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# REPORT ON INSTALLATIONS AND CAPTURED WEAPONS, JAVA AND SINGAPORE

1942

PREPARED BY  
HEADQUARTERS, USAFFE  
AND EIGHTH U.S. ARMY (REAR)

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DEPARTMENT OF THE ARMY



## PREFACE

This document is one of a series prepared under instructions from the Supreme Commander for the Allied Powers to the Japanese Government (SCAPIN No. 126, 12 Oct 1945). The series covers not only the operations of the Japanese armed forces during World War II but also their operations in China and Manchuria which preceded the world conflict. The original studies were written by former officers of the Japanese Army and Navy under the supervision of the Historical Records Section of the First (Army) and Second (Navy) Demobilization Bureaus of the Japanese Government. The manuscripts were translated by the Military Intelligence Service Group, G2, Headquarters, Far East Command. Extensive editing has been accomplished by the Foreign Histories Division of the Office of the Military History Officer, Headquarters, United States Army Japan.

Monograph No. 63 is a report made by Lt. Col. Tadataka Numaguchi of Army Technical Headquarters and Maj. Katsuji Akiyama of the Army Heavy Artillery School of an inspection tour of Singapore and Java between March and May 1942. It covers the condition of the fortresses and weapons on those islands; an estimate of the number of weapons, since at that time a complete count had not been accomplished, and recommendations in regard to their use and disposal.

As the basic manuscript from which this study was prepared was particularly poor and filled with obvious errors, Lt. Col. Numaguchi, now a civilian in Tokyo, and Maj. Akiyama, now a colonel with the Japanese Self Defense Force, have been interviewed on numerous

occasions to verify and expand the original document. These two officers have proved extremely helpful in making available documents in their possession. In consequence of information thus obtained, the report has been completely rewritten and the original title changed to more clearly indicate the contents.

The editor received valuable assistance in research and in the preparation of maps and charts from Tadao Shudo, formerly a lieutenant colonel on the staff of the 11th Army and later a member of the Army General Staff, 4th Air Army and Air Army General Staff.

All maps contained in this monograph were drawn by the Foreign Histories Division. Where possible the spelling of place names in the text and on the maps is that used in AMS 5301, however, on occasion place names of gun sites are spelled phonetically (according to native pronunciation).

Tokyo, Japan  
15 May 1958



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## CHAPTER 1

### Purpose of Trip and Report of Investigations

#### Purpose of Trip

Early in 1942, Lt. Col. Masataka Numaguchi of the Army Technical Headquarters and Maj. Katsuji Akiyama of the Army Heavy Artillery School were ordered to proceed to Singapore, Java and Sumatra where they were to make a detailed technical inspection and to report on the practical use of enemy weapons and fortifications captured by the Japanese forces during the Malay and Java Campaigns. A Survey Group of the Lines of Communication Bureau, under these two officers, was ordered to give technical advice to the local Army and to assist in the salvaging and rehabilitation of weapons to be used on the spot, as well as to give advice in regard to special weapons to be shipped to Japan for ordnance evaluation and examination.

The local Army was ordered to provide technical assistance whenever possible.

The itinerary for the Survey Group was as follows:

#### General Outline

<u>Date</u>	<u>Stop-Overs</u>	<u>Outline of the Itinerary</u>
23 Mar		Leave Tokyo arrive at Gifu
24-27 Mar	Gifu	Wait for plane
<hr/>		
28 Mar		Leave Kagamigahara airfield arrive at Tachiarai

<u>Date</u>	<u>Stop-Overs</u>	<u>Outline of the Itinerary</u>
29 Mar	Tachiarai	Wait for plane
30 Mar		Leave Tachiarai arrive at Shanghai
31 Mar-1 Apr	Shanghai	Wait for plane
2 Apr	Canton	Leave Shanghai arrive at Canton
3 Apr		Leave Canton arrive at Saigon
4-6 Apr	Saigon	Report to Gen Army Hq Conference with Gen Army Hq Inspection of 21st Fd Ord Depot
7 Apr		Leave Saigon arrive at Singapore
8 Apr	Singapore	Report to and conference with 25th Army Hq Complete investigation tour of fortresses in Singapore
17-19 Apr		Investigation of armament and military geography of Singapore
20-21 Apr		Complete investigation of antiaircraft battery in Singapore
22 Apr		Leave Singapore arrive at Batavia
23 Apr	Batavia	Report to and conference with 16th Army Hq Inspection of armament and fortress at Tandjoepriok
25 Apr		Leave Batavia arrive at Bandoeng
26 Apr		Visit 2d Div Hq and Ord Depot



