course and altitude. This fire was reported as from a point 30 miles west of SINGAPORE on the MALAYA mainland.

c. PANGKALANBRANDAN (04°01'N - 98°17'E):

Meager to moderate and inaccurate to accurate black and gray heavy antiaircraft fire was reported by 7 out of 7 aircraft over the area from 2355Z to 0100Z at altitudes of from 21,000 to 22,000 feet. Visibility conditions were reported as CAUVU, and no enemy aircraft were reported on the same course and altitude.

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One aircraft was struck at 2355Z and one aircraft was rocked at both 0004Z and 0006Z. The seven aircraft, which bombed individually, were over the area at average intervals of ten minutes.

Deviations were reported as generally level and below, abreast and behind, and to the right. It is believed that continuously pointed fire was used although one aircraft at 0057Z reported approximately 50 bursts in the air at one time, approximately 3000 to 4000 yards to the left of the aircraft at the correct altitude.

At the secondary target, heavy antiaircraft fire was reported as originating from the following locations:

- (1) 5 ground flashes were observed from sites located in the center of the target area.
- (2) Flashes were observed at a point 6 miles from PANGKALANBRANDAN at 50 degrees.
- (3) A heavy antiaircraft site was reported near PANGKALANBRANDAN in a wooded area on the coast approximately 8 miles at 90 degrees from the target.
- (4) Antiaircraft movements were noted in the southwest corner of PANGKALANSESSE town, 8 miles northwest of the target.
- (5) 8 guns were observed in the southwest corner of the refinery at PANGKALANBRANDAN.
- (6) One site was observed in the woods south of PANGKALANBRANDAN.

From photo interpretation by the Target Unit, XX Bomber Command, of partial cover of 5 November 1944 the immediate target area is known to be defended by 24 heavy antiaircraft guns. Items (2), (3), (4), and (6) above could not be confirmed because of lack of cover of these areas, but those reports indicate that this refinery is defended by more than 24 guns.

From R.C.M. intercepts of signals from a possible "CHI" early warning radar in the vicinity of PANGKALANBRANDAN it is believed that the enemy had prior warning of the attack. Also there was no evidence of gun-laying radar through these same intercepts.

d. PORT SMETTENHAM Airfield (03°00'N - 101°26'E):

This airfield (reported as at 02°49'N - 101°26'E) was bombed as a target of opportunity by one aircraft at 0042Z from 18,000 foot altitude under CAVU conditions but no antiaircraft opposition was encountered.

e. TAUNGUP (18°51'N - 94°16'E):

No heavy antiaircraft fire was encountered by three aircraft bombing the target of last resort at 2153Z, 0001Z and 0124Z at altitudes of 18,000, 20,000 and 10,000 feet respectively through a 5/10 to 10/10 undercast. Meager and inaccurate black automatic weapons or light antiaircraft fire was encountered at 0124Z, however, by the one aircraft at 10,000 feet. Deviations were reported as level and below, ahead and to the right. The bursts were described as being very small, approximately 10 to 12 inches in diameter.

2. SEARCHLIGHTS:

One searchlight beam that never located the aircraft was observed near PORT BLAIR in the ANDAMAN ISLANDS at 2030Z at 5000 feet altitude. The beam was reported as white, the undercast as 4/10, and the beam remained on for approximately 2 minutes.

3. GROUND-TO-AIR CONTACTS:

Two observations were made in the vicinity of the ANDAMAN ISLANDS as follows:

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a. During occasional showers and clouds off the tip of the ANDAMAN Islands, a long purple-blue parabolic trail passed high across the nose of the aircraft at a distance of approximately 400 yards. The "object" passed the aircraft at the height of the parabola. Further information is lacking.

b. The second observation was made off the north tip of the ANDAMAN Island at 13°00'N - 93°10'E at 2032Z by two aircraft of a formation of two at an altitude of 8,000 feet. Only one long trail of green light, high and to the left, was seen. It was stated that it appeared to come from an aircraft and it may be that it was a flare fired from a plane.

4. SMOKE SCREENS:

At 0143Z one aircraft out of 14 over SINGAPORE at the time reported a surface vessel which appeared to be emitting white smoke approximately 1 mile north of the NAVAL STORES BASIN. The smoke did not reach the target area. This was possibly the normal result from a ship under way or preparing to get under way.

5. BARRAGE BALLOONS: None reported.

6. HIGH-ALTITUDE BALLOONS:

Two observations were made of balloons above 10,000 feet as follows:

a. The first observation was made at SINGAPORE about 10 miles to the right of the NAVAL BASE DRYDOCK near possible radio towers at 0155Z. Four balloons were sighted which resembled "sausages" at an altitude of approximately 15,000 feet.

b. The second observation was also made at SINGAPORE by one aircraft out of a formation of six over the area at 0143Z. One spherical balloon was reported about 3 miles south of the NAVAL BASE DRYDOCK at an altitude of 21,000 feet.

7. DAMAGE FROM HEAVY ANTI-AIRCRAFT FIRE:

Eight aircraft sustained damage from heavy antiaircraft fire as follows:

<u>Group</u>	<u>A/C</u>	<u>Location</u>	<u>"Z" Time</u>	<u>Altitude feet *</u>	<u>Heading Degrees</u>	<u>Extent</u>
40th	237	SINGAPORE	0140- 0145	21,500	90	One flak hole in right wing tip. Flak holes in #3 nacelle. One flak hole in floor of radar compartment. One piece of flak hit under side of right inboard wing.
40th	503	SINGAPORE	0115	21,000	85	One flak hole in bomb bay door.
40th	290	SINGAPORE	0121	21,100	92	Flak damage to right hand horizontal stabilizer.
462nd	475	SINGAPORE	0132	20,000	89	Horizontal stabilizer damaged on top by flak.
462nd	338	SINGAPORE	0142	22,750	88	Fuselage damaged by flak.
462nd	456	SINGAPORE	0142	22,750	88	Flak damage to #2 engine nacelle and wing.
468th	265	SINGAPORE	0121	22,200	92	Minor flak damage.
468th	429	PANGKALAN- BRANDAN	2355	20,700	180	Minor flak damage to #3 nacelle and wing flap.

\* True Altitude.

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8. WARNING:

It is believed that the enemy had prior warning of the attack against SINGAPORE because of interception of early warning radar signals by R.C.M. observers from the ANDAMAN Islands to the target, and also from the target back to the ANDAMAN Islands. In addition, this is confirmed by the fact that the MCHI class heavy cruiser in JAHORE STRAITS had started to get under way at the time of the first bomb release.

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S E C R E T

ANNEX

C

ENEMY AIR OPPOSITION

\* \* \* \* \*  
\* Prepared By: \*  
\* OPERATIONAL INTELLIGENCE UNIT \*  
\* XX BOLLEB COMAND \*  
\* \* \* \* \*

S E C R E T



S E C R E T

I. JAPANESE FIGHTER TACTICS - MISSION NO. 15

TARGET: Singapore, Malaya.

TIME: Day Mission.

DATE: 5 November 1944.

1. General:

a. Enemy fighter opposition was weak. Of a total of 64 B-29's participating in the mission 34 were intercepted. There were 68 encounters, of which 56 were single, and 5 (comprising twelve encounters) were coordinated. The intercepting force is estimated at 15 TOJOS, 3 HAMPS, 6 OSCARS, 6 TONYS, 3 ZEKES, 1 RUFÉ and several unidentified enemy aircraft including one twin-engine aircraft, possibly NICK. Preliminary claims against enemy aircraft are 1 destroyed, 1 probably destroyed, and 4 damaged.

b. Fifty-six encounters took place in the area of the primary target at altitudes ranging from 18,500 to 22,750 feet. The action was confined to a period of 48 minutes -- from 0127Z to 0215Z. Forty-three of these encounters (76%) over the primary target were made after "bombs away". Two encounters took place while bombs were being dropped, and eleven before "bombs away".

2. Direction and Level of Attacks:

The enemy continues to show a preference for attacks from the frontal quarter, with 53% originating at 11, 12, or 1 o'clock. Of 36 frontal encounters, 15 (42%) were high, 6 (16%) were level and 15 (42%) were low. This follows the pattern of Mission No. 12 in which a similar distribution of attack levels for frontal approaches was encountered. There is a change, however, from the tactics of Missions No. 13 and No. 14. In 13, 54% were high, 18% were level, and 28% were low. In No. 14 the high frontal approach was definitely preferred, with 81% of the frontal attacks high, 6% level and 13% low.

Of those encounters not originating from the frontal quarter on Mission No. 16, 23% came in on the left between 8 and 10 o'clock, 15% from the rear, and 9% from the right. In the over-all picture, high and low approaches were about equal, (38% high and 41% low) with the level approach used in 21% of the encounters.

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Table I - Direction and Level of Approach

Direction of Attack or Pass	Left Side			Front			Right Side			Rear			Total
	8	9	10	11	12	1	2	3	4	5	6	7	
High	1	1	2	11	3	1	1	1	1	3		1	26 (38%)
Level		2	3	3	2	1		1		1	1		14 (21%)
Low	1	3	3	6	6	3	1		1	1	1	2	28 (41%)
TOTAL	2	6	8	20	11	5	2	2	2	5	2	3	
	16 (23%)			36 (53%)			6 (9%)			10 (15%)			68 (100%)

Table II - Level of Approach

Level of Approach	Left Side	Front	Right Side	Rear
High	4	15	3	4
Level	5	6	1	2
Low	7	15	2	4
Total Attacks	16	36	6	10

3. Exchange of Fire:

Japanese pilots fired in 54% of the encounters. They reverted to their tactics in Missions Nos. 9, 11 and 12 of withholding much of their fire until within a range of 1000 yards. The percentage for this Mission 35%, compares with 38% on No. 9, 36% on No. 11, and 30% on No. 12. On Missions No. 13 and 14, these percentages were higher - No. 13 was 44% and 14, 58%. B-29's fired in 88% of the encounters, and, in connection with this, there is a noticeable drop in the percentage of fire in the 0-499 yard range compared with Mission No. 14 in which the percentage was 35%, in Mission No. 15 this percentage dropped to 8%. This may be attributed to a less aggressive attitude on the part of the Japanese pilots in comparison to Mission No. 14, and to breakaways at greater distances from our aircraft. Distances at which B-29's and enemy aircraft opened fire are shown in Table #3.

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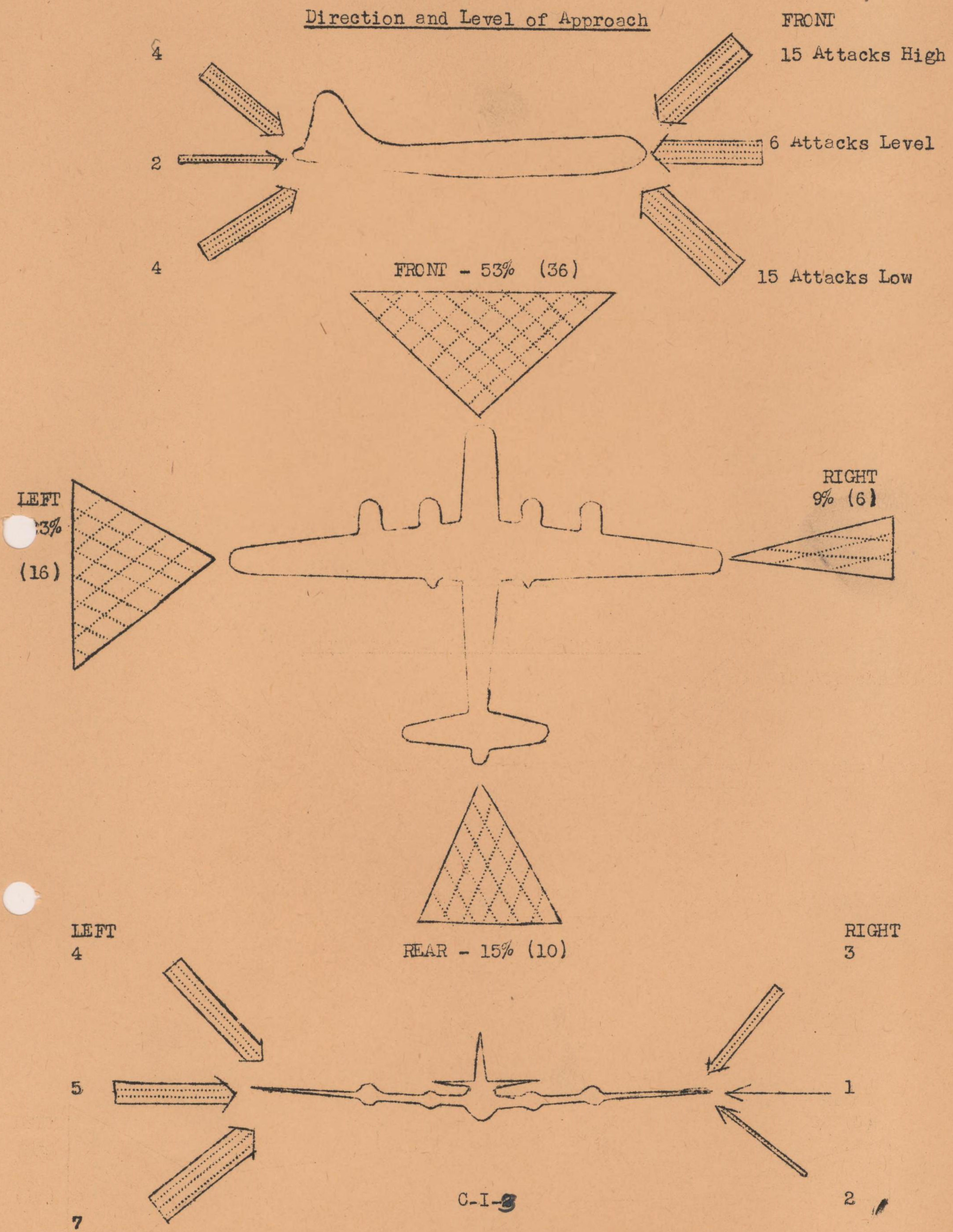
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Table No. 3 - Distances Opened Fire

<u>Distance (yards)</u>	<u>Enemy Fire</u>	<u>B-29 Fire</u>
0 to 499	19%	8%
500 to 799	32%	39%
800 to 999	14%	20%
1000 & over	35%	33%

4. Aggressiveness of Enemy Attacks:

Percentages indicate that Japanese pilots were not as aggressive in pressing home their attacks as in other recent Missions. On Mission No. 15, 30% of the attacks were pressed to within 250 yards, as compared with 41%, 40%, 75%, 40% and 43% on Missions 14, 13, 12, 11 and 9 respectively. A small number of Japanese pilots did prove aggressive with 12 closures reported between 8 and 100 yards, but comments from some crews indicate that on the whole the enemy pilots seemed inexperienced and showed little inclination to close with B-29's after they knew they had been observed. Many would break away at the first burst from a B-29. Enemy gunfire was poor. Distances to which E/A attacks were pressed are shown in Table #4.

Table No. 4 - Distances to which Attacks were Pressed

<u>Distances (yards)</u>	<u>Encounters</u>	<u>Percentage</u>
1000 and over	9	13
800 to 999	11	16
500 to 799	22	32
250 to 499	6	9
0 to 249	<u>20</u>	<u>30</u>
Total	68	100%

5. Coordinated Attacks:

a. There were five separate coordinated encounters in which a total of 12 enemy aircraft participated. Only one of these attacks, in which four Tojos were used, seemed to indicate any previous planning.

b. In the attack involving four Tojos the enemy aircraft trailed the B-29 about 1200 yards, flying low from 5 to 7 o'clock. One Tojo left the formation, maneuvered to a position in front of the B-29 and attacked

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from 11 o'clock high. The breakaway was a steep bank to the left and out in a dive at 3 o'clock to join the other fighters. During each breakaway another Tojo swung around to repeat the maneuver. Each aircraft made one pass at the B-29.

c. Two Oscars came in at 12:30 low, did not open fire, closed to about 600 yards, then continued past the tail and climbed. Two minutes later 2 Oscars (it is not known whether they were the same two airplanes) came in at ten o'clock level, closed to about 1000 yards without opening fire, then continued past the tail and climbed out of the way.

d. Details on the other two coordinated attacks are lacking, the reports intimating that they may have been coincidental and without a prearranged plan of action.

6. Aerial Bombing:

a. Two reports were received of the use of aerial bombs. No B-29 damage was reported from either.

b. Two Tonys were observed flying at 25,000 feet each towing cables 50 to 60 feet long on the end of which were cylindrical cans about one foot in diameter and 4 to 5 feet in length. They were seen flying head-on toward a formation of B-29's but reports from the B-29's indicate that the attacks were ineffective.

c. Two parachute bombs were dropped with good deflection but about 1500 feet high in the path of a B-29. They resembled "smoking parachutes" and were observed to disintegrate in about one minute.

d. No phosphorous bombs were reported.

7. New Tactics and Weapons:

None reported.

8. Evasive Action by B-29's:

Three instances of evasive action employed against enemy aircraft were reported. Two of these consisted of turning into the attacking airplanes, and the third of turning away to give the enemy aircraft a poorer deflection shot.

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9. Summary:

- a. Enemy fighter opposition rated as weak.
- b. No B-29's destroyed. Preliminary claims 1 destroyed, 1 probably destroyed, and 4 damaged.
- c. 76% of the encounters over the PT area were after "bombs away". Action was confined to a period of 48 minutes.
- d. 36 encounters (53% of the total encounters over the primary target area) originated from the frontal quarter. 15 were high, 15 were low, and 6 level.
- e. Japanese pilots fired in 54% of the encounters, B-29's in 88%.
- f. Enemy aircraft not considered aggressive. Showed a marked inclination to break away at greater distances than on other recent missions.
- g. No preference for any one breakaway maneuver. Dives, peel-offs, split S's, and a half-roll followed by a dive were all observed.
- h. No attempt to ram or dive through a formation.
- i. No phosphorous bombs observed.

10. Enemy Aircraft Markings:

<u>Color</u>	<u>A/C</u>	<u>Markings</u>
Black	Tony	
CD	Tojo	Diagonal orange stripe on top of each wing running in toward nose.
Silver	Tojo	
Camouflaged	S/E	Red suns
Reddish	Fighter	
Brown Camouflage	Fighter	
Silver	Hamp	Red balls under side of wings.
CD	Tony	
Mottled green and brown	Zeke	
Silver	Oscar	Red dots.
Silver	Zeke	Red dots.

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Enemy Aircraft Markings (continued):

<u>Color</u>	<u>A/C</u>	<u>Markings</u>
Unreported	Tony	Stripes running diagonally across back of fuselage.
Camouflaged	Tony	Orange stripes on wings.

NOTE: A number of enemy aircraft (identities unreported) were observed as camouflaged a "dirty green" color with the top of the airplane painted a dull brown.

