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BRITISH PACIFIC ISLANDS
BORNEO NORTH No. 81.1

NETHERLANDS EAST INDIES
BORNEO SOUTH No. 94.4

ISSUED DECEMBER 15, 1942

AIR OBJECTIVE FOLDER

No. **81.1** **Borneo North Area**

BRITISH PACIFIC ISLANDS

No. **94.4** **Borneo South Area**

NETHERLANDS EAST INDIES

INTELLIGENCE SERVICE
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

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ON OFFENSIVE MISSIONS

AIR OBJECTIVE FOLDER BORNEO

No. 81.1 BORNEO NORTH AREA

No. 94.4 BORNEO SOUTH AREA

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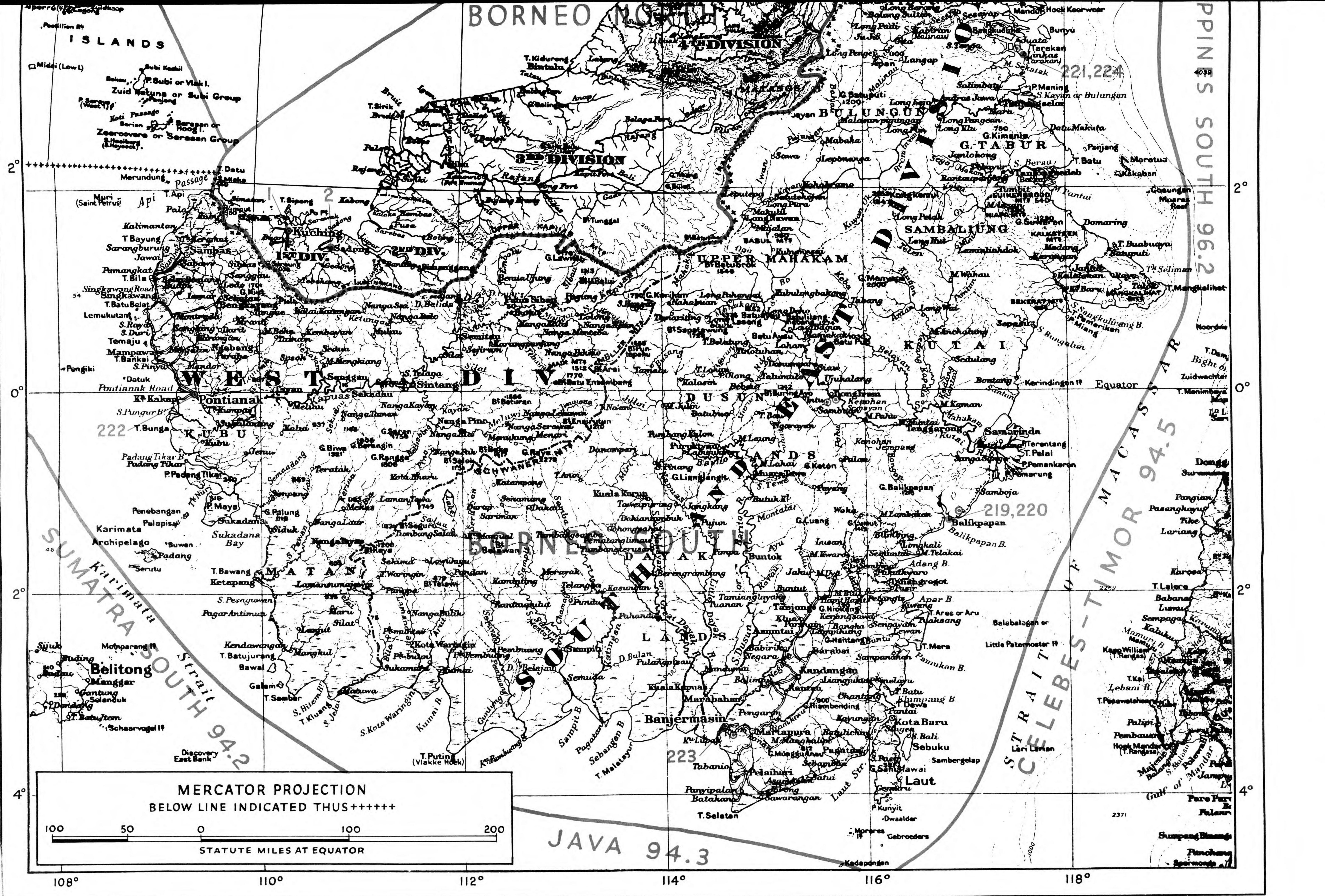
3565—T.1—Borneo North, Borneo South