<u>Date</u>	<u>Stop-Overs</u>	<u>Outline of the Itinerary</u>
27 Apr-1 May	Bandoeng Vicinity	Inspection of arms and various installations in Bandoeng Vicinity (including Cheribon and Tjilatjap)
2 May		Compilation of outline reports to Gen Director of Ordnance
3 May	Soerabaja	Leave Bandoeng arrive at Soerabaja Report to and conference with 48th Div Hq and branch office of Ord Depot
4-6 May		Inspection of fortresses and field arms
7 May	Malang	Leave Soerabaja, arrive at Malang Inspection of arms in vicinity
8 May		Leave Malang-Soerabaja arrive at Batavia
9-11 May	Batavia	Report to 16th Army Hq
12 May		Leave Batavia arrive at Singapore
13-16 May	Singapore	Report outline of inspection Wait for plane
17 May		Leave Singapore arrive at Saigon
18 May	Saigon	Report to Gen Army Hq Report outline of inspection
19 May		Wait for plane
20 May		Leave Saigon, arrive at Canton
21, 22 May	Canton	Wait for plane
23 May		Leave Canton, arrive at Taihoku, Formosa

<u>Date</u>	<u>Stop-Overs</u>	<u>Outline of the Itinerary</u>
24 May	Taihoku	Wait for plane
25 May		Leave Taihoku, arrive at Shanghai
26, 27 May	Shanghai	Wait for plane
28 May		Leave Shanghai arrive at Tokyo

Report on Use and Disposal of Captured Weapons,  
Fortresses and Establishments in Singapore and Java

The Survey Group's report read:

All fortresses on Singapore were almost completely demolished. Those on Java were badly damaged, with the exception of those in the vicinity of Soerabaja which are intact.

The disposal of the remaining fortress weapons will be carried out in accordance with our Southern Area Defense Policy. It will, therefore, be necessary to rearrange the position of the guns. For instance, additional guns will be required to reinforce those remaining in Singapore, and some guns from the Soerabaja fortress could be transferred to other areas. A prisoner of war stated that there were numerous other fortresses in the Dutch East Indies, in addition to those on Java. It will be necessary, therefore, to

investigate this situation and an additional report will be submitted later.

Captured weapons will be used to strengthen the local units and defenses. Some of the better types, however, will be returned to Japan for research purposes in order to assist in improving the quality of our equipment. Surplus weapons (rifles, machine guns etc.) will be classified and stored, with their respective ammunition, by the local Army for future use. Weapons for which ammunition is not available will be disposed of in the most advantageous manner.

As weapons and ammunition captured in Singapore and Java are similar, they may be transferred to the area where they are most needed.

The short time allotted has not permitted a detailed inspection. It is recommended, therefore, that experts be dispatched promptly to this area to classify the types of arms and ammunition. In addition, they should ascertain the maximum efficiency of the guns and the repairs necessary.

As the enemy has destroyed the firing tables, it will be necessary for fresh tables to be developed before the captured weapons can be employed.

Experts will be required to examine the captured radar equipment.

Based on this report, the following plan for the disposal of weapons captured in Singapore and Java was agreed upon:

Plan for Disposal of Weapons Captured in Singapore

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Fortress Armament	15" gun	1	Remove loaded shell (if necessary, by firing)  Use for fortress
	6" gun	2	Minor repairs and cleaning necessary  Use as fortress guns in local area
	12-lb gun	1	Minor repairs and cleaning necessary  Use as fortress gun in local area
	Motor engine for 15" gun turret	4	Remove and repair for use elsewhere  Repair one damaged turret
	Motor engine for 9.2" gun	5	Remove and repair for use elsewhere