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ANNEX

D

WEATHER INFORMATION

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

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I - WEATHER INFORMATION

Mission No. 15

5 November 1944

	AS FORECAST	AS ENCOUNTERED
Base (Take-Off)	Clear. Visibility 7 miles.	<u>KHARAGPUR</u> : Clear. Visibility unrestricted. Wind calm. <u>DUDHKUNDI</u> : Clear. Visibility unrestricted. Wind calm. <u>PIARDOBA</u> : Clear to scattered clouds at 4000'. Visibility 7 miles. Wind SW 6MPH. <u>CHAKULIA</u> : Clear. Visibility 7 miles. Wind calm.
Route out	<u>BASE TO LAT 15°N</u> : Clear, with few scattered small cumulus. Haze limiting surface visibility to 4-7 miles. <u>15° N. to 8°N</u> : Scattered cirrus at 23,000' gradually becoming overcast cirrostratus. 5/10 cumulus, base 1500', tops variable up to 10,000'. Scattered showers, scattered tall cumulus to 18,000' in diffuse frontal zone at 8°N. <u>STRAIT OF MALACCA</u> : Overcast cirrostratus at 21,000'. Patches of broken altostratus at 14,000'. 6/10 cumulus, base 1500' tops averaging 7000' with few as high as 12,000'. Scattered showers.	<u>BASE TO LAT. 15°N</u> : Scattered cirrus at 25,000'. 3/10 cumulus and/or stratocumulus at 2-3000' over the Bay. Light turbulence in the lower levels. <u>15°N. to 8°N</u> : Occasional patches of thin broken altostratus at 7000' 4/10 to 5/10 cumulus, bases 2000', tops variable 3-5000' with few taller ones to 10,000'. Occasional showers. Cumulus building up to scattered thunderheads at 8°N. <u>STRAIT OF MALACCA</u> : 5/10 cumulus decreasing to 3/10 towards south end of Strait. Tops variable from 5000' to 15,000'. Row of thunderheads paralleling course to the right. Scattered cirrus and cirrostratus above 20,000'.
TARGET AREA	<u>TARGET</u> : 9/10 cirrostratus above 22,000'. 3/10 cumulus, base 3000', tops 5,000'. Visibility over 6 miles. <u>SEA LEVEL PRESSURE AT TARGET</u> : 29.85 in. <u>MEAN TEMPERATURE - SURFACE TO 23,000' OVER TARGET</u> : 9°C.	<u>PRIMARY TARGET</u> : Cirrostratus varying during the operation from 2/10 to 7/10 coverage at 23,000', occasional patches at 21,000' caused one ship to make a radar run after making a visual approach. 4/10 cumulus and/or altocumulus, tops at 8000'. Visibility unrestricted. <u>SECONDARY TARGET</u> : Clear and unrestricted. Scattered cumulonimbus to the east.
Return Route	Scattered cumulus building up over Malay Peninsular with occasional tops to 16,000'. Scattered avoidable thunderheads to 25,000' in frontal zone around 8° N. Rapid disintegration of cumulus North of 8° with generally clear skies remainder of route	<u>STRAIT OF MALACCA TO 12°N</u> : 5/10 cumulus, tops 5-10,000', with scattered cirrus above 20,000'. Tops of cumulus becoming extremely variable, from 5000' to 20,000', towards the north end of the Straits and continuing thru with about 5/10 coverage to vicinity of 12°N. <u>12°N TO 18°N</u> : Zone of convergence characterized by a mixture of cumulus congestus, cumulonimbus, and various stratiform types, at the center of which the planes encountered an average of about an hour of instrument conditions with occasionally severe

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S E C R E T

	As Forecast	As Encountered
Return Route		turbulence, light rime ice, rain showers, and snow (at 18,000'). <u>NORTH OF 18°N</u> : Cloudiness deteriorated to 1/10 moderate cumulus.
Base on Return	CAVU. Altimeter Setting at 1600 IST: 29.75 in.	<u>KHARAGPUR</u> : Scattered cumulus at 4000'. Visibility unlimited. Wind calm. <u>JUDPKUNDI</u> : 3/10 cumulus at 5000'. Visibility 10 miles. Wind calm. <u>PIARDOBA</u> : Scattered cumulus at 4000'. Visibility 7 miles. Wind SW 6 mph. <u>CFAKULIA</u> : Scattered cumulus at 4500'. Visibility 7 miles. Wind calm.
Icing Level	14,000'. Clear ice in cumulus above that altitude.	

A. Winds Aloft - Forecast

Altitude	Base to 18°N.	18°N. to 14°N.	14°N. to 8°N.	8° N. to Target
1000'	330° 10K	360° 10K	130° 10K	270° 10K
5000'	300° 12K	200° 12K	160° 10K	120° 10K
10,000'	280° 15K	220° 15K	160° 12K	130° 12K
15,000'	280° 20K	230° 15K	140° 12K	100° 12K
20,000'	280° 30K	240° 15K	130° 12K	60° 15K
25,000'	260° 35K	250° 20K	110° 15K	80° 15K

B. Winds Aloft - Encountered

Altitude	10° N.	7° N.	Target
1000'	140° 10K		
3000'		130° 10K	
5000'	150° 10K		
15,000'		170° 10K	
20,000'			50° 15K
21,000'			60° 14K
22,000'			75° 15K

C. Target Temperatures

Forecast:

Altitude	Temperature
1000'	25° C.
5000'	18° C.
10,000'	9° C.
15,000'	0° C.
20,000'	-6° C.

Mean temperature - Surface to 23,000': 9° C.

D-I-2

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Encountered:

Altitude	Temperature
20,000'	-4° C.
21,000'	-6° C.
22,000'	-9° C.

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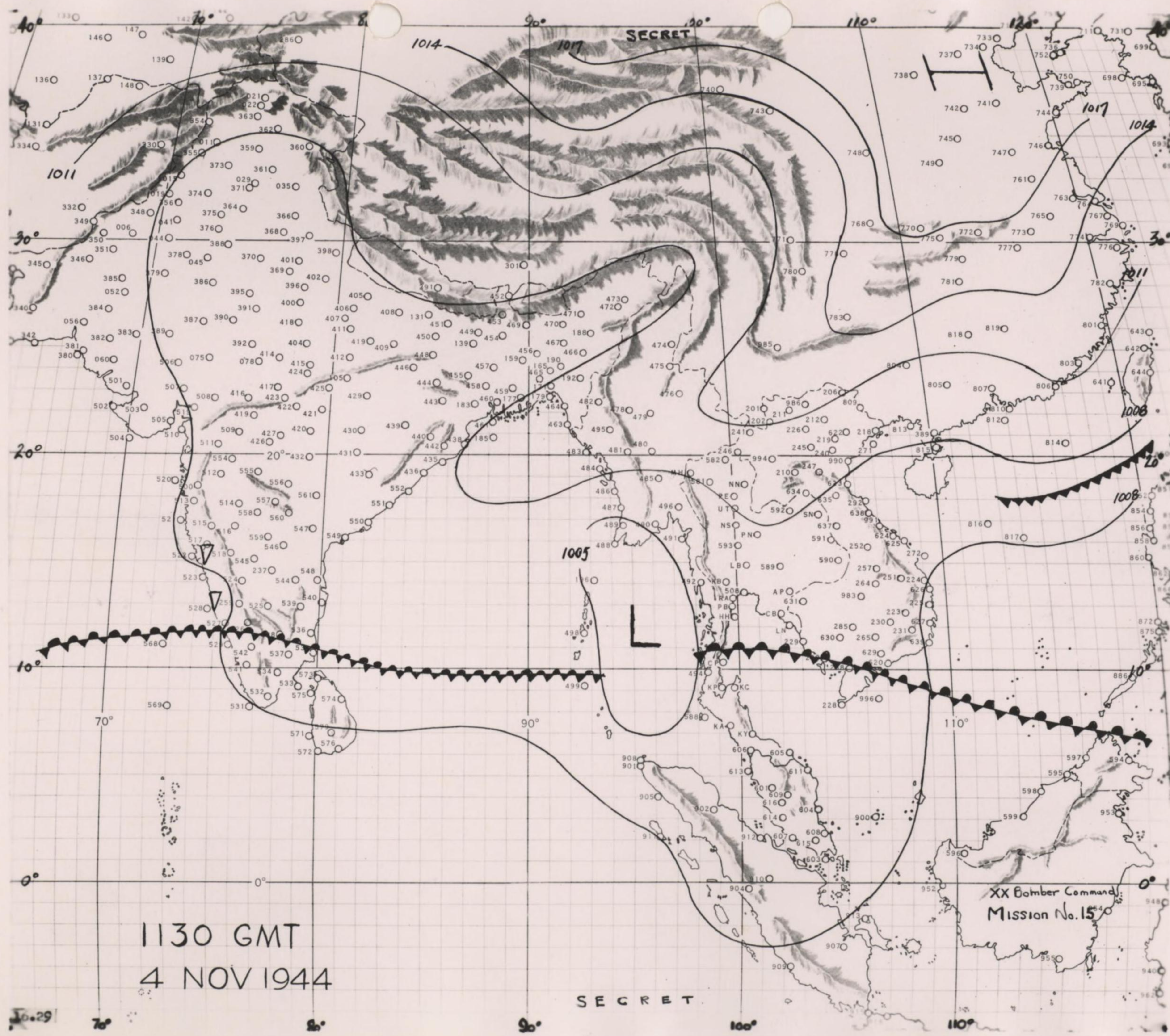


"SECRET"

04

"SECRET"





1130 GMT  
4 NOV 1944

XX Bomber Command  
Mission No. 15



**"SECRET"**

NO

**"SECRET"**



S E C R E T

ANNEX

E

COMMUNICATIONS INFORMATION

\*\*\*\*\*  
\* PREPARED BY: \*  
\* \*  
\* COMMUNICATIONS SECTION \*  
\* XX BOMBER COMMAND \*  
\*\*\*\*\*

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E.O. 11652, Sec. 3(E) and 5(D) or (E)

By NND 740120  
ep/m NARS, Date Oct 20 1975

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By AB NARA Date 10/18/05



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SECRET  
:Auth: CG XX BC :  
:Date: 9 Nov. 44 :  
:Initials: 1/194 :  
:

HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

CONSOLIDATED  
SPECIALIST MISSION  
REPORT OF

XX BOMBER COMMAND COMMUNICATIONS (RADIO) OFFICER

Date prepared: 9 November 1944                      Field Orders No.: 15

Date of Mission:  
5 November 1944

1. The Communications Annex to Field Orders Number Fifteen in general contained those portions of Part I, Section VIII, current Tactical Doctrine as could be made applicable to an India based mission. As planned communications proved satisfactory except that more skip appeared in using the eight megacycle frequencies than had been expected.

2. Air-ground traffic increased to a large extent over Mission Number Fourteen; this being occasioned by the fact that numerous aircraft bombed individually and that aircraft were required to send a position report on the trip back to base. A resume of air-ground traffic follows:

a. "Bombs away" messages:

<u>40th Bomb Gp</u>	<u>444th Bomb Gp</u>	<u>462nd Bomb Gp</u>	<u>468th Bomb Gp</u>
12	9	8	12

b. "Intercept" messages:

--	2	4	3
----	---	---	---

c. Position Reports:

17	16	11	10
----	----	----	----

d. No convoy sighting messages were required by the Field Orders. Nevertheless aircraft of the 468th Group transmitted three such messages.

e. The Field Orders directed that an encoded position report be sent rather than a "canned" message such as is used during missions flown from China bases. Nevertheless, many "YYYYY" messages, such as are used during China based missions were intercepted, indicating that radio operators were improperly briefed or did not follow briefing instructions

- 1 -

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3. A statistical summary of the use of aids to air navigation is as follows:

a. Radio Homing Beacons

<u>Location</u>	<u>No of a/c Reporting</u>	<u>Average Initial Contact</u>	<u>Extreme Initial Contact</u>
Chakulia (AF)	11	400 miles	450 miles
Piardoba (ML)		419 miles	650 miles
Dudhkundi (FN)		100 miles	
Kharagpur (GK)		225 miles	450 miles
Calcutta (CM)		325 miles	650 miles
Chittagong (NR)		300 miles	475 miles

b. Radio Ranges:

<u>Location</u>	<u>No of a/c Reporting</u>	<u>Average Initial Contact</u>	<u>Extreme Initial Contact</u>
Kharagpur (GK)	--	155 miles	210 miles
Calcutta (CM)		200 miles	250 miles

c. Requests for D/F aid:

<u>A/C</u>	<u>D/F Station</u>	<u>Frequency</u>	<u>Time &amp; Class</u>	<u>Approximate Distance</u>
278	6C2	8310	0836Z - I	
4581	6C2	8310	0630Z - 0706Z - 0735Z - 0800Z -	
299	6C2	8310	0250Z - II 0508Z - I	1100 miles 460 miles
461	6C2	8310	0803Z	
479	6C2	8310	0708Z - II	
382	6C2	8310	0905Z - II	
270	6C2	8310	0811Z - I	
454	3S8	8260	0657Z - 0750Z -	
4542	3S8	8260	0725Z -	
4429	3S8	8260	0155Z - 0355Z - 0500Z -	
3417	3S8	8260	0645Z -	

- d. The 40th and 468th Groups did not make use of D/F facilities.
- e. The QDM received by aircraft 299 at 1100 constitutes a new record for this Command as to distance at which QDM's were received. At post-flight interrogation, pilot and navigator of 299 stated QDM was actually Class I, being but one degree off course as plotted by navigator.
- f. Air-to-air homing was not used on this mission.



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4. Frequencies most in use were the assigned eight megacycle frequencies. All groups reported a signal strength of from S-2 to S-5 over the target area. Due to skip phenomena, the eight megacycle frequencies were not useable from time of takeoff until daylight, but the five megacycle frequency used by the Aircraft Control Center at Hiji (which served as an alternate station) effectively filled in during this period. The 462nd Group reported that the two megacycle assigned frequency was also serviceable during this period.

5. Static interference was never at a high level during the mission. Some interference from other stations transmitting near assigned frequencies was logged, but in no case was it strong enough to interfere with communications. The 444th Group reported that CW signals were sent on their air-to-air command frequency whenever it was used, between the hours of 0400Z to 0900Z. This information has been submitted to the Radio Counter Measures Unit of this Headquarters for further investigation.

6. Transmission Security Monitoring was carried on by the 413th Signal Company Radio Intelligence Platoon during the mission period. All Group frequencies were monitored. Results have not as yet been compiled, but a preliminary study indicates that a decided increase in transmission and cryptographic security violations took place on this mission. The reports when compiled will be forwarded to the Group Commanders.

8. Malfunctions of equipment are summarized as follows:

a. 40th Bomb Group: Five (5) malfunctions:

- (1) Command transmitter BC-489 would not tune satisfactorily above 7438 kcs. When antenna lead was jumpered to liaison antenna, output improved. Cause undetermined at time report was submitted.
- (2) Tail gunners microphone noisy when keyed, caused by CFC generator.
- (3) Radio compass sense antenna lead-in broke during flight. Not repairable.
- (4) Radio compass sense antenna lost during flight. Command set antenna used as a satisfactory substitute.
- (5) Radio compass out due to inverter malfunctioning. Repaired during flight.

b. 444th Group: Four (4) malfunctions.

- (1) Radio compass sense antenna lead-in broke during flight. Not repairable.
- (2) Defective microphone switch. Replaced during flight.
- (3) Tail gunners jack box defective. Gunner received liaison set signals when switch was in interphone position. Not repaired in flight.



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- (4) Poor reception on all receivers, very noisy. Due to poor bonding on aircraft, not repairable in flight.

c. 463rd Group: Five (5) malfunctions.

- (1) Co-pilots headset and microphone intermittent. Replaced by using parts from astrodome.
- (2) Radio compass receiver weak. Not repairable in flight.
- (3) Ringing noise in interphone system. Pilots microphone bad. Not repairable in flight.
- (4) Vacuum relay out of adjustment in Liaison transmitter. Not repairable in flight.
- (5) Twenty ampere fuse in command set modulator unit burned out. Replaced in flight and modulator gave no more trouble.

d. 468th Group: Two (2) malfunctions

- (1) Compass whip antenna broke. Not repairable in flight.
- (2) Compass whip antenna broke. Not repairable in flight.



S E C R E T

ANNEX

F

RADAR

- I RADAR INFORMATION
- II RADAR TABLES

\*\*\*\*\*  
\*Prepared by: \*  
\* \*  
\* Radar Section \*  
\* XX Bomber Command\*  
\*\*\*\*\*

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.Initials JKK  
.Date 9 Nov 44  
.....

CONSOLIDATED  
SPECIALIST MISSION  
REPORT OF

XX BOMBER COMMAND RADAR OFFICER

Date Prepared: 9 November 1944 Field Orders No. 15  
Date of Mission: 5 Nov 44

I - Radar Information

A - Radar Bombing

1. The Radar-Bombsight procedure was used by many crew members in bombing the targets on this mission. Scattered cloud cover, one-tenth (1/10) to six-tenths (6/10), over the primary target of Singapore, made the visual bombing run difficult and limited. Radar Operators directed the plane or plane formation onto course, killed drift and made the last visual correction easier. Coordination between crew members was again excellent on the bombing run.

2. Radar Bombing was performed by three (3) individual aircraft. One (1) aircraft bombed the primary target and two (2) aircraft bombed the last resort target of Taungup by radar. The results from both methods, Radar-Bombsight Procedure - Visual or Radar Release, was reported very satisfactory.

B - Radar Navigation

1. A new table has been added to this report, namely, a table on Radar Navigational Ranges, Table C, Section II. This table presents a number of radar check points reported sighted on this mission by the radar operator. The total number reporting on these check points were three hundred and twenty-three (323). This number of reporting was, however, not the grand total of check points sighted during the mission, but a true representation of the greater number of radar sightings along the route, and reported on.

2. It is of interest to note that the average mapping range of the AN/APQ-13 was forty-five and three-tenths (45.3) nautical miles. The turning point, Bengkalis Island, was reported sighted by thirty (30) radar operators at an average range of thirty-five and four-tenths (35.4) nautical miles. Radar Sighting of the initial point, Pisang Island, was thirty and six-tenths (30.6) nautical miles while the target, the Drydock Area, appeared at an average range of twenty-five and seven-tenths (25.7) nautical miles. A number of radar operators reported, the primary radar target, Fourth Senako Oil Depot, did not show on the radar scope on the axis of attack, eighty-nine (89°) degrees magnetic, but the general area was readily identifiable.

3. One (1) group compared ground speed readings and reported the radar operators' ground speeds to check within two (2) to six (6) knots of the ground speeds computed by the Navigator. Radar Navigation was a great aid on the mission.

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C - Radar Operator Efficiency

The operating efficiency of the radar operator increased in comparison with other missions. A total of forty (40) operators or eighty-seven (87%) per cent identified the initial point at a useable range, while a total of forty-three (43) or ninety-four (94%) per cent identified the aiming point at a range greater than fifteen (15) nautical miles. The number of operators determining ground speed and drift also increased, namely, seventy-eight (78%) per cent computing these items by radar. The only operator efficiency percentage decreasing, was the number of operators using azimuth stabilization and sector scan. This decrease was due in some cases to equipment malfunction.

D - Radar Scope Photography

1. Photographic results were approximately average for this mission. Eight (8) sets of radar scope pictures were returned or fifty (50%) per cent of the total number of cameras completing the mission. Seven (7) sets were useable and the bombing run could be traced on all sets.

2. This mission was the second combat use of the K-24 radar scope camera by this organization. Results were considered very satisfactory. Six (6) K-24 cameras were installed producing three (3) or forty-three (43%) per cent of the useable pictures. Additional K-24 cameras are in the process of being installed as soon as a standard installation has been tested and approved.

E - IFF Operation

1. A number of IFF bogies were noted on returning aircraft, causing difficulties in the filter rooms and fighter units. Action has been in progress to eliminate these false indications for the past few months. Tests were performed at each base by a mobile IFF Interrogation Unit, and at the present time permanent interrogation units are being installed in each base control tower. Reminder IFF signs are also being located at logical points at the ends of runways. Serviceability checks have been ordered performed more often and IFF units removed after each one hundred (100) hours of operation for complete service group inspection.

2. Eastern Air Command ground radar stations report that IFF response are rarely obtained from a B-29 presenting a head-on aspect, although such a response is seen when the aircraft is travelling away from the station. It is believed the location of the antenna on the aircraft may have a shielding effect on its performance and tests are being conducted by units of this command in the field on a relocation of the IFF antenna.