BORNEO NORTH

BORNEO SOUTH

JAVA 94.3

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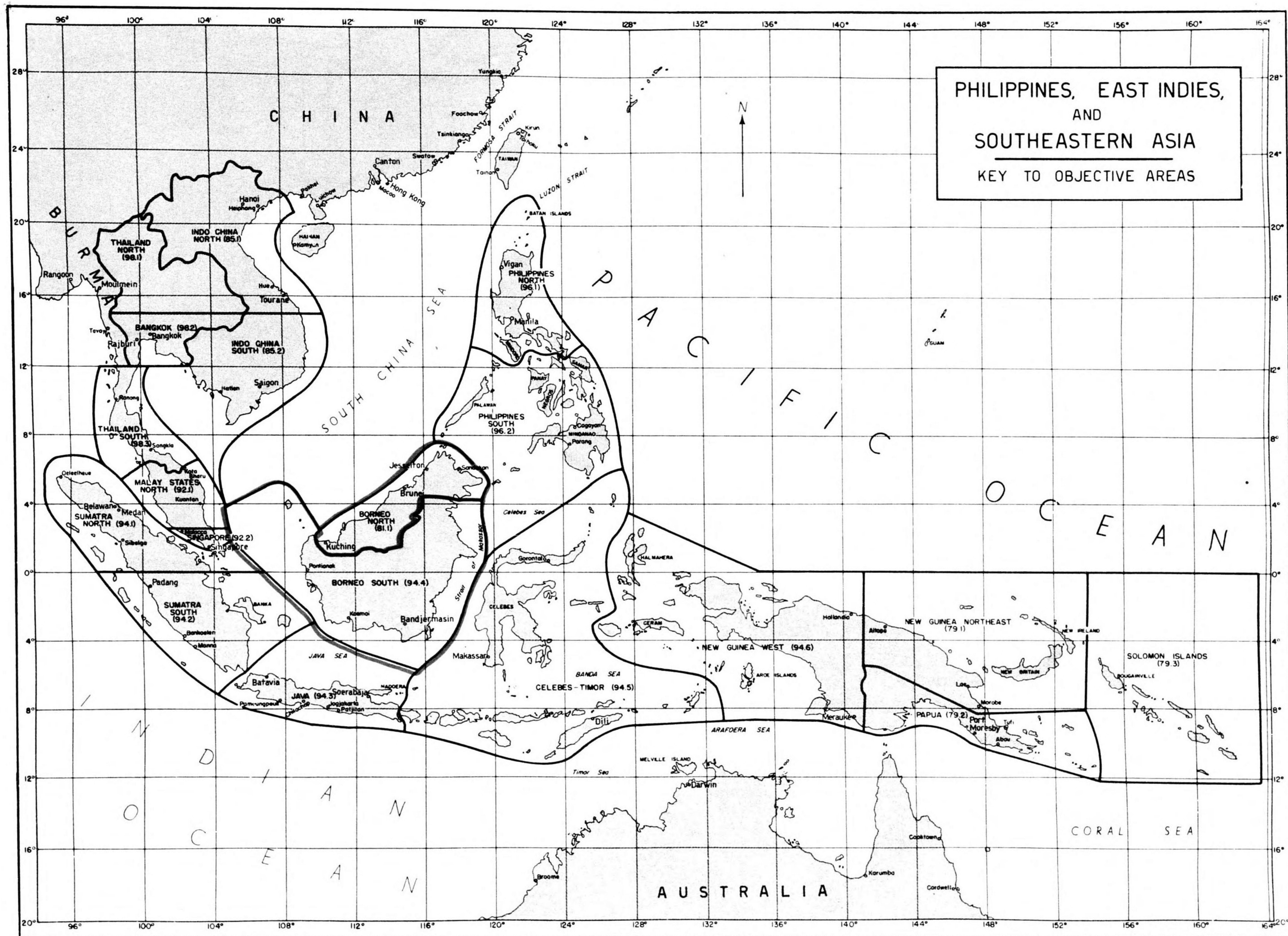