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Fortress Armament	90-cm searchlight	7	Minor repairs and service necessary  Use for fortress
	Motor engine for 90-cm searchlight	40 sets	Gradually repair for use elsewhere
Field Guns	4.5" howitzer	43	For local units
	25-lb field gun	86	Ship to Japan or deliver to local units
	18-lb field gun	30	For local units
	75-mm field gun	11	For local units
Antitank Gun	Vickers 40-mm antitank gun	98	Ship to Japan, together with guns captured in Java (excluding those already delivered to units)
	Bohler 47-mm antitank gun	9	For local units
Trench Mortar	3" trench mortar	88	For local units
	2" trench mortar	140	For local units
Antiaircraft Gun	Vickers 37-mm AA machine gun (fixed)	35	For defense of local area or ship to Japan  Further research required on "laying apparatus"

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Antiair-craft Gun	3" AA gun (semi-fixed)	10	For defense of local area
	Bofors 40-mm AA machine gun	69	For local units (including those from Java)
	3" AA gun (fixed)	9	For defense of local area
Spare Gun Barrels	For Vickers 37-mm AA machine gun	115	Ship 3 barrels to Bandoeng Work Depot, Java Service others and store temporarily
	For Bofors 40-mm AA machine gun	51	To local units (25 barrels in Java)
Miscellaneous			Use as spare parts (excluding those for research purposes)
Small Arms	Pistols, rifles, and machine guns		Classify and dispose according to type (together with ammunition) Dispose with those from Java To Colonial Troops
	AA machine guns		Adjust immediately and use for strategic defense points

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Small Arms	AA machine guns		Use for defense of shipping
	13.9-mm AT gun	228	To local units
Optical Instruments	Field glasses	450	To local units
	Telescope	140	To local units
	Battery commander's telescope	6	To local units
	AA glasses	5	To local units
	80-cm range finder	30	To local units
	1-m range finder	13	To local units
	2-m range finder	6	To local units
	9' range finder	1	To local units
	AA computing director	5	Badly damaged Ship to Japan for repair If beyond repair then for research purposes
Search-light	90-mm field searchlight (mobile)	7	To local units

References:

1. Weapons to be used in local areas will be repaired locally. (If necessary, parts may be manufactured in Japan.)

Weapons to be shipped to Japan will be transported by returning ships.

2. Ammunition for guns and small arms will be segregated according to types. Maximum efficiency of weapons will be ascertained. (Work to be done by local Army.)

3. Operation and firing tables of captured weapons will be placed in order. Efficiency of weapons will be tested carefully.

4. The following will be shipped to Japan for research:

- a. 4.5" howitzer rubber wheels - 4 sets
- b. Fortress 6-lb (57-mm) dual-mount gun carriage. (excluding shield) - 1 set

Research on sights being important, the best sights will be selected.

Plan for Disposal of Weapons Captured in Java

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Fortress Guns	USA Bethelhem 7" gun	10	Repair locally with parts found locally or improvise  For fortress use Ship 1 gun to Japan for testing ammunition
	Krupp 150-mm gun	18	Fortress use. Recommend immediate investigation of quantity of ammunition



	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Fortress Guns	Bofors 150-mm gun	1	Fortress use. Recommend immediate investigation of quantity of ammunition
	Krupp 75-mm gun	5	Fortress use. Recommend immediate investigation of quantity of ammunition
	Bofors 75-mm gun	9	Fortress use. Recommend immediate investigation of quantity of ammunition
Field Guns	Bofors 75-mm Mt gun	22	Ship to Japan and use there (including ammunition)
	British Model 1917 75-mm field gun (made in USA)	42	For local units and coastal defense
	Krupp Model 1919 75-mm field gun	8	For local units and coastal defense
	Model 1939 75-mm field gun (made in USA)	11	For local units and coastal defense (10) Ship 1 gun to Japan for testing
	Bofors 105-mm howitzer	13	For local units (12) Ship 1 gun to Japan for testing