F - Radar Serviceability

1. Radar equipment serviceability was above average for this mission. All radar systems were reported operational at take-off and ninety-five (95%) per cent of the AN/APQ-13 radar systems were operational over the target. Only two (2) systems were totally unrepairable in flight and both failures occurred between take-off and the target. One (1) additional AN/APQ-13 system was inoperative over the target when the inverter failed shortly before the initial point. This failure was finally repaired by the radar operator changing to the auxiliary equipment radar inverter but too late for the bombing run.

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2. Two (2) additional radar equipment malfunctions repaired in flight are of interest. One (1), 829 tube in the Radio Modulator failed but the replacing of the tube provided operation of the set over the target and for the remainder of the mission. Another radar operator's main indicator failed, but the replacing of the main indicator with auxiliary (navigator's) indicator permitted continued operation of the radar equipment. Additional malfunctions have been listed in Table F, Section II, Radar Tables.

3. There were no reports of auxiliary radar equipment failures.

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II - RADAR TABLES

A - RADAR BOMBING DATA

DATA	40th Gp		444th Gp		462nd Gp		468th Gp		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total A/C Bombing	17	-	16	-	14	-	17	-	64	-
A/C Bombing P.T.*	14	82	13	81	12	86	14	82	53	83
Visual Bombing #	14	100	13	100	12	100	13	93	52	98
Radar Bombing #	0	0	0	0	0	0	1	7	1	2
A/C Bombing S.T. (All visual) *	1	6	3	19	0	0	3	18	7	11
A/C Bombing L.R.T.*	1	6	0	0	2	14	0	0	3	4
Visual Bombing #	0	0	0	0	1	50	0	0	1	33
Radar Bombing #	1	100	0	0	1	50	0	0	2	67
A/C Bombing T.of O. (All visual) *	1	6	0	0	0	0	0	0	1	2
Total Radar Bomb.*	1	6	0	0	1	7	1	6	3	5

\* Percentage Based on Total A/C Bombing  
# Percentage Based on A/C Bombing Target

B - RADAR OPERATOR EFFICIENCY

DATA	40th Gp		444th Gp		462nd Gp		468th Gp		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No. Possible Determining G.S. & Drift by Radar	17	82	16	100	12	58	14	64	59	78
No. Determining	14		13		10		11		46	
No. Possible Identifying I.P. at useable range	12	-	13	-	10	-	11	-	46	-
No. Identifying	11	92	11	85	10	100	8	73	40	37
No. Possible Identifying A.P. at range greater than 15 miles	12	-	13	-	10	-	11	-	46	-
No. Identifying	12	100	13	100	8	80	10	91	43	94
No. Possible Using Azim. Stab. and Sector Scan	14	-	16	-	10	-	15	-	55	-
No. Using Azim. Stab.	11	79	11	69	8	80	15	100	45	82
No. Using Sector Scan	8	57	11	69	4	40	9	60	32	58

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C - RADAR NAVIGATIONAL RANGES

Name of Check Point	40th Gp		444th Gp		462nd Gp		468th Gp		Total	
	Number Reporting	Average Range *	Number Reporting	Average Range *	Number Reporting	Average Range *	Number Reporting	Average Range *	Total Number Reporting	Weighted Average Range *
Mapping	14	51	15	41	0	-	2	43	31	45.3
Pisang Island(IP)	14	32	16	28	12	31	11	32	53	30.6
Target(Drydock)	14	27	15	27	10	19	13	28	52	25.7
Bengkalis Isl.(TP)	7	44	11	31	5	33	7	37	30	35.4
Andaman Islands	11	34	12	34	4	33	6	25	33	32.3
City of Singapore	0	-	1	30	1	45	0	-	2	37.5
Coco Islands	4	26	6	28	3	18	5	28	18	26.1
Hoogly River	1	25	1	20	1	35	3	17	6	21.8
Indian Coast	3	48	5	39	1	46	6	29	15	37.2
Lamut Island	0	-	1	30	0	-	1	50	2	40.0
Madang	3	33	0	-	0	-	1	24	4	30.8
Malayan Coast	6	50	5	44	2	40	7	39	20	43.7
Narcondam Islands	0	-	0	-	4	18	0	-	4	18.0
Pangkov Island	1	40	1	45	1	40	0	-	3	41.7
Preparis Island	0	-	1	30	0	-	1	40	2	35.0
Puket Penninsula	2	25	3	38	0	-	5	38	10	35.4
Roepat Island	2	40	6	38	1	45	3	24	12	35.4
Sayer Islands	4	24	1	30	0	-	5	32	10	28.6
Seneboei Island	0	-	1	30	0	-	1	45	2	37.5
Sumatran Coast	5	49	2	38	1	45	6	42	14	44.1
Total Reports	91	-	103	-	46	-	83	-	323	-
Average No. Reports-	-	-	-	-	-	-	-	-	81	-

\* Ranges reported are ranges of radar pickup in nautical miles.

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S E C R E T



S E C R E T

D - PHOTOGRAPHIC RESULTS

DATA	40th Gp		444th Gp		462nd Gp		468th Gp		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No. Cameras Install.	7	-	5	-	3	-	4	-	19	-
C-3 Cameras	0	-	2	-	2	-	1	-	5	-
K-35 Cameras	3	-	2	-	0	-	1	-	6	-
K-24 Cameras	3	-	1	-	1	-	1	-	6	-
H2X Cameras	1	-	0	-	0	-	1	-	2	-
No. Cameras in Abort* and Early Return A/C	0	0	2	40	1	33	0	0	3	16
No. Cameras Com- pleting Mission *	7	100	3	60	2	67	4	100	16	84
No. Cameras in Radar Malfunction A/C #	1	14	0	0	0	0	1	25	2	12
Sets of Pictures Returned #	4	57	2	67	2	100	0	0	8	50
Sets of Useable Pictures#	3	43	2	67	2	100	0	0	7	44
Sets Tracing Bombing Run #	3	43	2	67	2	100	0	0	7	44

\* Percentage Based on No. Cameras Installed  
# Percentage Based on No. Cameras Completing Mission

E - RADAR SERVICEABILITY

DATA	40th Gp		444th Gp		462nd Gp		468th Gp		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
A/C Airborne	17	-	19	-	20	-	20	-	76	-
AN/APQ-13 Operative at Take-off	17	100	19	100	20	100	20	100	76	100
A/C Bombing *	17	100	16	84	14	70	17	85	64	84
AN/APQ-13 Operative over Target #	15	88	16	100	14	100	16	94	61a	95
AN/APQ-13 Unrepair- able Failures #										
Totally Un- repairable	1	7	0	0	0	0	1	6	2	3
Partially but Operative	3	20	4	25	4	29	1	6	12	19
Total	4	27	4	25	4	29	2	12	14	22
AN/APQ-13 Repaired in Flight	2a	-	1	-	0	-	0	-	3	-
SCR-729 Failures	0	0	0	0	0	0	0	0	0	0
SCR-695 Failures	0	0	0	0	0	0	0	0	0	0

\* Percentage based on A/C Airborne  
# Percentage based on A/C Bombing  
a - A/C 6294 (40th Gp) AN/APQ-13 out over target, repairable in flight by changing to auxiliary equipment radar inverter

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S E C R E T

F - RADAR MALFUNCTIONS

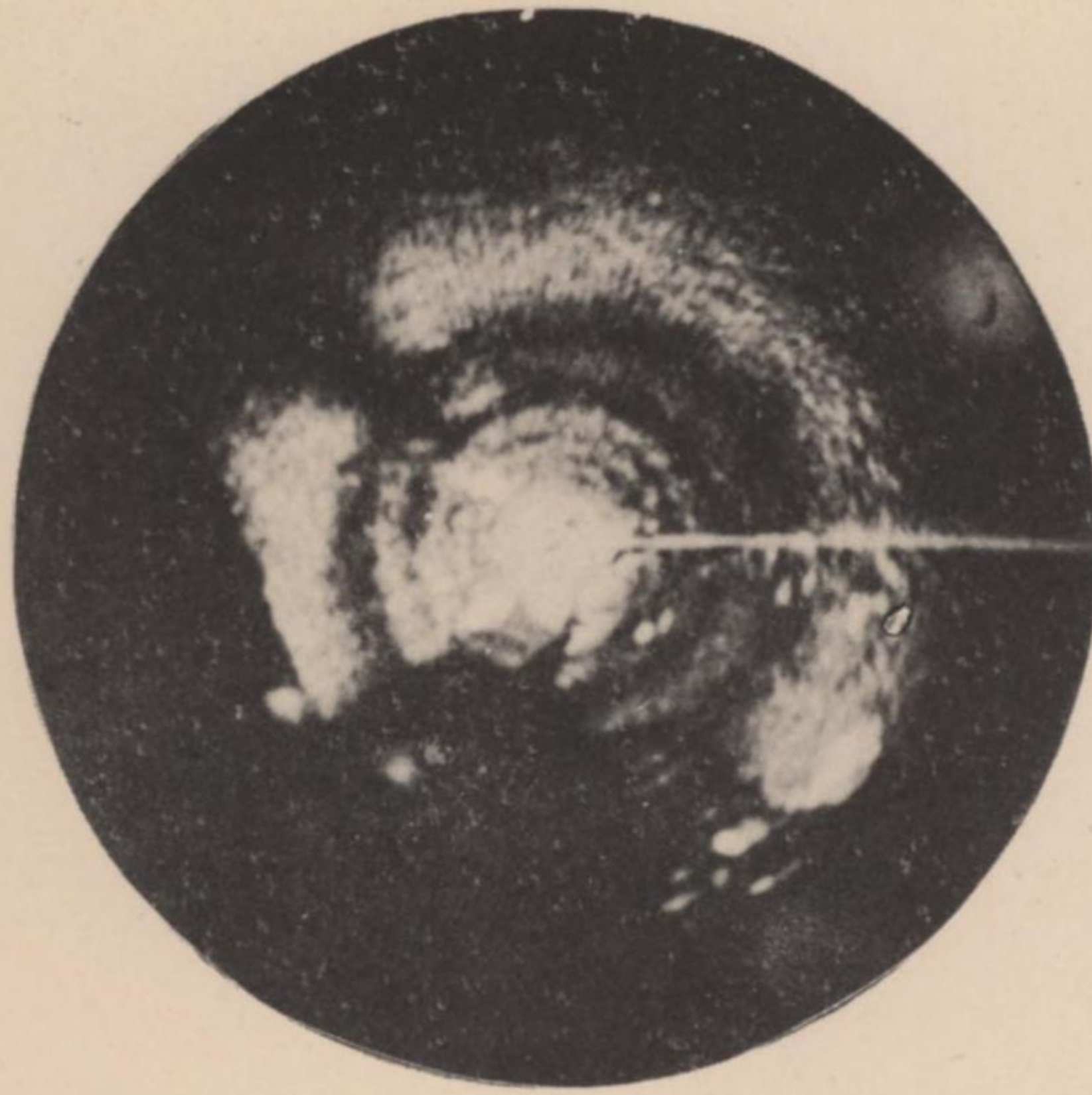
DATA	40th Gp	444th Gp	462nd Gp	468th Gp	Total
A/C Airborne	17	19	20	20	76
Malfunction at Take-off	0	0	0	0	0
Malfunctions between take-off and target (Unrepairable)					
Pressurization (Totally)	1	0	0	0	1
Heading Line (Partial)	2	0	0	0	2
Azimuth Stab. (Partial)	0	3	0	0	3
Sector Scan (Partial)	0	1	1	0	2
Inverter (Partial)	0	0	1	0	1
Selsyns (Partial)	0	0	2	0	2
Modulator (Totally)	0	0	0	1	1
Indicator (Partial)	0	0	0	1	1
No. Totally Unrepairable	1	0	0	1	2
No. Partially but Operative	2	4	4	1	11
Total	3	4	4	2	13
Malfunctions between Target and Landing (Unrepairable)					
Azimuth Stab. (Partial)	1	0	0	0	1
No. Partially but Operative	1	0	0	0	1
Malfunctions Repairable in Flight					
Inverter	1	1	0	0	2
Modulator - 829 Tube Failure	1	0	0	0	1
Total Repairable	2	1	0	0	3

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S E C R E T

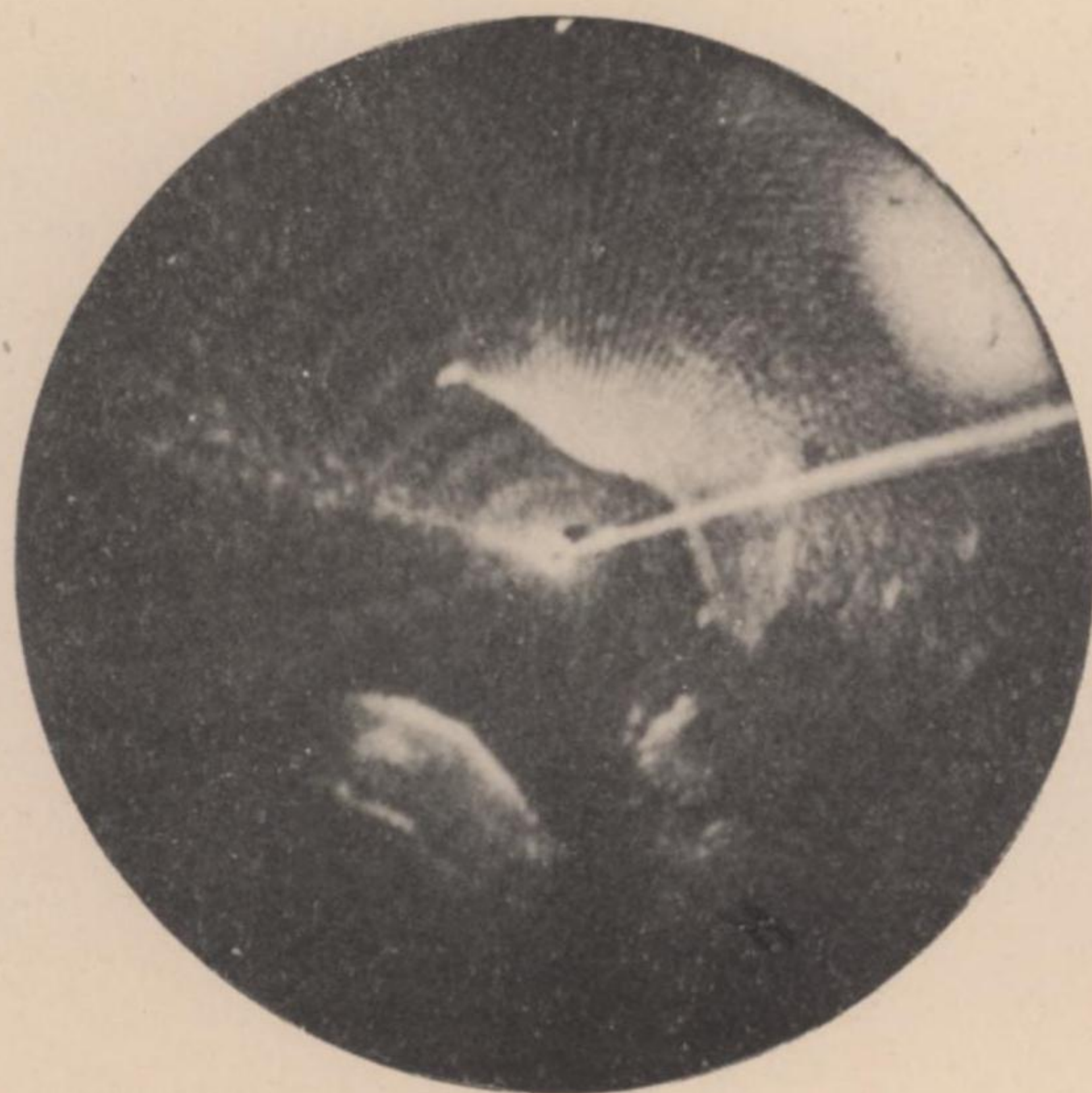


### RADAR SCOPE PHOTOGRAPHS SINGAPORE AREA - MALAY STATES



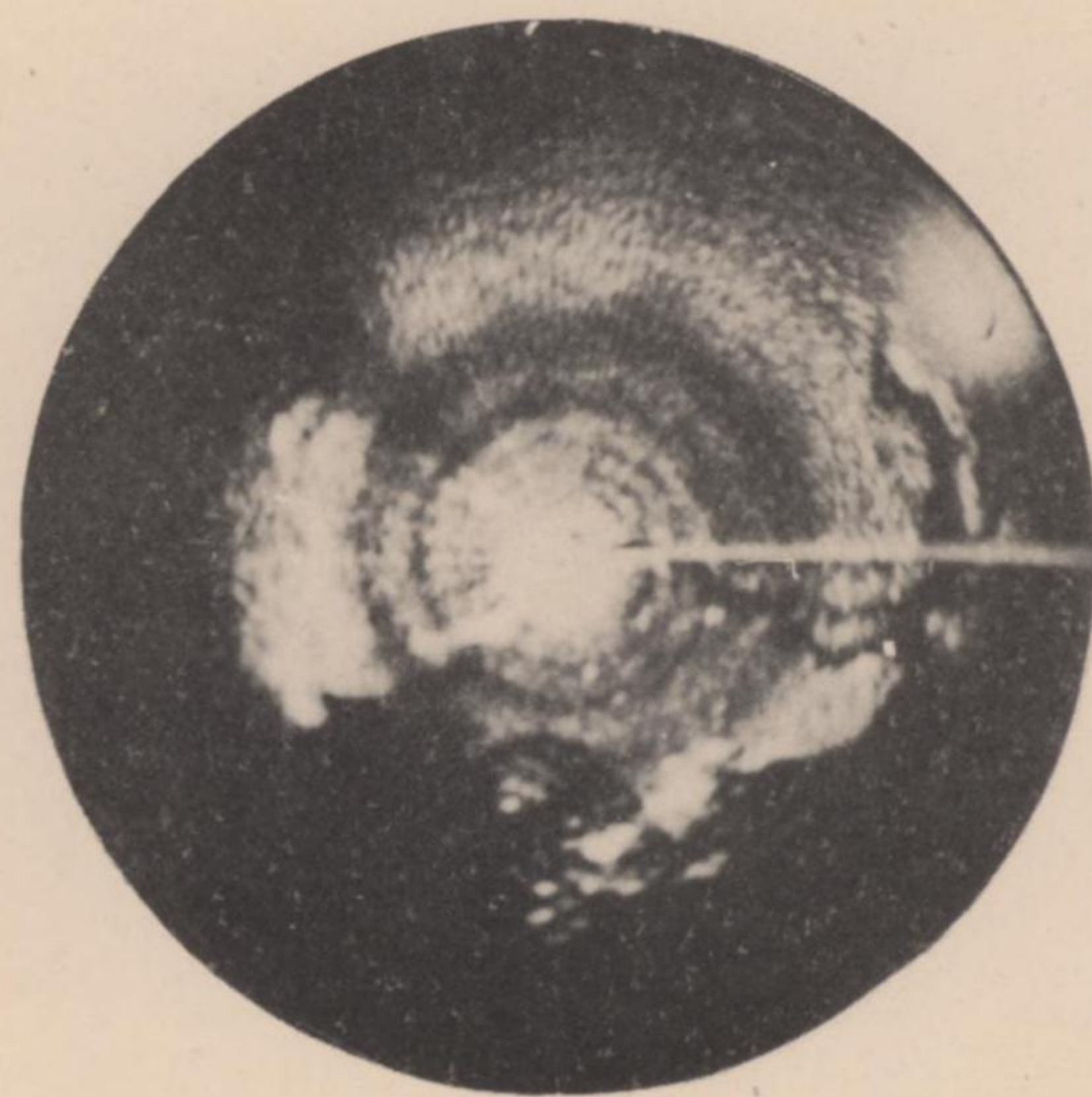
COURSE 89°15'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 21,400'