MERCATOR PROJECTION
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108° 110° 112° 114° 116° 118°

1365M-T-3-Borneo North-Borneo South



3565M-T-3-Borneo North-Borneo South

EXPLANATION OF FOLDER

This folder is primarily for the use of group and squadron commanders and intelligence officers in the planning of operations and the briefing of crews. **NEITHER THE FOLDER NOR ANY PART OF IT MAY BE TAKEN INTO THE AIR ON OFFENSIVE MISSIONS.**

Targets and objective areas are numbered from one to infinity within each country. These numbers are combined into a code showing the country, objective area, and

target. For example, 81.1-5 indicates British Pacific Islands (81), Borneo North Area (1), and **TARGET 5**, British Pacific Islands series.

Supplementing the objective folder, target charts are provided separately for the use of air crews. Each chart is centered on a target; it spots other targets lying within a four-mile radius; and it identifies landmarks within a twelve-mile radius. The charts are numbered according to the targets on which they are centered.

SUMMARY AND EVALUATION OF BORNEO NORTH AREA 81.1

NOTE: This folder is the result of an effort to obtain the best information available in the U. S. A. Every effort should be made in the field to verify the data by photo reconnaissance.

This objective area consists of that part of Borneo formerly under British control and thus includes Sarawak, Brunei, and British North Borneo. The terrain is generally low except for a range of mountains, varying between 4,000 and 13,000 feet in height, in the western part of British North Borneo. The entire area is covered by dense jungle. Transportation is almost entirely by water. The only railroad is in British North Borneo, running the short distance from Weston and Tenom in the south to Jesselton in the north.

The area is important chiefly for its oil, which is derived from the fields at Seria and Miri. Peacetime production amounted to 7,000,000 bbls a year. The crude was piped to the Lutong Refinery (7,300,000 bbls annual capacity) where it was processed, stored, and pumped through sea-loading pipelines which extended three miles over the reefs to an anchorage for ocean-going vessels.

The Lutong Oil Installations, **TARGET 8**, form the most important objective of this area. The North Borneo oil production, which will amount to approximately 20,000,000 bbls in 1943, is equivalent to 40% of Japan's annual petroleum requirement.

The fields are at Miri, 5 miles south of Lutong, and at Seria about 20 miles northeast of Lutong. Crude oil was piped from these fields to the Lutong Refinery and the refined petroleum was pumped from storage tanks via sea-loading pipelines to an anchorage for ocean-going vessels beyond the reef. Although the British destroyed all the installations, it is very probable that the Japanese have restored the Lutong Refinery, storage facilities, and sea-loading pipelines. Seria

crude is of such quality that 45% of it, or 9,000,000 bbls a year can be used directly as bunker fuel. The Japanese are very active in the Seria-Lutong district with tankers, merchant and naval vessels constantly arriving. The objectives at Lutong are, therefore: 1) the refinery or distilling plant, 2) storage tanks, 3) the pumping stations on the shore for the sea-loading pipelines, and any vessels taking on oil. The pipelines themselves are under water, are kept full of oil, and are impossible to damage.

In order to ship 20,000,000 bbls of oil from Lutong during 1943 between 250 and 350 tanker trips, depending upon the size of tankers used, will be required. Considering the time necessary for loading, there is great probability that a tanker vessel will be berthed at Lutong every day in the year.

It is possible, though not probable, that the Japanese will establish sea-loading pipelines at the Seria fields, about 20 miles northeast of Lutong. It should be determined whether or not the Japanese are loading tankers at Seria.