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Anti-air-craft Guns	Bofors mobile 105-mm AA gun	3	For defense of local area (2)  Ship 1 gun to Japan for testing
	Bofors 80-mm fixed AA gun	4	For defense of local area (3)  Ship 1 gun to Japan for testing
	Bofors 80-mm fixed AA gun	13	For defense of local area (12)  Ship 1 gun to Japan for testing
	3.7" mobile AA gun	3	3 spare gun barrels received from Singapore  Replace old barrels at Bandoeng Work Depot
	Bofors 40-mm AA machine gun	34	For local units together with guns from Singapore  Ship 2 guns (Bofors) to Japan for research purposes
	Rheinmetal 20-mm AA machine gun	15	Ship to Japan for use there (including ammunition)

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Antitank Guns	Bohler 47-mm AT gun	21	For local units
	Vickers 40-mm AT gun	45	Ship to Japan for use there, together with guns shipped from Singapore
	37-mm AT gun (made in USA)	8	Ship 2 guns to Japan for research
	Solothurn 20-mm mobile gun	28	For local units Ship 2 guns to Japan for research
Trench Mortars	80-mm trench mortar	72	For local units
	47-mm trench mortar	5	Ship 2 mortars to Japan for research
Miscellaneous			Use obsolete guns for spare parts. Store temporarily 4 gun carriages for 3.7" anti-aircraft gun in Bandoeng Branch Depot
Small Arms	Pistols, rifles, machine guns		Classify, and store majority of arms with ammunition  Excluding those for research purposes, use for spare parts

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Small Arms	AA machine gun		Dispose along with those for Singapore. Dispose immediately and use for defense and shipping protection
Optical Instruments	Battery commander's telescope	38	To local units for defense purposes
	Field glasses	428	To local units for defense purposes
	70-cm range finder	63	To local units for defense purposes
	1-m range finder	2	To local units for defense purposes
	1.25-m range finder	10	To local units for defense purposes
	2-m range finder	11	To local units for defense purposes
	3-m range finder	4	To local units for defense purposes
	4-m range finder	1	To local units for defense purposes
	40-mm AA calculating apparatus	2	Ship 1 to Japan for research
	Coastal firing director	1	For fortress in local area  Research
	Radar	1 (intact)	Dispose after careful investigation by experts

	<u>Items</u>	<u>Estimated Restorable Number</u>	<u>Disposition</u>
Search-lights	Schiemen 150-cm (mobile)	4	For local units or fortress
	Schiemen (fixed)	6	For fortress
	Sperry 150-cm searchlight (mobile)	4	For local units or fortress
	Others:		
	150-cm search-light	2	For local units or fortress
Mobile generator	Approx. 16	For local units or fortress	
Generator	9	For local units or fortress	

References:

1. Weapons to be used in local area will be repaired locally. (If necessary, parts will be manufactured in Japan.)

Weapons to be shipped to Japan will be processed there.

2. Ammunition for guns and small arms will be segregated according to type and maximum efficiency of weapons will be ascertained. (Work to be done by local Army.)

3. There are numerous operation and firing tables for captured weapons in the Bandoeng Branch Depot. These will be immediately placed in order and the efficiency of weapons will be tested carefully.

Because of incomplete investigation on the trajectory data of the fortress guns, these will be forwarded to the Technical Headquarters for further study on firing tables.

### Singapore Inspection

#### Fortresses in Singapore

Generally speaking, the British Army constructed fortresses in Singapore with the idea of warding off frontal attacks from the open sea. At all times sea and air attacks were emphasized and although tremendous efforts had been made during the years just prior to the outbreak of war to strengthen these defenses, they were still inadequate.

There were 52 artillery pieces mounted in Singapore Fortress, comprising five 15" (380-mm) gun turrets and six 9.2" (230-mm) guns, used for shelling enemy warships; eighteen 6" (150-mm) guns as secondary batteries used for defense against invasion; sixteen 6-lb (57-mm) dual-mount guns, used for channel defense and against invasion, and seven small caliber (75-mm) guns for general use. Although most of the guns, other than the 6-lb guns were obsolete, indicator sights (electrically operated) were attached to them.