1°28'15"N  
103°38'E



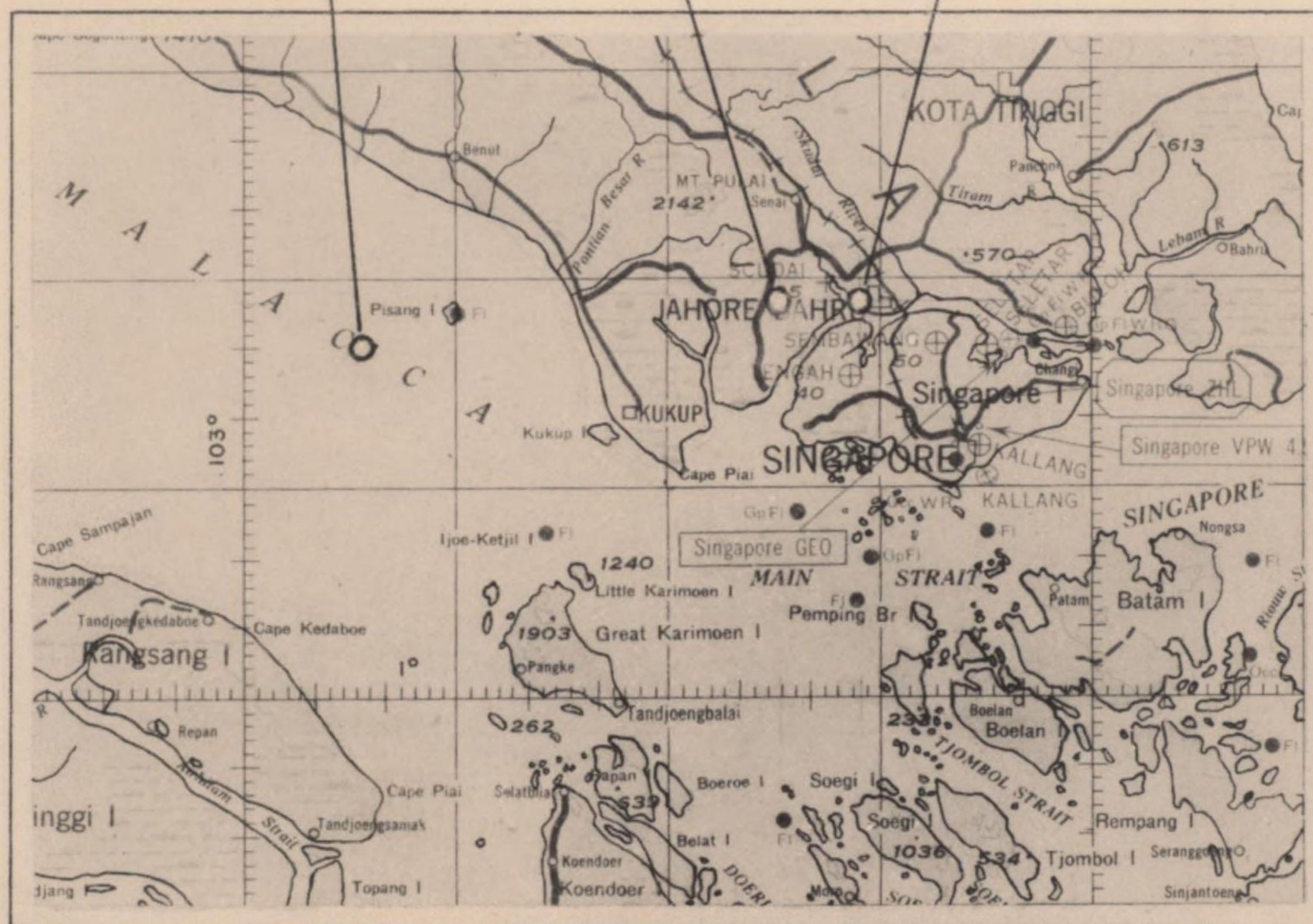
COURSE 71°45'M (72°30'T)  
SWEEP 20 MILES  
ALTITUDE: 21,400'

1°23'15"N  
103°08'15"E



COURSE 89°15'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 21,400'

1°28'15"N  
103°43'30"E



SECRET

PREPARED BY TARGET UNIT-INTELLIGENCE SECTION — XX BOMBER COMMAND

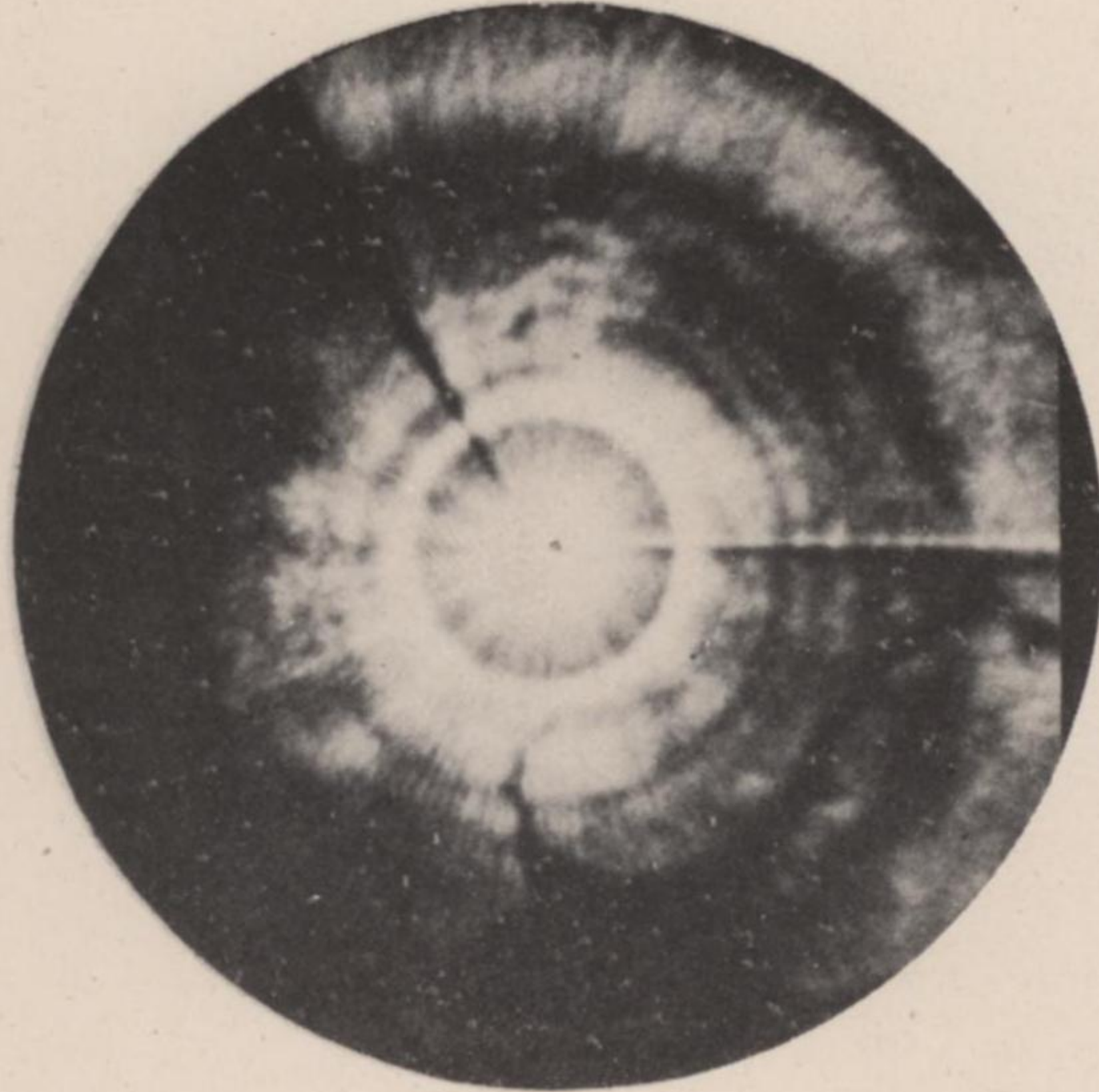
DECLASSIFIED

Authority **NND 760063**

By **AB** NARA Date **10/18/05**

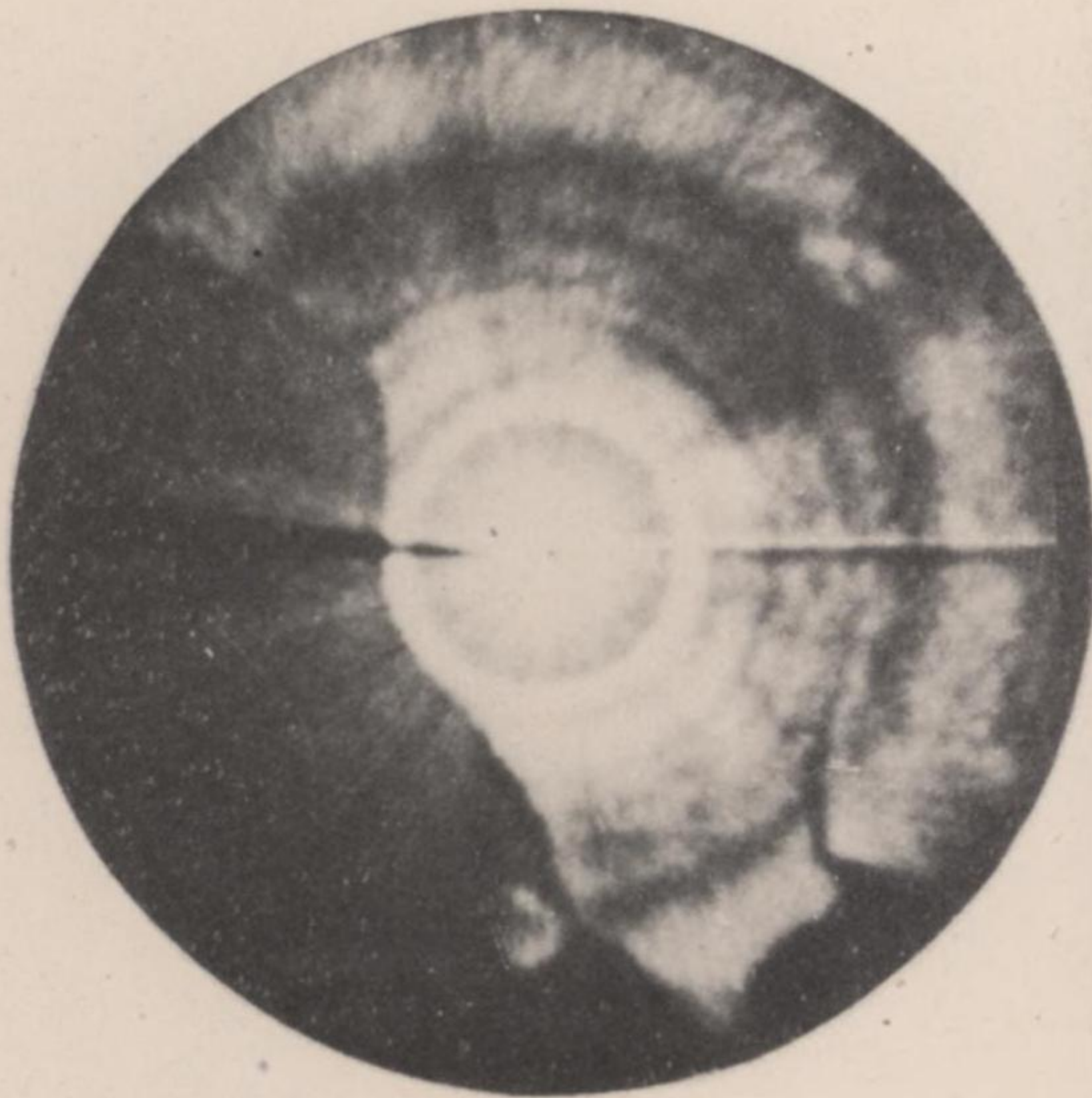


### RADAR SCOPE PHOTOGRAPHS SINGAPORE AREA—MALAY STATES



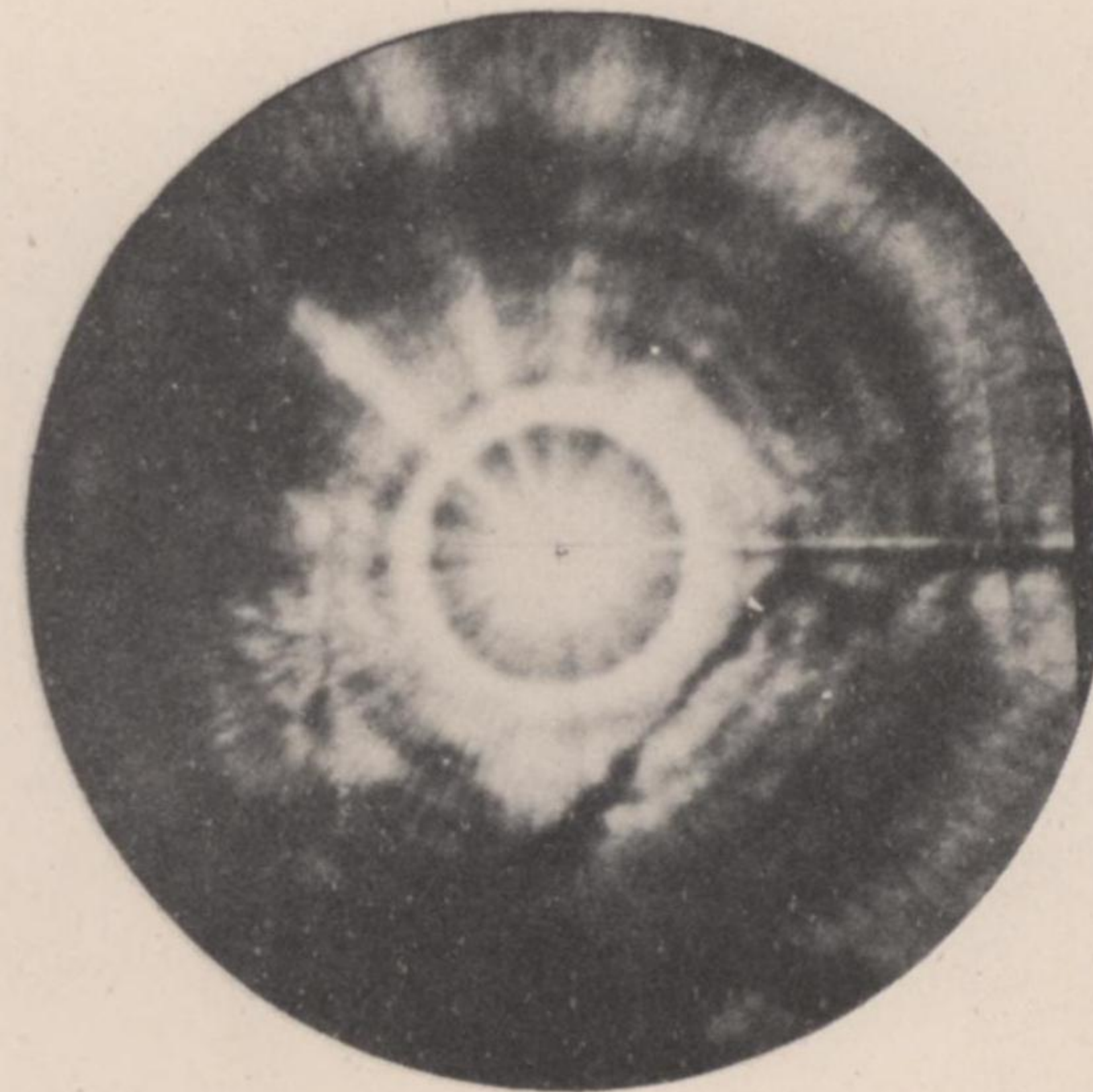
COURSE 89°15'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 21,000'

1°28'N  
103°33'30"E



COURSE 89°15'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 21,000'

1°28'N  
103°24'15"E



COURSE 89°15'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 21,000'

1°28'N  
103°40'E



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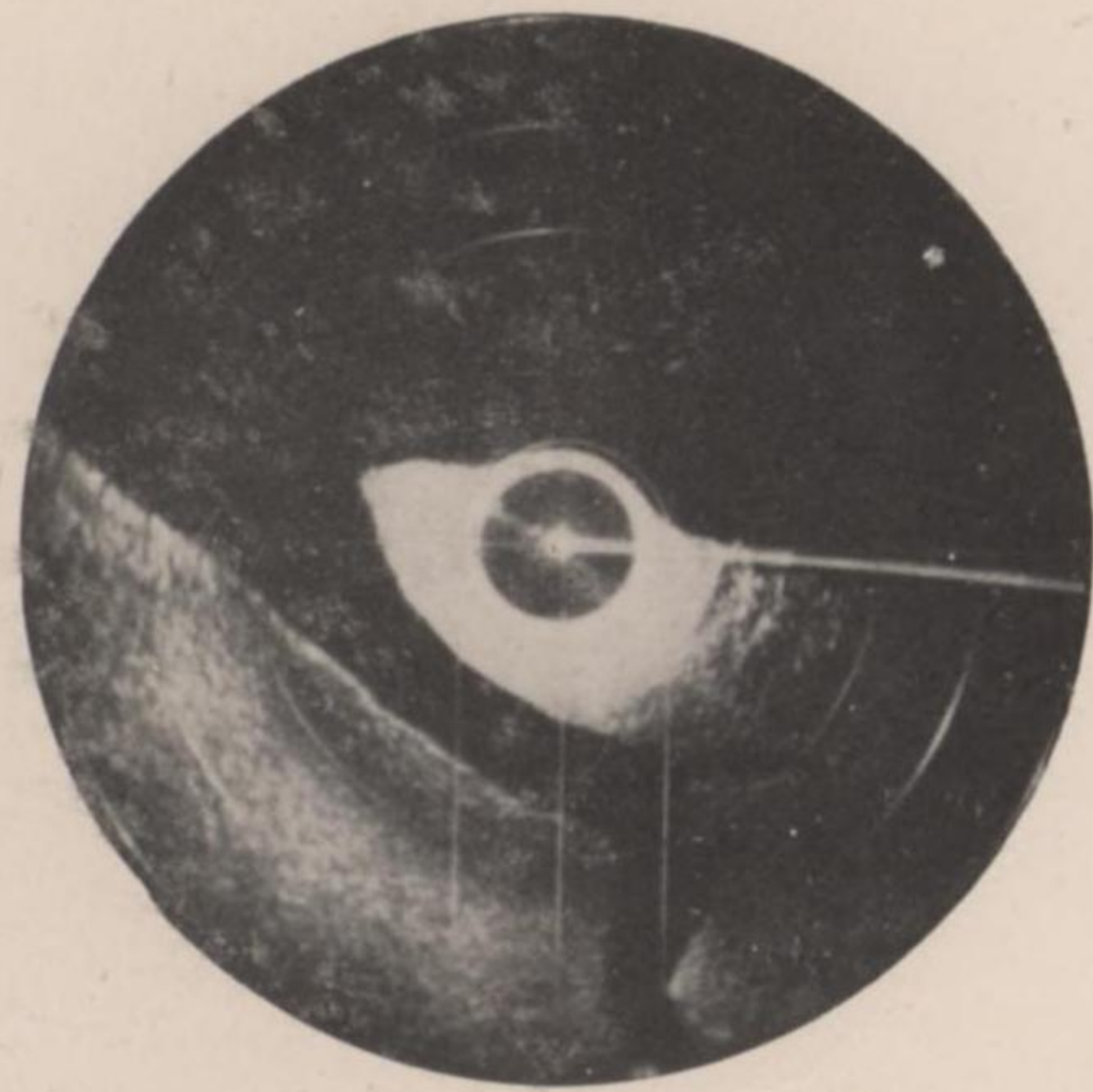
By **AB** NARA Date **10/18/05**