While the airfields of this objective area are not included as targets, their existence should be noted:

NAME	TYPE	LOCATION
Kuching Airfield	Military Airfield	01°28'N; 110°20'E
Miri Airfield	Emergency Landing Ground	04°28'N; 114°00'E
Kudat Airfield	Military Airfield	06°57'N; 116°50'E

For further information on airfields see *Airport Directory for East Indies and Philippine Islands*.

Other commodities produced in the Borneo North objective area, much less valuable than its oil, are coal, copra, lumber, rice, and rubber, as well as miscellaneous jungle products.

TABULATION OF TARGETS FOR BORNEO NORTH AREA

TARGET NO.	TARGET NAME	APPROXIMATE COORDINATES	DESCRIPTION AND SIGNIFICANCE	TARGET CHART NO.
HARBOR FACILITIES AND WAREHOUSES				
1	Kuching Harbor	01° 34' N 110° 21' E	Wharves with cranes; whses; repair shops and drydocks; coal and fuel oil storage. Handles vessels up to 16 ft draft, 240 ft length.	1
2	Sadong Harbor	01° 23' N 110° 45' E	Coal port. Wharves, whses.	2
3	Miri Harbor	04° 24' N 114° 00' E	Center of N Borneo oil industry. Japs have storage tanks in harbor area.	3
4	Jesselton Harbor	05° 59' N 116° 05' E	Large pier with whses and RR siding. N terminus of RR. Rubber port. (See photo B on page M-2.)	4
5	Kudat Harbor	06° 53' N 116° 51' E	Pier, whses. Tobacco, rubber, copra exported.	5
6	Sandakan Harbor	05° 50' N 118° 07' E	Chief harbor of N Borneo, coal fueling port. Large wharf, whses. Shipyard and foundry; marine railway 145 ft long. (See photo A on page M-2.)	6
RAILROADS				
7	Jesselton RR Repair Shops	05° 59' N 116° 05' E	Only known RR shops in N Borneo; can also make minor ship repairs.	4
PETROLEUM				
8	Lutong Oil Installations	04° 30' N 114° 00' E	Site of Shell Oil Co's refinery, storage, and sea-loading pipelines. Were demolished; but Japanese are working adjacent oil fields and have either repaired refinery or set up new one. Storage tanks in vicinity. Refinery on sea-coast. Pipelines lead three miles to sea over reefs to anchorage where ocean-going vessels moor and load oil. (See text on page T-5.)	8

... concluded

LIST OF TARGET CHARTS AVAILABLE FOR BORNEO NORTH AREA

Charts are numbered according to the target on which they are centered.

Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts
1.....	1.	3.....	3.	5.....	5.	8.....	8.
2.....	2.	4.....	4, 7.	6.....	6.		

SUMMARY AND EVALUATION OF BORNEO SOUTH AREA 94.4

NOTE: This folder is the result of an effort to obtain the best information thus far available in the U. S. A. Every effort should be made in the field to verify the data by photo reconnaissance.

This objective area consists of Dutch Borneo, a thinly populated territory covering 215,000 square miles and inhabited by approximately 2,300,000 people. The terrain is generally mountainous, the central and west-central parts of the island being traversed by three mountain ranges none of which, however, attains great heights. Other parts of the island consist of vast swampy plains, jungle-covered, through which a number of large rivers run to the sea.

Dutch Borneo is relatively undeveloped. It has no general railroad system and few highways. Transportation is accomplished largely by means of river and coastal shipping. The sole industrial plant of any importance was the Shell Oil Co. refinery at Balikpapan, and this was destroyed before the Japanese invasion.

Dutch Borneo's chief product, and the one of most importance to the enemy, is oil. The fields near Balikpapan yielded from 6,500,000 to 7,500,000 bbls a year, and those at Tarakan from 4,500,000 to 5,500,000 bbls. These fields were all damaged. Those at Tarakan, however, have very likely been restored, for Tarakan crude can be used directly as fuel oil. The enemy will probably obtain 2,000,000 bbls from Tarakan in 1943. In the opinion of American oil experts the enemy prob-

ably will not attempt to restore production in the fields near Balikpapan in the near future, since these are old, and also present a difficult drilling problem. Nevertheless, the possibility that the Japanese might restore the Balikpapan fields and refinery must not be overlooked.