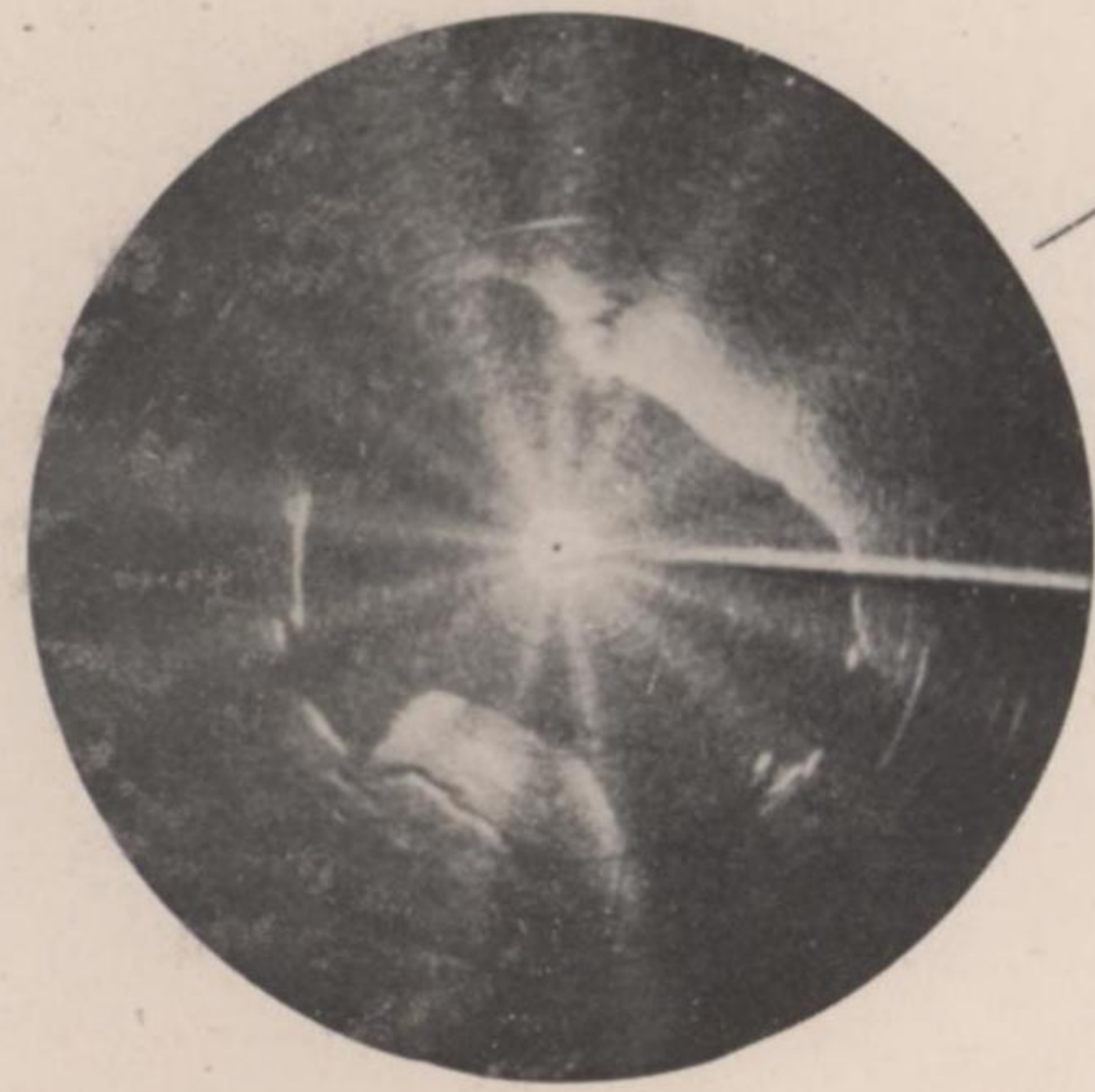
# RADAR SCOPE PHOTOGRAPHS SINGAPORE AREA-MALAY STATES



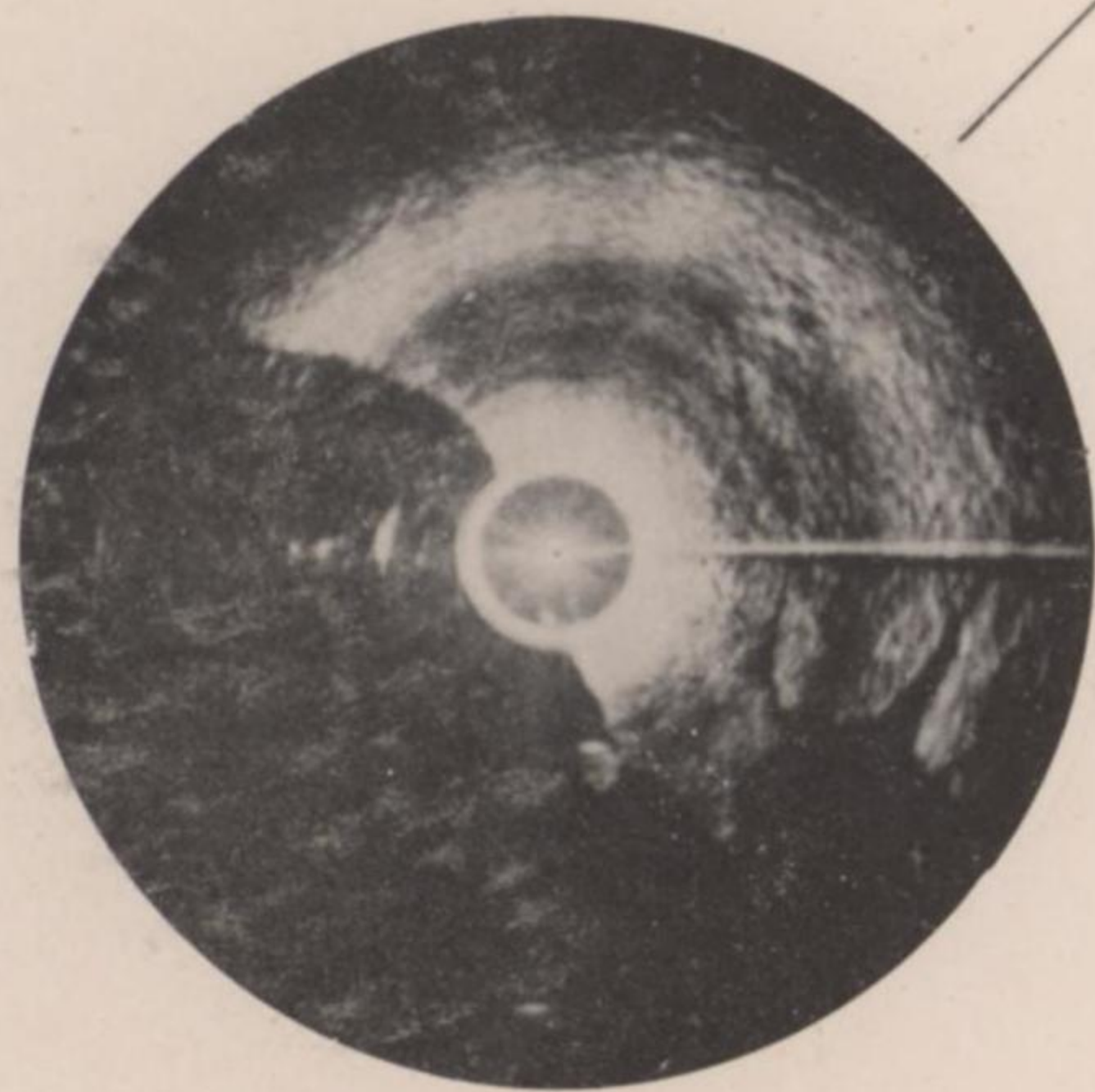
COURSE 125°00'M (126°00'T)  
SWEEP 50 MILES  
ALTITUDE: 20,000'  
2°10'00"N  
101°27'15"E



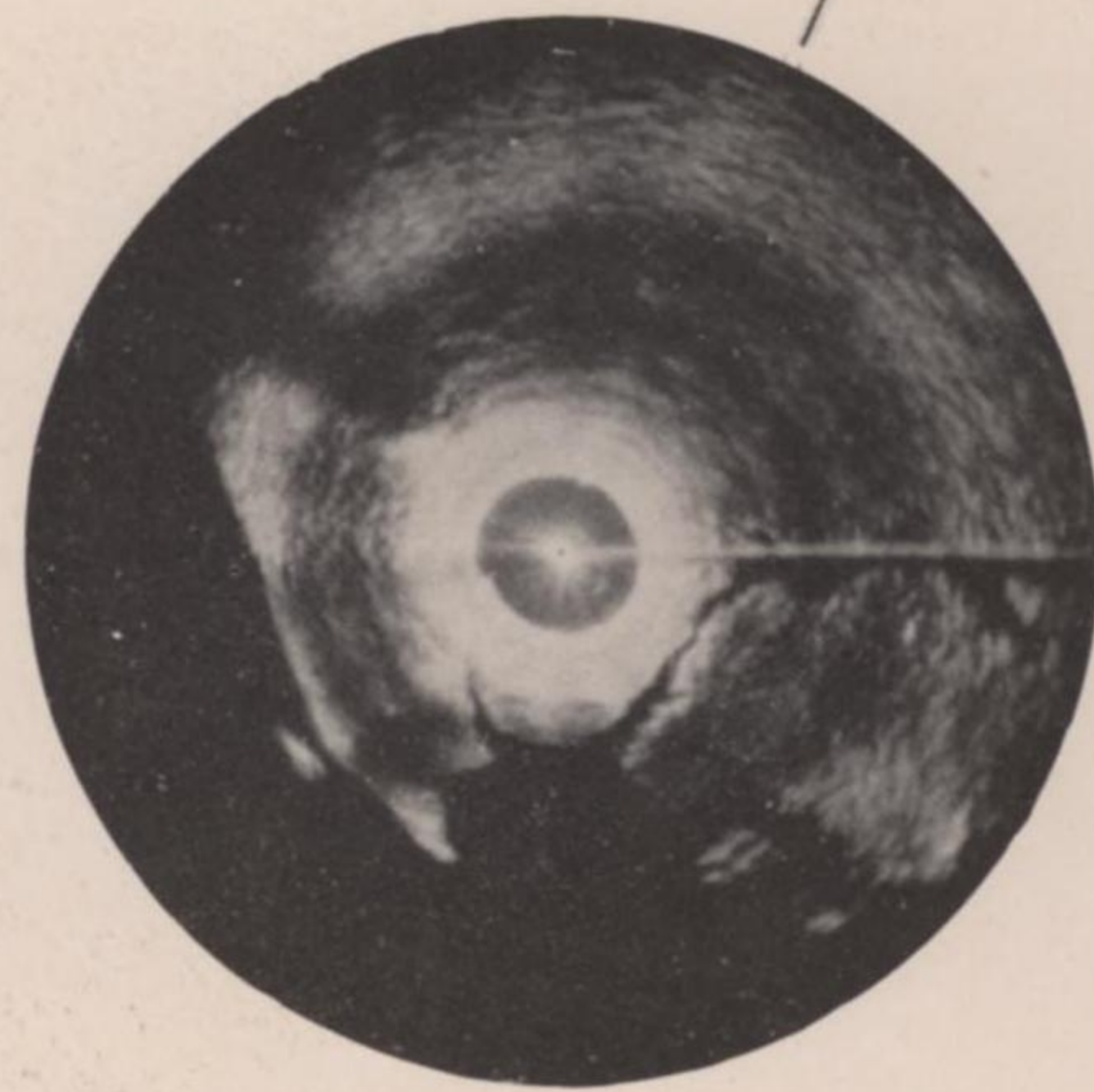
COURSE 93°00'M (94°00'T)  
SWEEP 20 MILES  
ALTITUDE: 20,000'  
1°32'00"N  
102°07'00"E



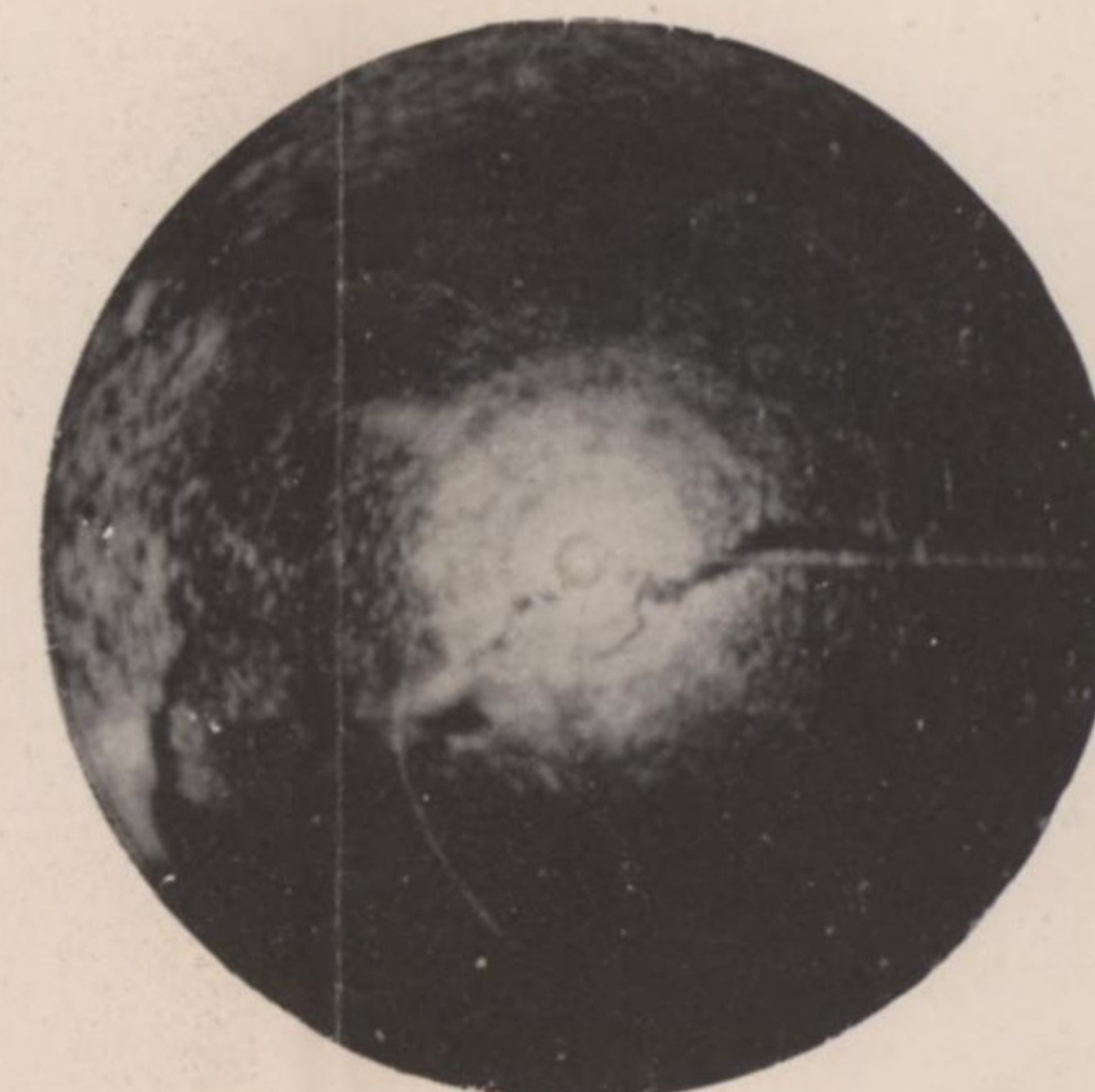
COURSE 83°00'M (84°00'T)  
SWEEP 50 MILES  
ALTITUDE: 20,000'  
1°29'00"N  
102°57'00"E



COURSE 89°00'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 20,000'  
1°28'00"N  
103°25'15"E



COURSE 89°00'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 20,000'  
1°28'00"N  
103°35'15"E

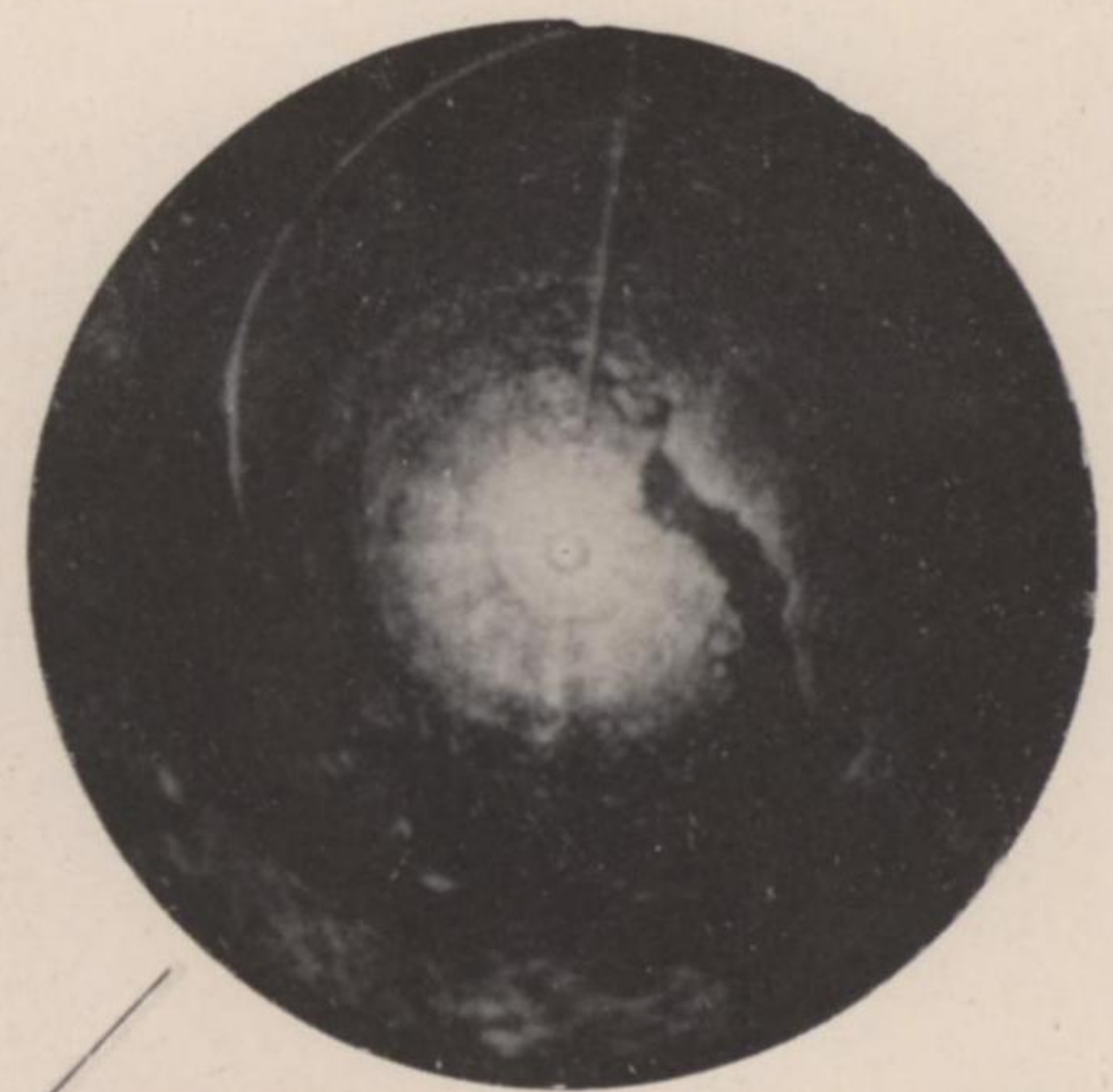


COURSE 89°00'M (90°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'  
1°28'00"N  
103°43'00"E



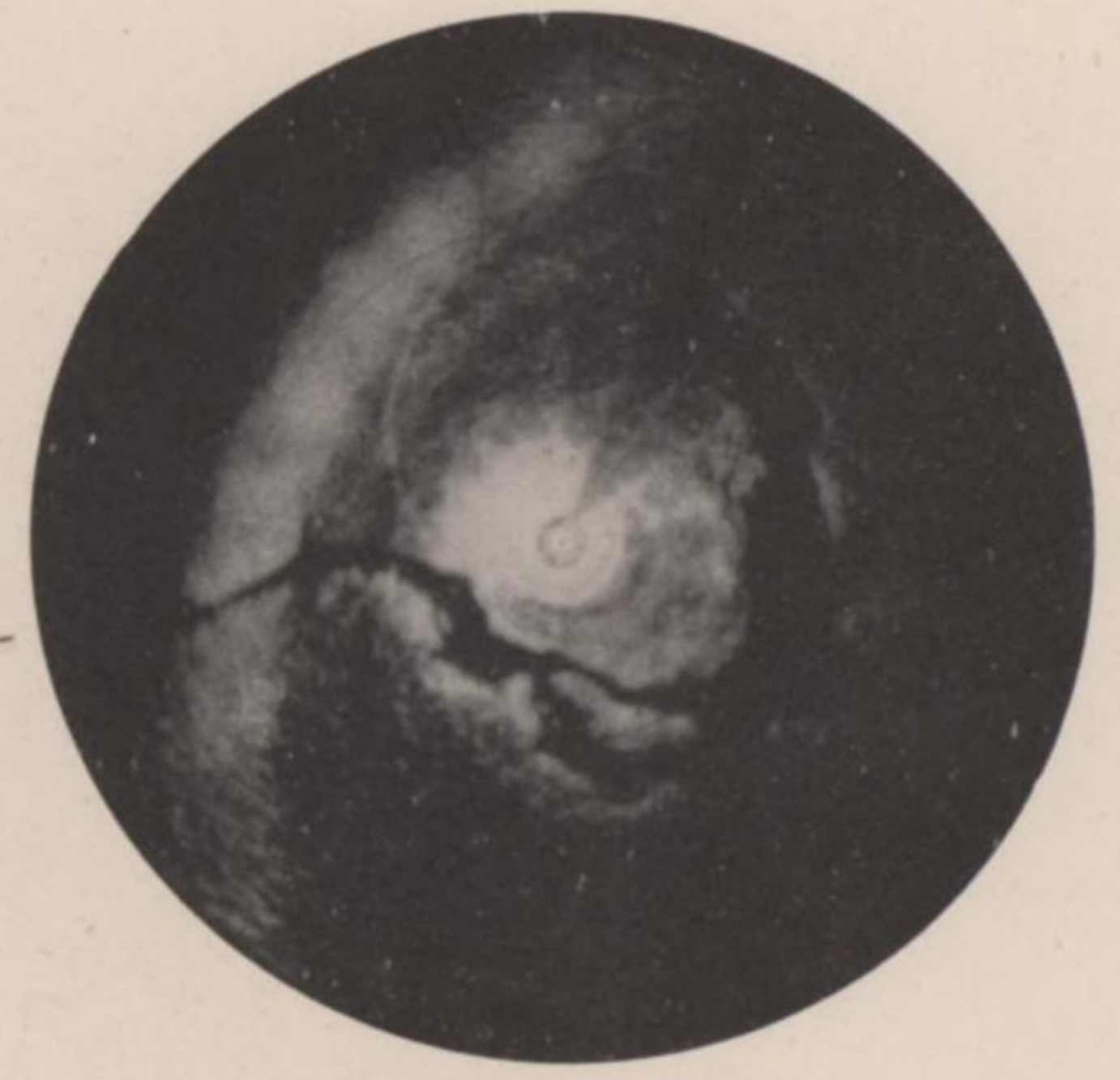


# RADAR SCOPE PHOTOGRAPHS SINGAPORE AREA-MALAY STATES



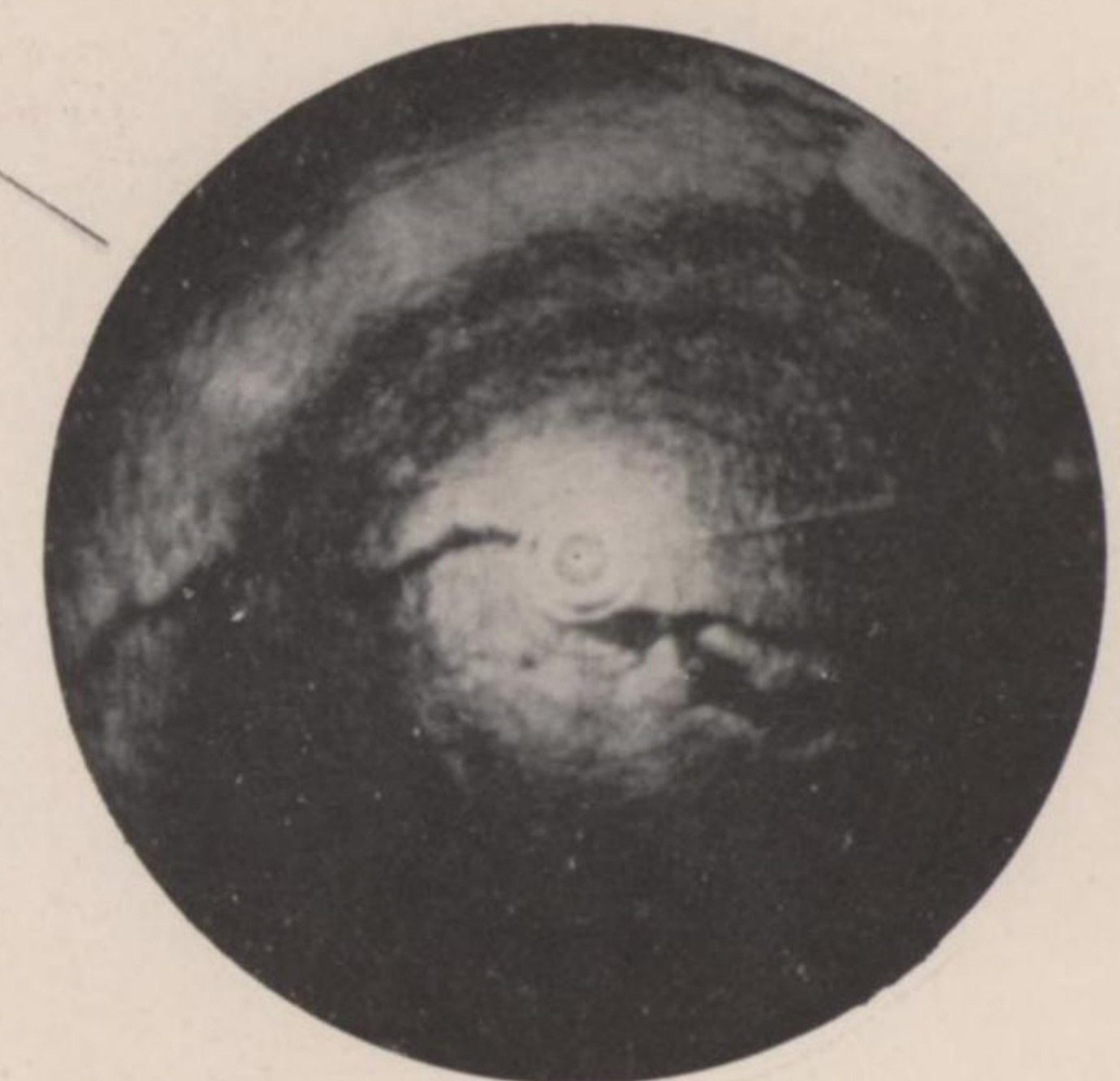
COURSE 7°00'M (8°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'

1°34'00"N  
103°55'15"E



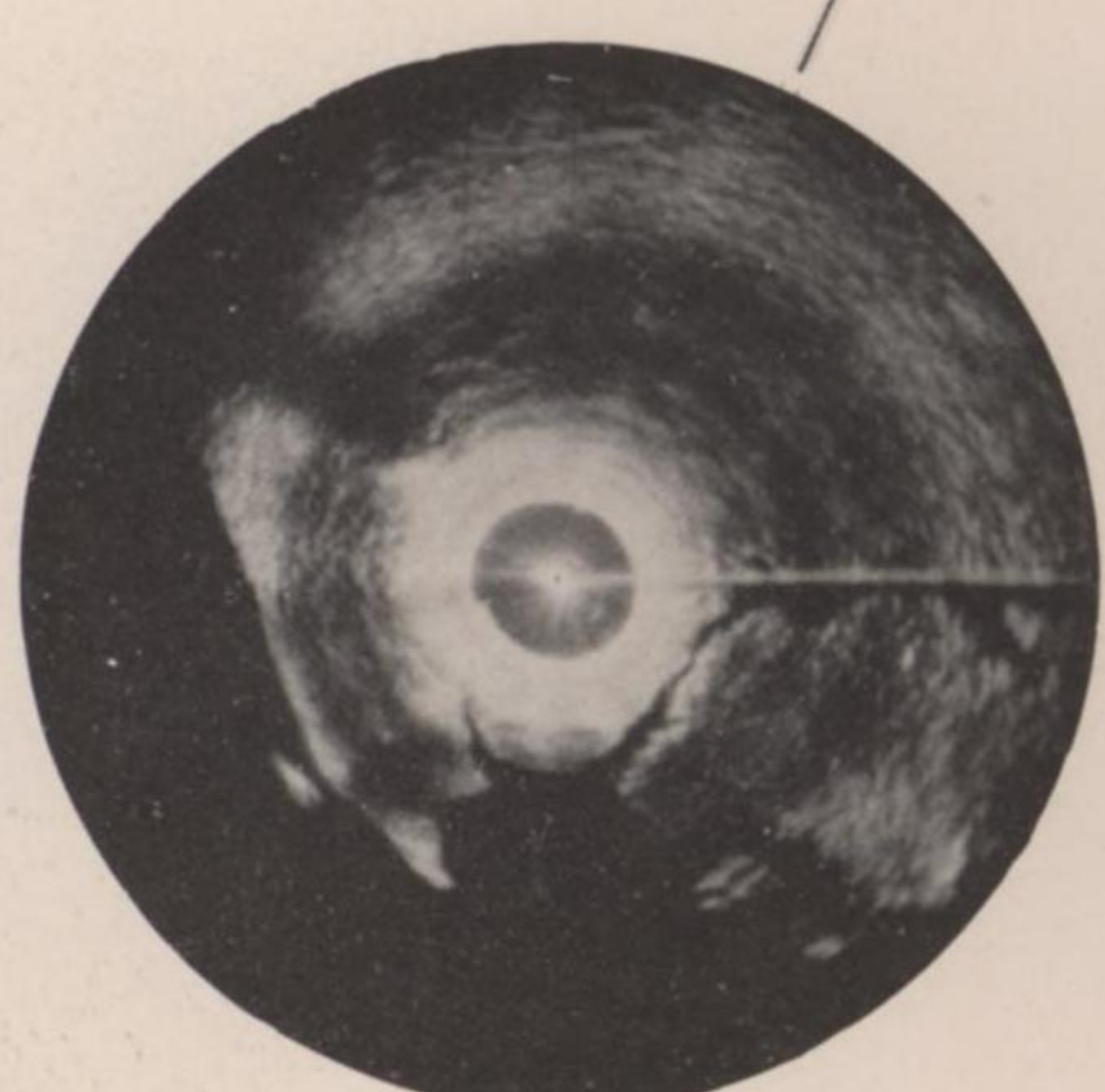
COURSE 36°00'M (37°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'

1°31'00"N  
103°55'00"E



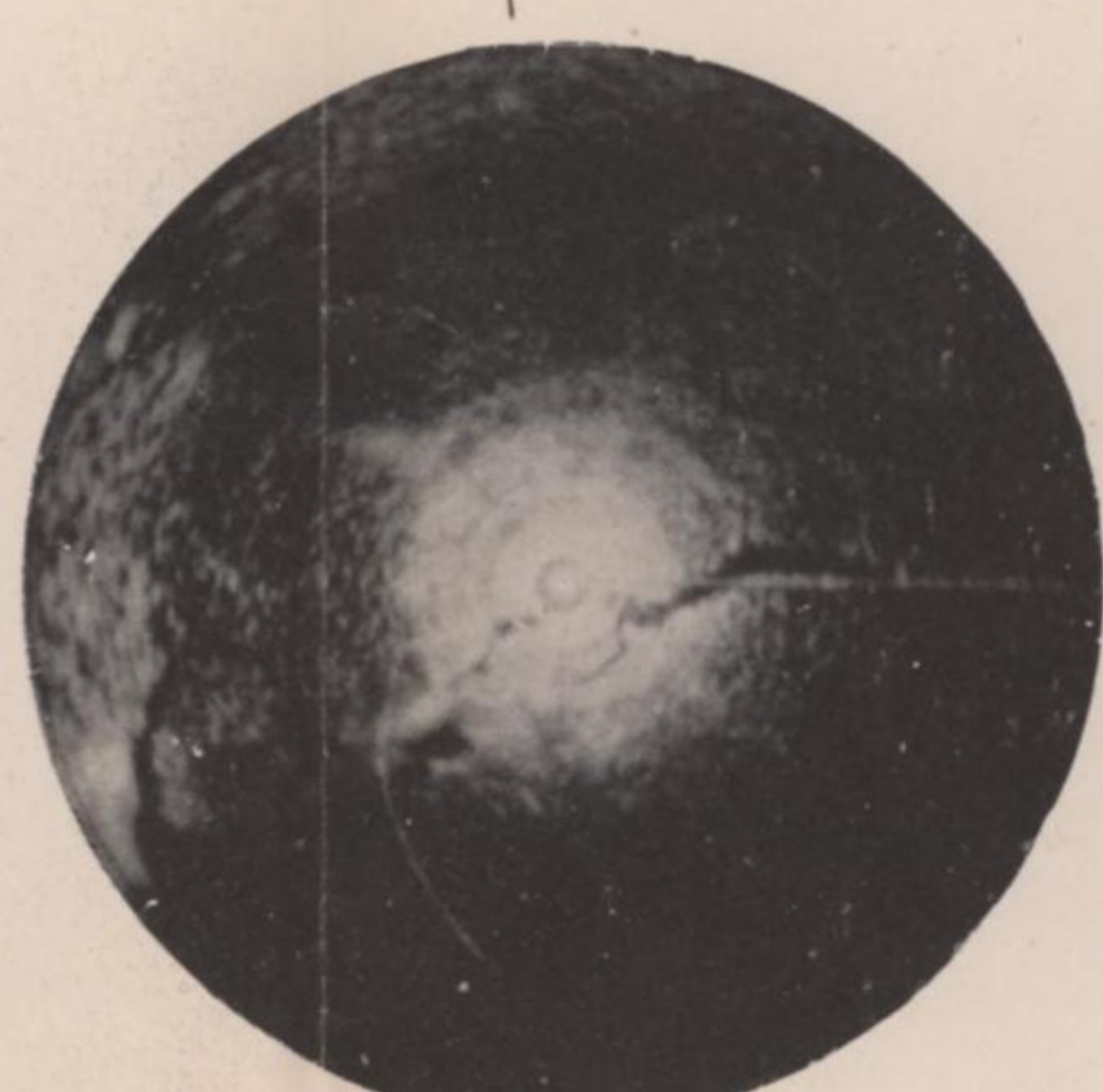
COURSE 79°00'M (80°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'

1°28'00"N  
103°52'15"E



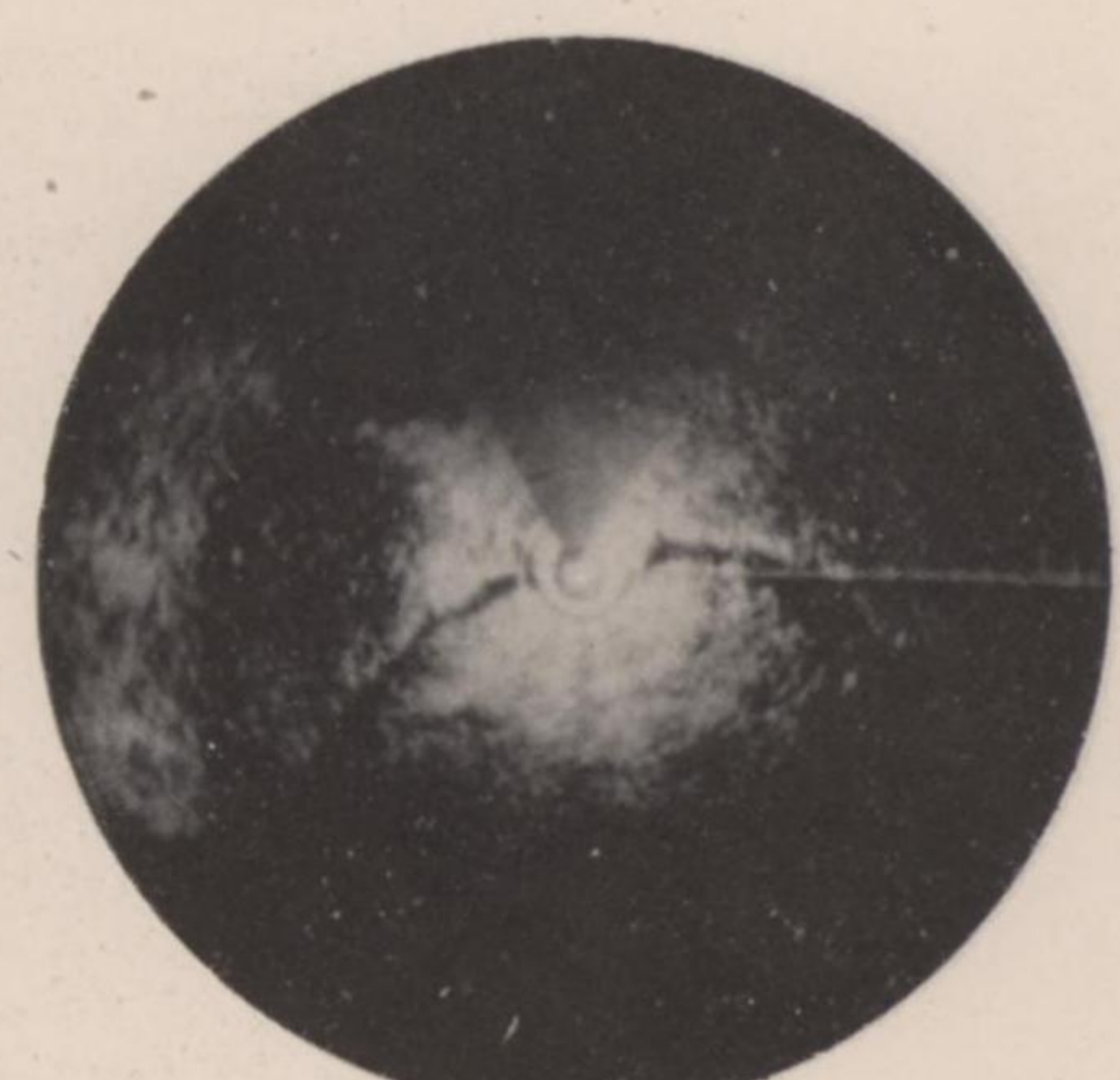
COURSE 89°00'M (90°00'T)  
SWEEP 20 MILES  
ALTITUDE: 20,000'

1°28'00"N  
103°35'15"E



COURSE 89°00'M (90°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'

1°28'00"N  
103°43'00"E



COURSE 89°00'M (90°00'T)  
SWEEP 10 MILES  
ALTITUDE: 20,000'  
ALTITUDE DELAY: 15,000'

1°28'00"N  
103°45'15"E



S E C R E T

ANNEX

G

RCM INFORMATION

\*\*\*\*\*  
\* PREPARED BY: \*  
\* \* \* \* \*  
\* RCM SECTION \*  
\* IX BOMBER COMMAND \*  
\*\*\*\*\*

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Authority NND 760063

By AB NARA Date 10/18/05



S E C R E T

SECRET  
Auth: CG, XX BC  
Initials: MAP  
Date: 11 Nov. 44

HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

11 November 1944

SUBJECT: RCM Report - Combat Mission No. 15 - Singapore  
5 November 1944 - Daylight.