Besides oil, Dutch Borneo also produces coal (about 600,000 tons annually), rubber, lumber, copra and coconut oil, rattan, and rice. Most of the output of these commodities is exported through the harbors listed in the following section.

The following airfields are known to be located in this objective area:

NAME	TYPE	LOCATION
Balikpapan Airfield	Emergency	01°13'S; 116°58'E
Bandjermasin Airfield	Emergency	03°27'S; 114°45'E
Samarinda East Airfield	Military	00°12'S; 115°46'E
Samarinda West Airfield	Military	00°13'S; 115°44'E
Singkawang Airfield I	Emergency	00°55'N; 109°00'E
Singkawang Airfield II	Emergency	01°05'N; 109°42'E
Tandjung (Bajoe) Airfield	Emergency	02°00'S; 115°07'E
Tarakan Airfield	Military	03°20'N; 117°34'E

For further information on airfields see Airport Directory for East Indies and Philippine Islands.

TABULATION OF TARGETS FOR BORNEO SOUTH AREA

TARGET NO.	TARGET NAME	APPROXIMATE COORDINATES	DESCRIPTION AND SIGNIFICANCE	TARGET CHART NO.
ELECTRIC POWER				
219	Balikpapan Power Plant	01° 16' S 116° 49' E	Steam. 6000 kw. Supplies oil refinery and town.	219
HARBOR FACILITIES - WAREHOUSES				
220	Balikpapan Harbor	01° 16' S 116° 49' E	Large harbor from which 7 million bbls of oil were exported annually. Facilities were destroyed but enemy claims to have restored them. Eight piers with light RR connections. Oil company shipyard, foundry, machine shops. Not much oil will be shipped from here in 1943, but port is useful for other purposes, having deep anchorage safe in all seasons. (See text on page T-8; photo C on page M-2.)	219
221	Tarakan (Linkas) Harbor	03° 17' N 117° 36' E	Important harbor from which Japanese will ship 2,000,000 bbls of oil in 1943. Deep anchorage for a large number of vessels, safe in all seasons, secure against submarines. Facilities were destroyed but have been or will be repaired. Two piers with oil-loading equipment. (See text on page T-8.)	221
222	Pontianak Harbor	00° 01' N 109° 20' E	On Kapuas R 12 mi from coast. 950 ft wharf. Whses. Drydock and shipyard. Coal and fuel oil storage.	222
223	Banjermasin Harbor	03° 20' S 114° 35' E	On Martapura R. Chief trading port of Borneo. 3 piers, 2 coaling quays, whses. Facilities reported destroyed by Dutch, probably now restored.	223
PETROLEUM				
224	Tarakan Storage Tanks	03° 18' N 117° 36' E	Japanese have undetermined number of storage tanks to handle Tarakan oil until it is shipped. (See text on page T-8.)	221

... concluded

REVIEW OF TARGETS

The Tarakan Storage Tanks, TARGET 224, comprise the most important objective in this area. Tarakan crude oil is used directly as bunker fuel for ships and does not require any preliminary refining process. The oil obtained from the wells is run into storage tanks until called for by tankers, or by merchant and naval vessels desiring to refuel. The Japanese may have storage capacity sufficient to hold as much as 150,000 bbls.