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

A. General

RCM activities were confined to searching for enemy Early Warning Radar enroute to the target, and Radar Fire Control over the target. Five RCM equipped aircraft, each with one RCM Observer, participated in the mission. Following are the frequency assignments:

- 1 - 70-300 Mc. D/F
- 3 - 70-300 Mc.
- 1 - 300-1000 Mc.

Four of the RCM equipped aircraft bombed the primary target and one bombed the secondary target, Pangkalanbrandan, Sumatra.

B. Results

1. Enemy Early Warning Radar was active from the Andaman Islands to the target and return to the Andaman Islands. The majority of the intercepts were of the old Mk 1 Model 1 with only one definite "CHI" type. It is probable that the Early Warning net guarding the Malay Peninsula has been in operation for some time. A few Mk 1 Model 2 and Mk 1 Model 3 sites were also intercepted.

2. Following are the intercepts which have been verified by two or more observers. Refer to the Radar Intercept Chart for the approximate area of intercept.

\*A. Mk 1 Model 2, 198 Mc, 1150 pps, 10.5 usec: This intercept was reported strong in the Andaman Island area.

B. Mk 1 Model 1, 100 Mc. 840 pps, 12 usec: This intercept was made in the Andaman Island area. The signal appeared to be searching most of the time.

-1-

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C. Mk 1 Model 1, 100 Mc. 520 pps, 25 usec: A chain of Mk 1 Model 1 stations are believed to be in operation on the Malay Peninsula guarding the Malacca Strait. One RCM Observer reported one signal beating against another signal at two different points off the Malay Peninsula. Two other observers reported broad tuning in the 100 Mc. range.

D. Mk 1 Model 1, 101 Mc, 540 pps, 20 usec: Intercepted in the target area.

E. Mk 1 Model 2, 190 Mc, 780 pps, 10 usec: Intercepted in the target area and operated intermittently.

E. Mk 1 Model 1, 98 Mc, 540 pps, 13 usec: Intercepted in the target area.

F. Mk 1 Model 3, 168 Mc, 520 pps, 8 usec: Intercepted off the Malay Peninsula (04°30', 100°00' - no D/F).

G. Mk 1 Model 3, or "SU", 150 Mc. 540 pps, 8 usec: Two Radar stations with these characteristics may be in the target area.

H. Mk 1 Model 1, 105 Mc. 540 pps, 13 usec: This station intercepted in the target area.

X. Mk 1 Model 1, 96.7 Mc, 1350 pps, 14 usec: This station was D/F'ed to the northwest tip of Sumatra.

Y. "CHI", 77.5 Mc. 510 pps, 45 usec: An aural null indicated that this intercept was on course when the aircraft was headed for the secondary target. A rough location would place this site near Aroe Bay (04°08', 98°16').

\* Letters correspond to key on the Intercept Chart.

3. The following intercepts were not verified by two or more observers and do not fall into any known category. Therefore, the intercepts will be carried as "suspected" and on future missions, an attempt will be made to verify the signal.

- A. 242 Mc. 1870 pps, 1 1/2 usec, 15°45' 93°55'.
- B. 245 Mc. 620 pps, 2 usec, 07°40' 98°40'.
- C. 280 Mc. 170 Prf, 30 usec, 6°15' 98°45'.
- D. 538 Mc. 2300 pps, 3 1/2 usec, Andaman Island Area.
- E. 688 Mc. 1200 pps, 3 1/2 usec, Andaman Island Area.

4. No Radar signals having Fire Control characteristics were intercepted.

-2-

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C. Enemy Countermeasures

Several instances of jamming were reported: (1) "Someone would send CW V's when we tried to talk"; (2) "At about 200 miles south of Chittagong tone jamming blocked our transmissions" In each case, the interference was reported by only one aircraft.

D. Equipment

There were no equipment failures during flight.

For the Commanding General:

*Leo I. Herman*

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

1 Incl:  
Intercept Chart.

-3-

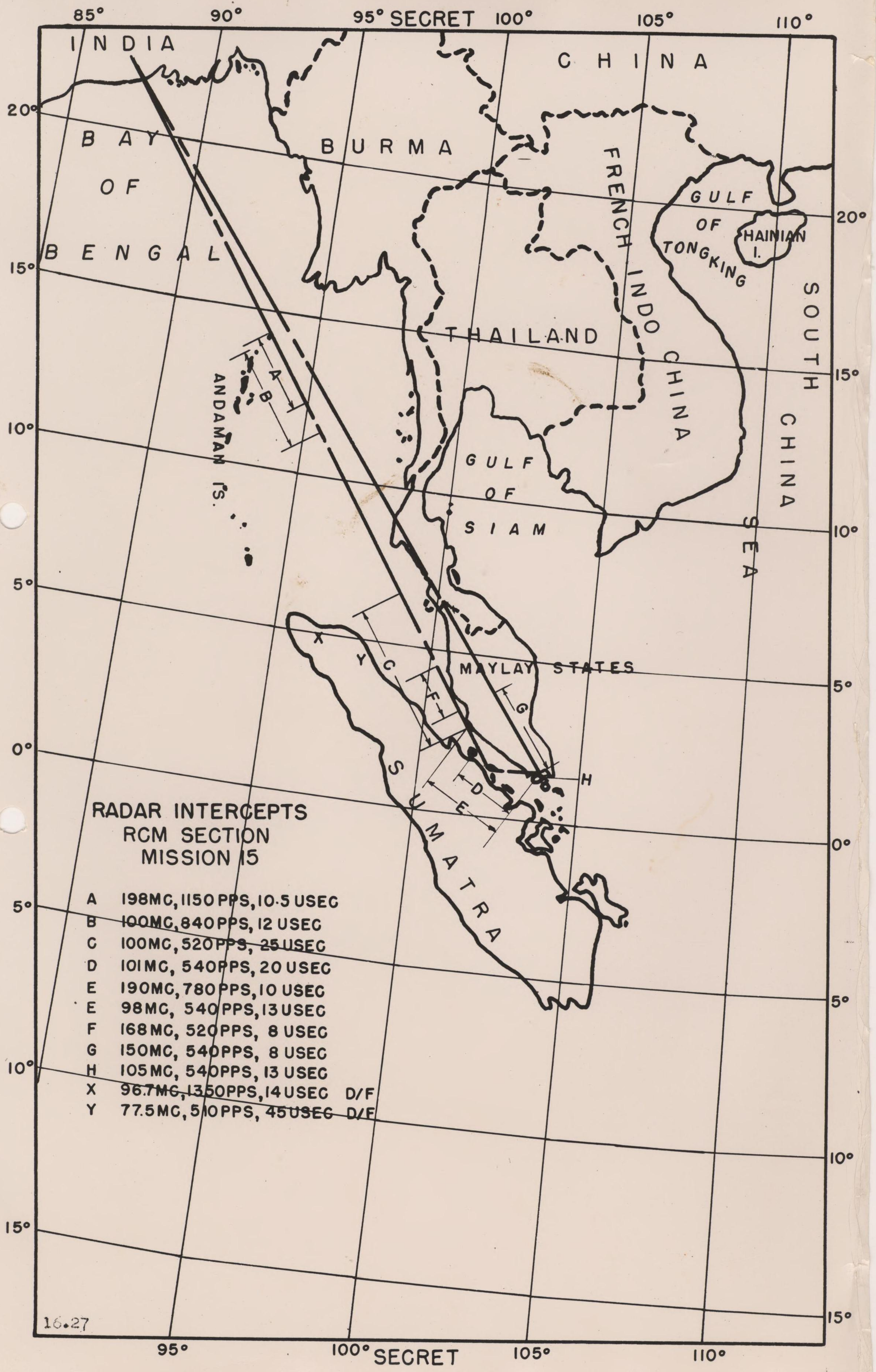
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**RADAR INTERCEPTS  
RCM SECTION  
MISSION 15**

- A 198MC, 1150 PPS, 10.5 USEC
- B 100MC, 840 PPS, 12 USEC
- C 100MC, 520 PPS, 25 USEC
- D 101MC, 540 PPS, 20 USEC
- E 190MC, 780 PPS, 10 USEC
- E 98MC, 540 PPS, 13 USEC
- F 168MC, 520 PPS, 8 USEC
- G 150MC, 540 PPS, 8 USEC
- H 105MC, 540 PPS, 13 USEC
- X 96.7MC, 1350 PPS, 14 USEC D/F
- Y 77.5MC, 510 PPS, 45 USEC D/F

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By **AB** NARA Date **10/18/05**



S E C R E T

ANNEX

H

CENTRAL STATION FIRE CONTROL AND GUNNERY

\*\*\*\*\*  
\* PREPARED BY: \*  
\* \*  
\* STAFF GUNNERY OFFICER \*  
\* XX BOMBER COMMAND \*  
\*\*\*\*\*

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By AB NARA Date 10/18/05



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SECRET

By auth of CG XX BC

HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

*[Signature]* 9 Nov 44  
Initials Date

CONSOLIDATED  
SPECIALIST MISSION REPORT OF  
STAFF GUNNERY OFFICER

Date Prepared: 9 November 1944

Field Order No. 15  
Date of Mission: 5 Nov 44

1. On the mission directed by Field Orders No. 15, fighter opposition was reported to be moderate with only a few uncoordinated attacks which broke away at long range. Most enemy pilots seemed content to stay out of range after observing our formations, which would indicate a lack of experience and aggressiveness of the fighter pilots in this target area. Obviously the speed of our airplanes was a contributing factor in upsetting the plan of attack of enemy fighters.
2. The mission is considered as very satisfactory in regards to gunnery. There were no losses and only slight damage was inflicted on two of our B-29's by enemy fighters.
3. The following statistical data are submitted:

	40th	444th	462nd	468th
Ammunition used test firing	8,680	2,335	2,865	5,800
Ammunition used in combat	2,105	1,575	2,945	1,675
Malfunctions of C.F.C. System	1	4	1	7
Total turrets on mission	80	80	70	85
Malfunctions of cal. .50 MG	5	1	11	8
Total cal. .50 M.G. on mission	160	160	140	170
Total airplanes (basis of report)	16	16	14	17
Total percent malfunctions all groups C.F.C. 4.1 cal. .50 M.G.	3.9			

Claims by our gunners

Destroyed	Probably	Destroyed	Damaged
1	1		5

4. In conclusion, a slight increase was noted on this mission of both turret and gun malfunctions. In this respect attention is directed to XX Bomber Command Memorandum No. 56-4, which places the responsibility for the functioning of guns and turrets on the individual gunners. After analyzing turret or gun malfunctions, if found to be personnel error, the Group Gunnery Officer will initiate such action as necessary to prevent a recurrence.

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By AB NARA Date 10/18/05



S E C R E T

ANNEX

I

CAMERAS AND PHOTOGRAPHS

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By AB NARA Date 10/18/05



I - CAMERAS AND PHOTOGRAPHS

Mission No. 15

5 November 1944

A. Cameras Installed and Photographs Taken:

	40th				444th				462nd				468th				Totals for Command			
	K18	K20	K22	Total	K18	K20	K22	Total	K18	K20	K22	Total	K18	K20	K22	Total	K18	K20	K22	Total
No. cameras installed	5	18	6	29	5	5	4	14	5	1	6	12	6	12	8	26	21	33	24	81
No. in aborting aircraft	0	2	0	2	0	1	0	1	0	0	0	0	2	2	1	5	2	5	1	8
No. completing mission	5	16	6	27	5	4	4	13	5	1	6	12	4	10	7	21	19	31	23	73
No. photographing primary target	4	9	3	16	4	a	3	7	5	0	5	10	3	0	6	9	16	9-a	17	42
No. usable negatives, primary target	61	4	111	176	23	a	23	46	16	0	27	43	43	0	107	157	144	4-a	268	412
No. photographing other targets	0	0	1	1	1	0	1	2	0	0	0	0	0	0	1	1	1	0	3	4
No. usable negatives, other targets	0	0	11	11	6	0	0	6	0	0	0	0	0	0	0	0	6	0	11	17

a. - Information not available

B. Malfunctions Reported:

K-18	Sheared pin in case drive	1
K-22	Jammed supply spool	1
	<del>Blown</del> internalometer fuse	1
	Capping curtain malfunction	2
Total		5

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S E C R E T

II - PHOTO RECONNAISSANCE AIRCRAFT

Mission No. 15  
5 November 1944

A. A single B-29 of the 468th Group flew a reconnaissance mission on 8 November for the purpose of making damage assessment photos of the Singapore Naval Base which was under attack on 5 November. The route flown as directed in Field Order 15 was as follows:

<u>Location</u>	<u>Time</u>	<u>Altitude</u>
Kharagpur	071739Z	Takeoff
04°30'N - 100°00'E	Not reported	3000'
01°28'N - 103°15'E	Not reported	20,000' T
Singapore Naval Base	080247Z	20,000' T
Kharagpur	081013Z	Landing

B. With CAVU weather conditions prevailing, the camera was started west of the causeway and kept running past the Naval Base area. The camera was turned on again at approximately 01°20'N - 103°53'E while the plane was on a heading of 215°, and was left on until a point north of Brani Island was reached. The camera was not turned off until well out in the Singapore Roads near Bukum Island. K-20 pictures were taken of installations en route.

C. Only one unidentified plane was seen at approximately 3000' off the ground on an opposite course near Blaikang Mati Island. No fighter opposition was encountered.

D. A single burst of white colored antiaircraft from the drydock area, bursting far behind and to the right, was the only antiaircraft opposition encountered.

E. The following reported visual observations were confirmed by photo interpretation:

1. The drydock was filled with water, the caisson door was closed, presenting an unbroken line, and there was a ship in the dock.
2. There were at least 30 ships in the Strait of Johore, including 5 large ships and one very large ship with a smaller beam than a battleship, (shown by photos to be a heavy cruiser of the NACHI class).

F. The following visual observations were reported. No pictures were returned.

1. Between the town of Malacca and Cape Tohor 100 to 200 small ships and 10 large vessels were reported.
2. A 34-ship convoy, estimated to be cargo vessels, were reported headed north in a boxlike formation near Georgetown.
3. Submarine nets were reported to surround Singapore Roads.

G. Although 5 or 6 first rate airfields were reported as not containing a single aircraft, photo interpretation showed one airfield with 47.

H. For a detailed report of photo interpretation, see Annex A, Target Damage Assessment.

I-II-1

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ANNEX

J

BATTLE LOSSES AND BATTLE DAMAGE\*

\*For details by aircraft including cause and description of damage  
see "Table IV - Aircraft Lost and Damaged", Consolidated Mission  
Statistical Summary, Annex M.

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ANNEX

K

FUNCTIONING OF EQUIPMENT

- I - Functioning of Equipment
- II - Malfunctions of Equipment - Engineering
- III - Performance Data\*

\* Prepared by Operations, Plans and  
Training Section, XX Bomber Command

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I - FUNCTIONING OF EQUIPMENT

Mission No. 15

5 November 1944

1. A/C Airborne . . . . . 76
2. Less: A/C failing to get over the primary target with bombs -  
mechanical reasons . . . . . 20
  - a. Bombed secondary target (5):
    - (1) A/C 508 (40th) - #3 engine trouble; fuel transfer malfunction.
    - (2) A/C 580 (444th) - #2 engine cutting out.
    - (3) A/C 524 (444th) - #1 fuel pressure low; oil leak #4.
    - (4) A/C 267 (444th) - Supercharger trouble; blown blister.
    - (5) A/C 365 (468th) - Top turrets inoperative.
  - b. Bombed last resort target (3):
    - (1) A/C 394 (40th) - #1 engine cut out.
    - (2) A/C 830 (462nd) - #3 engine cut out intermittently.
    - (3) A/C 329 (462nd) - #3 engine cut out.
  - c. Bombed target of opportunity (1):
    - (1) A/C 582 (40th) - 2 engines cutting out.
  - d. Jettisoned bombs (7):
    - (1) A/C 202 (444th) - engine failure.
    - (2) A/C 510 (444th) - engine failure.
    - (3) A/C 464 (444th) - engine failure.
    - (4) A/C 444 (462nd) - engine failure on takeoff; plane crashed.
    - (5) A/C 299 (462nd) - All 4 engines cut out intermittently.
    - (6) A/C 6208 (468th) - engine failure.
    - (7) A/C 407 (468th) - #1 engine running rough.
  - e. Brought bombs back (4):
    - (1) A/C 463 (462nd) - #4 engine cutting out.
    - (2) A/C 386 (462nd) - #4 prop governor out.
    - (3) A/C 461 (462nd) - #1 manifold pressure down.
    - (4) A/C 285 (462nd) - #2 engine on fire.
3. Less: A/C failing to get over primary target with bombs -  
other reasons . . . . . 3
  - a. Bombed secondary target (2):
    - (1) A/C 284 (468th) - gasoline shortage.
    - (2) A/C 429 (468th) - gasoline shortage.
  - b. Disposition of bombs unknown (1):
    - (1) A/C 370 (468th) - missing; presumed to have ditched  
or crashed into the sea near Andaman Islands
4. A/C bombing primary target . . . . . 53

K-I-1

S E C R E T



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II - MALFUNCTIONS OF EQUIPMENT - ENGINEERING

Mission No. 15

5 November 1944

Type of Malfunction	Number of Reported Malfunctions				
	40th	444th	462nd	468th	Totals
Engine running rough	4	2	7	1	14
Generator inoperative or erratic	5	-	5	1	11
Oil leaks	2	2	3	3	10
Tachometer inoperative	1	1	1	6	9
Turbo malfunctioning	2	2	4	1	9
Cylinder head temperature gage inoperative	3	2	1	2	8
AFCE malfunctioning	-	3	2	3	8
Prop governor inoperative or malfunctioning	1	3	3	-	7
Oil pressure low or erratic	-	-	3	3	6
Oil cooler malfunctioning	1	-	4	-	5
Air speed indicator inoperative or erratic	-	3	2	-	5
Inverter relay inoperative	1	-	-	2	3
Low power output	1	2	-	-	3
Fuel pressure indicator inoperative or erratic	1	1	-	1	3
Fuel pressure low	-	2	-	1	3
Carburetor air temperature indicator inoperative	-	1	-	2	3
Altimeter erratic or inoperative	-	-	2	1	3
Reverse current relays inoperative	-	-	-	3	3
Fuel transfer system inoperative	1	-	1	-	2
Exhaust stack collector ring blown or malfunctioning	-	1	-	1	2
Fuel booster rheostat inoperative or malfunctioning	-	2	-	-	2
Carburetor malfunctioning	1	-	1	-	2
Fluxgate compass inoperative	-	-	-	2	2
Engine ran hot	1	-	-	1	2
Hydraulic press switch inoperative	1	-	-	-	1
Rate of climb indicator malfunctioning	1	-	-	-	1
Flight indicator inoperative	1	-	-	-	1
Fuel booster pump inoperative	1	-	-	-	1
Defroster fan inoperative	-	1	-	-	1
Blister blown	-	1	-	-	1
Liquidometer malfunctioning	-	1	-	-	1
Interphone malfunctioning	-	1	-	-	1
DC voltmeter burned out	-	1	-	-	1
Intercooler indicator malfunctioning	-	1	-	-	1
Excessive fuel consumption	-	1	-	-	1
Cowl flaps inoperative	-	-	1	-	1
Hydraulic system malfunctioning	-	-	1	-	1
Landing gear circuit malfunctioning	-	-	1	-	1
Landing gear warning system malfunctioning	-	-	1	-	1
Directional gyro inoperative	-	-	1	-	1
PDI malfunctioning	-	-	1	-	1
Vacuum pump inoperative	-	-	-	1	1
Turn and bank indicator inoperative	-	-	-	1	1
Ignition malfunctions	-	-	-	1	1
Oil pressure indicator inoperative	-	-	-	1	1
Pressurization leak	-	-	-	1	1
Cabin pressur regulator malfunctioning	-	-	-	1	1
Oil temperature gage inoperative	-	-	-	1	1
Totals	29	34	45	41	149

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XX BOMBER COMMAND  
APO 493

SECRET  
Auth: CG XX BC  
Date: 9 Nov. 44  
Initials RSB

CONSOLIDATED  
SPECIALIST MISSION  
REPORT OF  
STAFF FLIGHT ENGINEER

Field Order No.: 15

Date Prepared: 9 November 1944

Date of Mission: 5 November 1944

1. A summary of the aircraft performance is listed in the attached table.
2. Comparative fuel consumption of the Groups is on a par after making allowances for the difference in mileage due to the location of the bases.
3. Performance of the 462nd and 468th Groups as to bomb load carried was very good. The 468th carried more bombs but had a shorter distance to fly than the 462nd Group. Also, the performance of the 40th Group although fewer bombs were carried compared to that of the 444th due to the difference in mileage.
4. It will be noted that the total flight time of the 468th Group was considerably less than for the other Groups. The reason for the shorter time is that the return flight from the target was at a higher altitude. Returning at the higher altitude did not appreciably effect the gallons of fuel consumed, only the flight time was reduced. This is in agreement with SOP which states, "In general, if auto lean operation can be used at the specified airspeeds, the choice of altitude will be governed by the effective wind".