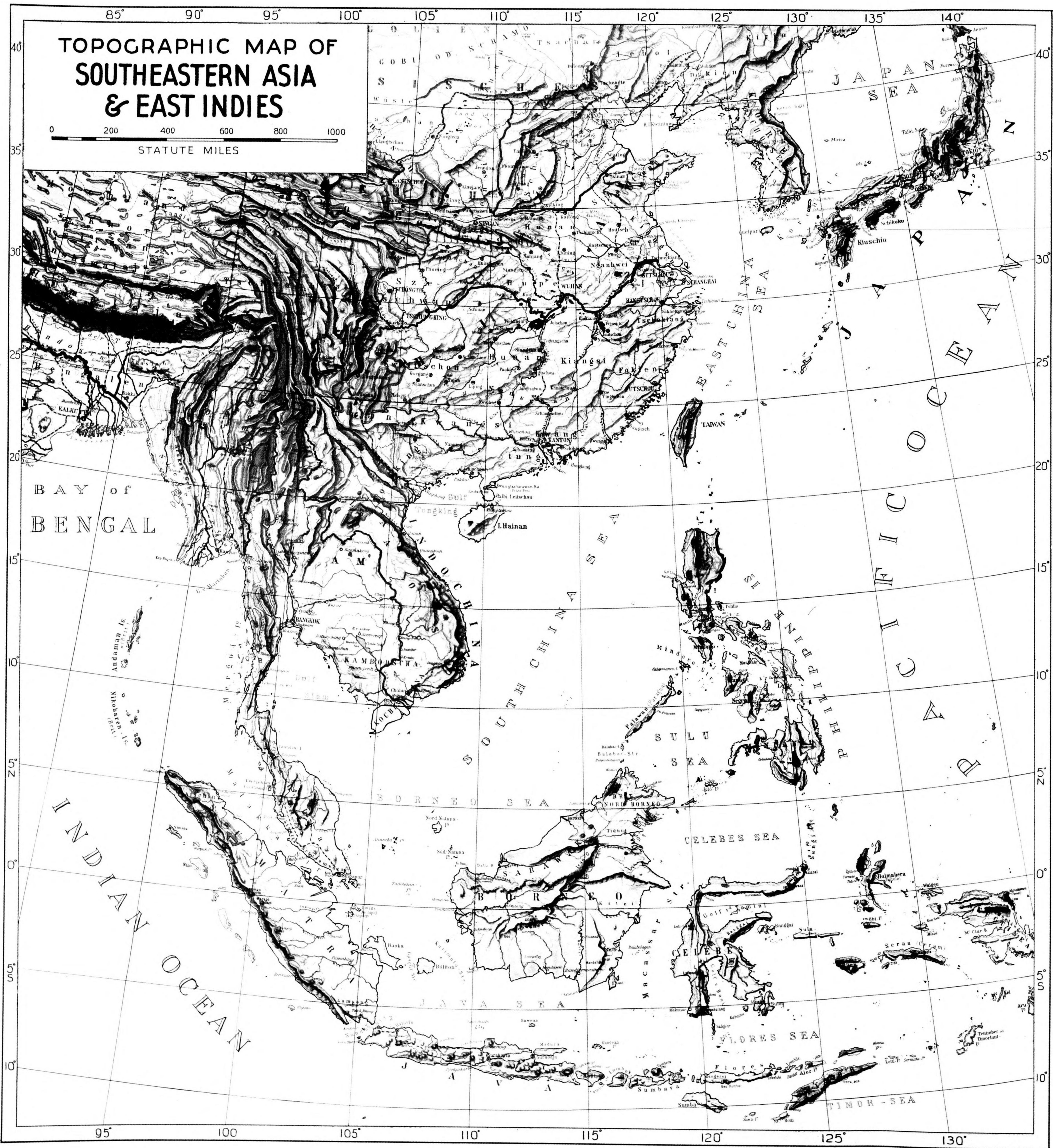
The four harbors listed are the export points for most of Dutch Borneo's produce. Particularly important are Tarakan TARGET 221 and Balikpapan TARGET 220. The chances are that at all times a tanker vessel will be in Tarakan Harbor. If the enemy is restoring the Balikpapan refinery there will be con-

siderable activity in that harbor.

Reconnaissance is necessary to determine whether or not the Japanese are repairing the Balikpapan refinery and restoring the oil fields at Sanga Sanga and Sambodja, which supplied it.