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SUMMARY OF PERFORMANCE - F. O. #15

Group		Over-all Ave.	49th	444th	462nd	468th
No. of Aircraft		53	14	13	12	14
Total Time		17:04	17:17	17:02	17:38	16:20
Time to Target		9:03	9:10	9:03	9:03	8:57
Fuel Burned	Ave	7190	7210	7090	7340	7150
	Max	7800	7675	7700	7730	7800
	Min	6620	6850	6620	6950	6800
Aux. Fuel Carried	Ave	2450	2430	2470	2465	2745
	Max	2800	2500	2620	2800	2500
	Min	2400	2400	2400	2400	2400
Burnable Reserve	Ave	650	600	770	525	690
	Max	1260	950	1260	850	1100
	Min	0	125	100	250	0
*Air Miles		3870	4000	3870	3845	3755
Ground Miles		3790	3885	3740	3835	3730
*Gals/Air Mile		1.86	1.81	1.83	1.91	1.90
Ave. Bomb. Alt.		20600	20300	21100	20100	21000
Starting Gross Wt.	Ave	133400	132100	133600	133500	134300
	Max	135075	134360	135000	134895	135075
	Min	130130	130130	131940	130390	133435
Wt. of Bombs	Ave	3250	2355	3170	3300	4180
	Max	5150	3090	4120	5150	4240
	Min	2060	2060	2060	2060	4120
No. of Bombs	M-65 or M-44	2.8	2.14	3.1	3.0	3.0
	M-64 or M-43	0.62	-	-	0.42	2.0

\* Reported air miles are of questionable accuracy

SECRET

K-11-2



S E C R E T

ANNEX

L

TARGET DAMAGE ASSESSME T

\*\*\*\*\*  
\* PREPARED BY: \*  
\* \*  
\* TARGET INTELLIGENCE UNIT \*  
\* XX BOMBER COMMAND \*  
\*\*\*\*\*

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By AB NARA Date 10/18/05



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

HEADQUARTERS  
XX BOMBER COMMAND  
Intelligence Section  
APO 493

DAMAGE ASSESSMENT REPORT NO. 20 19

TARGET: Singapore Naval Base.

GENERAL STATEMENT:

This report relates to damage resulting from a daylight attack on the Singapore Naval Base on 5 November 1944. A total of 53 aircraft attacked dropping a total of 33 500# GP and 150 1000# GP Bombs. Assessment of damage was accomplished from strike photos and from excellent reconnaissance photography obtained by the 468th Bomb Group, XX Bomber Command on 8 November 1944.

The sliding caisson gate shows no evidence of damage on the post-strike photos. However, the dock was seen to be dry at the start of the attack and photos taken during the strike show water rushing into the dock through a breach in the gate evidently at the water line or just below. The post-strike photos show the dock still to be filled with water. At least one hit and probably two as well as several near misses appear to have damaged the sliding caisson recess, and a small building nearby, possibly housing controls, has been destroyed.

The 465' engines-aft cargo vessel seen in the dock undergoing repairs at the time of the attack received one or more hits which destroyed approximately 30-35' of the stern. The vessel showed a decided list to starboard and appeared to be down at the stern on strike photos, but the ship now is apparently upright and afloat despite the heavy damage to the stern. The drydock proper took several hits within and at least three on the edges.

A large shop building located just east of the dock was more than half-destroyed and what is thought to be a foundry suffered heavy damage on one corner. Of the various small buildings in the immediate vicinity of the dock 4 were destroyed, 3 more than half-destroyed, 3 heavily damaged and several others slightly damaged. Bombs falling east, south and west of the target (dry dock) destroyed trackage in a number of places, destroyed or damaged 10-15 rolling stock, destroyed 3 or 4 small buildings and damaged as many more. Several hits in loose stores areas were also observed.

Some efforts were noted towards clearing of debris but other than several of the main roads no real progress had been made.

A Takanami Class Destroyer is in floating drydock at the Naval Stores Basin and the large 50,000 ton capacity floating drydock, seen partially submerged during the attack, has taken aboard a large transport which was also seen in the vicinity on strike photos. No damage is visible to either the destroyer or transport.

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



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

CONCLUSIONS:

Although no damage to the sliding caisson gate is apparent on the post-strike photos, strike photos definitely indicate that a breach has occurred. This is further evidenced by the fact that water is still present in the dock 3 days after the attack despite the damaged vessel seen therein. Competent Yard and Dock authorities interviewed on the subject agreed that a breach of the size noted on the strike photos together with the probable damage to the caisson recess would require a minimum of 3 months for repair.

REFERENCES: Air Objective Folder No. 92.2

WEIGHT OF ATTACK:

33 500# GP AN-M-43 and M-64  
40 1000# GP AN-M-44  
110 1000# GP AN-M-65

PHOTOGRAPHY: (1) Strike Photos, quality and scale various.  
(2) XX Bomber Command Mission No. 44617, 8 November 1944, scale 1:10,000, quality excellent.

PREVIOUS PHOTO COVER: None.

ANNEXES: (1) Annotated Photo.  
(2) Bomb Plot.

REMARKS:

Number in parentheses preceding statements below refer to corresponding numbers on the attached annotated print.

DETAILS OF DAMAGE:

- (1) Sliding Caisson, dock and vessel under repair.

The sliding caisson gate shows no evidence of damage on the post-strike photos. However, the dock was seen to be dry at the start of the attack and photos taken during the attack show water rushing into the dock through a breach in the gate evidently at the water line or just below. The post-strike photos show the dock still to be filled with water. At least one hit and probably two as well as several near misses appear to have damaged the sliding caisson recess, and a small building nearby, possibly housing controls, has been destroyed.

The 465: engines-aft cargo vessel seen under repair on pre-strike photos received one or more direct hits which destroyed approximately 30-35% of the stern. The vessel showed a decided list to starboard and appeared to be down at the stern on strike photos, but the ship now appears to be upright and afloat. Nearly all the shoring seems to be out of place but lines are seen running from the vessel to the dock serving to hold the ship in place.

The drydock proper took several hits within and at least 3 on the edges.

- (2) Of the 11 buildings located just west of the drydock 3 were destroyed, two more than half-destroyed and the remaining buildings damaged, 2 severely. Some clearing work appears to be in progress.

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



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

- (3) A small building was destroyed, a large shop building more than half-destroyed and a long narrow building heavily damaged in the area just east of the drydock. In addition several small buildings were damaged and trackage was destroyed. Clearing work is in progress.
- (4) What is thought to be a foundry has been heavily damaged by a direct hit on one corner.
- (5) Several hits in a small railroad yard south of the dock and hits on several spur lines and roads serving the dock area have destroyed trackage and 10-15 rolling stock. Apparently no attempt has as yet been made to repair broken and damaged trackage. In addition several small building in this area were damaged by blast.
- (6) Approximately half of a barracks or storage building located WSW of the dock has been destroyed and a building just north, probably a railway station, appears to have been damaged by blast.
- (7) Bombs falling west of the dock damaged a small segment of trackage and several rolling stock and scattered loose stores about.
- (8) Just south of item (7) a small building has been largely destroyed and an unidentified installation just north, seen to have been burning furiously during the attack, appears damaged.
- (9) Several small houses were destroyed and a small administration type building damaged by bombs which fell southeast of the dock.
- (10) A direct hit in a storage area east of the west wall damaged some stores, a rail line and several rolling stock.
- (11) A small building west of the Naval Stores Basin was heavily damaged by a direct hit.
- (12) East of the Naval Stores Basin a dwelling was largely destroyed by a direct hit.
- (13) A small jetty located on the Sembawang River has been damaged.
- (14) Heavy previous damage to the northernmost large building lining the Naval Basin is apparent. Several other buildings nearby also are seen to have been damaged previously.
- (15) A Takanami Class Destroyer is in floating drydock in the Naval Basin. No damage has been identified.
- (16) The large floating drydock seen to have been partially submerged during the strike has now taken aboard a large 540' unidentified transport which was seen standing-by during the attack. No damage to the vessel has been identified.

*James D. Garcia*  
JAMES D. GARCIA  
Colonel, Air Corps  
Chief, Intelligence Section

PREPARED BY: Target Unit  
Intelligence Section  
14 November 1944

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

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BEFORE:

0114Z, 1st A/C over target.  
Note drydock empty of water.



DURING:

0132Z, 3rd A/C over target.  
Note water rushing in drydock through breach in gate.



ANNEX 1

D. A. REPORT NO. 19  
SINGAPORE NAVAL BASE  
MISSION NO. 16

CONFIDENTIAL

TARGET SECT.,  
XX BC

16.47

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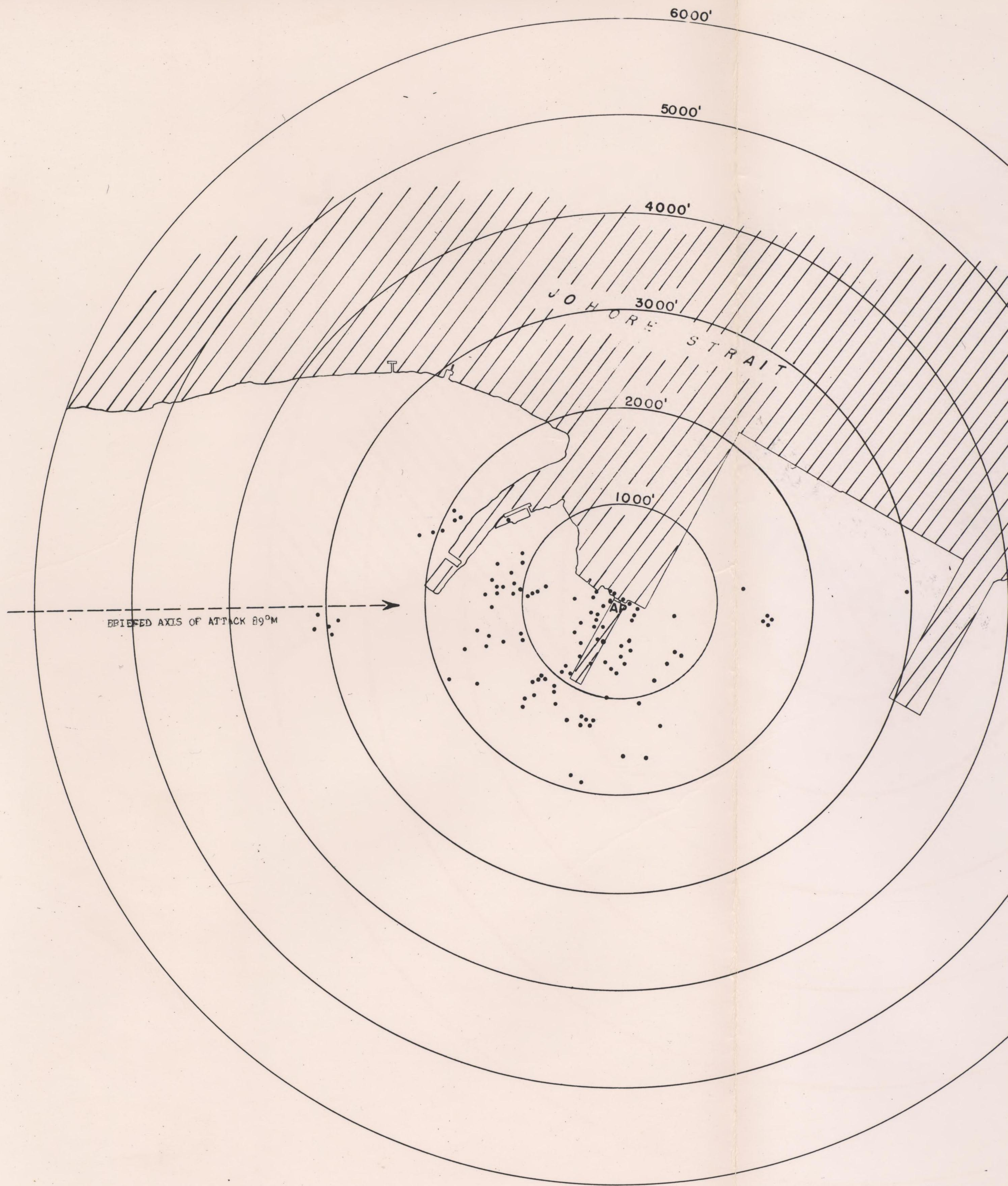
**"CONFIDENTIAL"**

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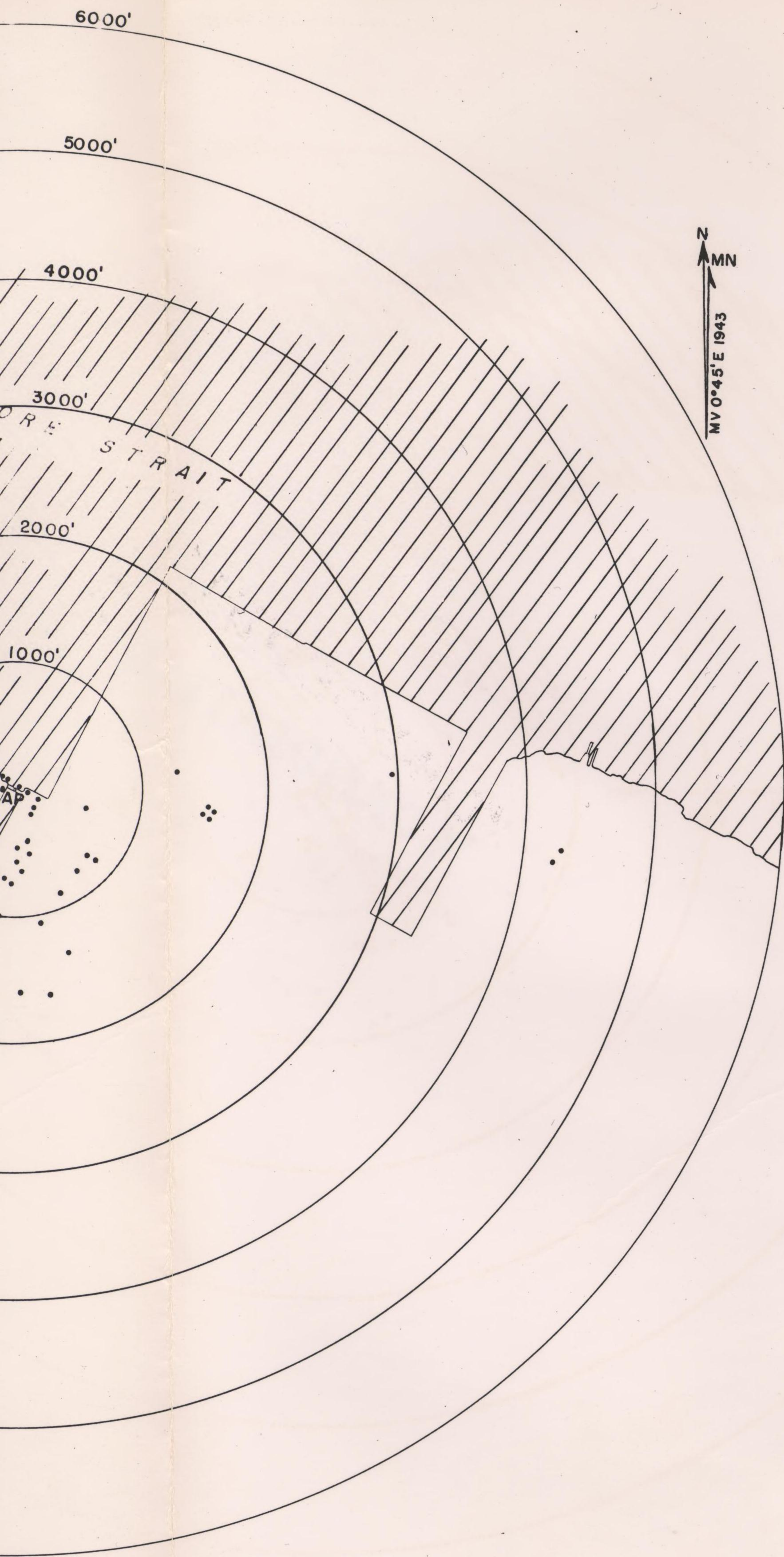
Authority **NND 760063**

By **AB** NARA Date **10/18/05**









TOTAL NUMBER OF BOMBS DROPPED : 183  
 TOTAL NUMBER OF BOMBS IDENTIFIED : 109  
 PERCENTAGE OF BOMBS IDENTIFIED : 59.5%

AREA	NO. OF BOMBS IDENTIFIED	PERCENT
0 - 1000'	45	41.2
1 - 2000'	54	49.5
2 - 3000'	6	5.5
3 - 4000'	2	1.9
4 - 5000'	2	1.9
5 - 6000'	0	0
6000' Plus	0	0
	<u>109</u>	<u>100.0%</u>

ANNEX 2

D. A. REPORT NO. 19  
 SINGAPORE NAVAL BASE  
 MISSION 15

CONFIDENTIAL

TARGET UNIT, INTEL SECT  
 XX BOMBER COMMAND

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By AB NARA Date 10/18/05