Not included as targets are small harbors from which Dutch Borneo's coal is shipped. These harbors are as follows: 1) Samarinda (00° 30' S; 117° 08' E) on the Mahakam (Kutei) River, handling 200,000 tons annually; 2) Tandjong-Redeb (02° 10' N; 117° 30' E) and Telok Bayur (02° 11' N; 117° 27' E) on the Berau River together handling 300,000 tons annually; 3) Setagin (03° 17' S; 116° 09' E) on Laut Island, handling approximately 100,000 tons annually.

LIST OF TARGET CHARTS AVAILABLE FOR BORNEO SOUTH AREA							
Charts are numbered according to the target on which they are centered.							
Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts	Target chart number	Targets appearing on charts
219.....	219, 220.	221.....	221, 224.	222.....	222.	223.....	223.



PHOTOGRAPHS OF BORNEO NORTH AREA



PHOTO A... Sandakan Harbor TARGET 6 looking S.

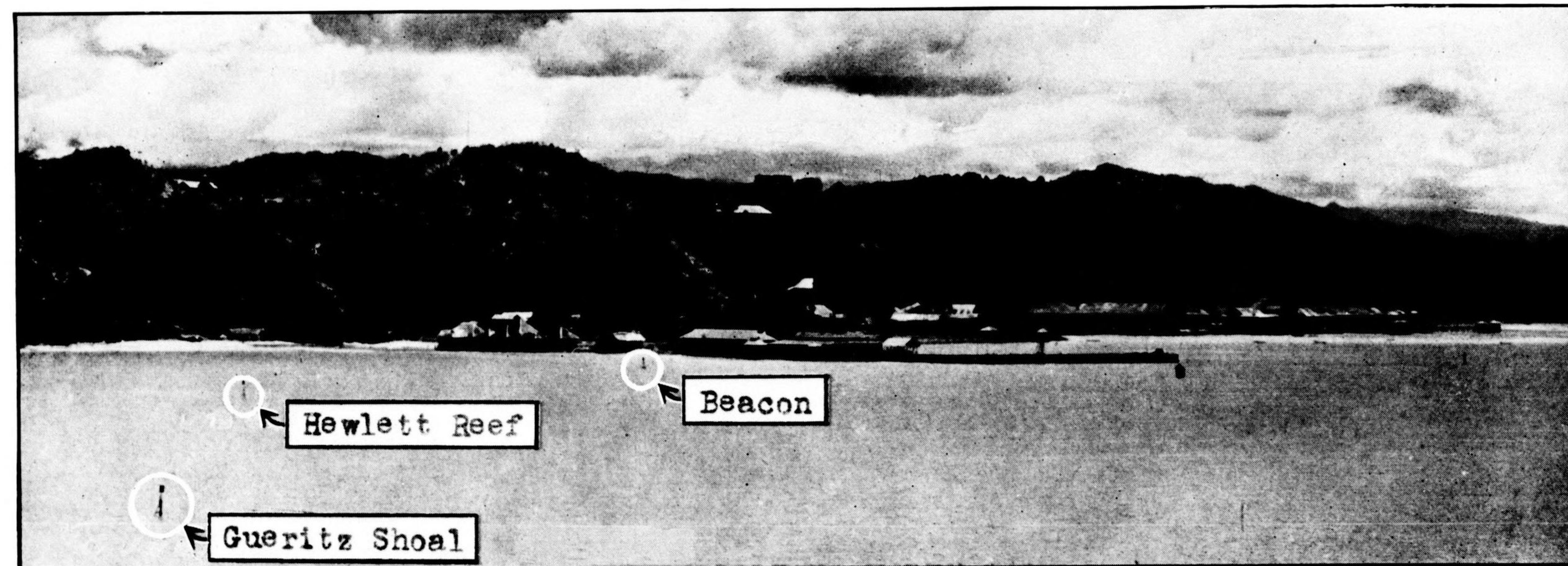


PHOTO B... Jesselton Harbor TARGET 4 looking S.

PHOTOGRAPH OF BORNEO SOUTH AREA



PHOTO C... Balikpapan Harbor TARGET 220 looking NNE.