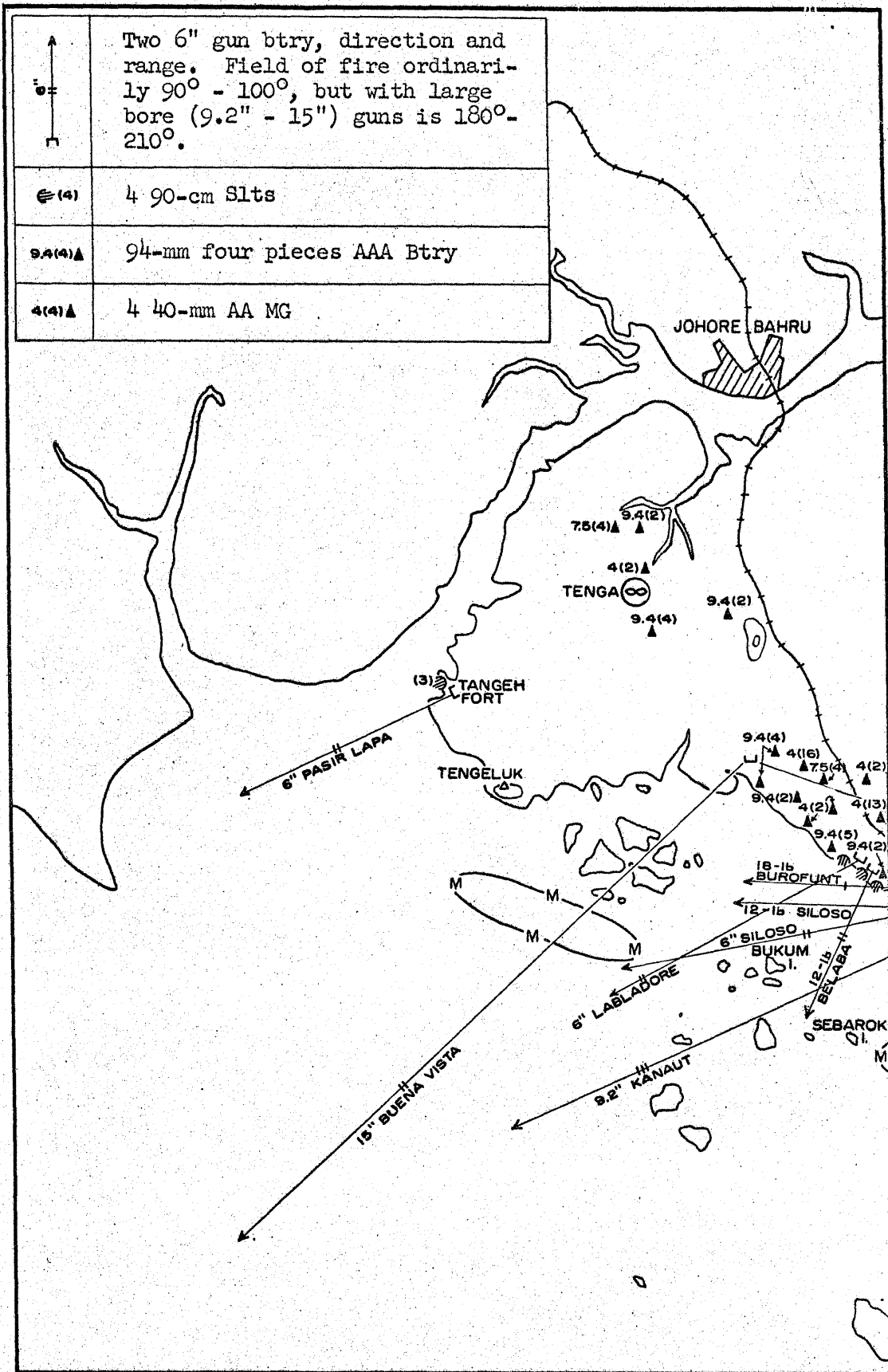
The forty-nine 90-cm fortress searchlights were for the most part the improved type.

The majority of the searchlights were located in Singapore and the advantage of placing them on strategic islands in nearby waters apparently had not been considered. The coastal areas facing the open sea were covered with wire entanglements, while mine fields, log barriers and pillboxes were established at strategic points, making amphibious operations extremely difficult. Special mine controlling equipment had been installed in place of sonar as a safeguard against submarines.

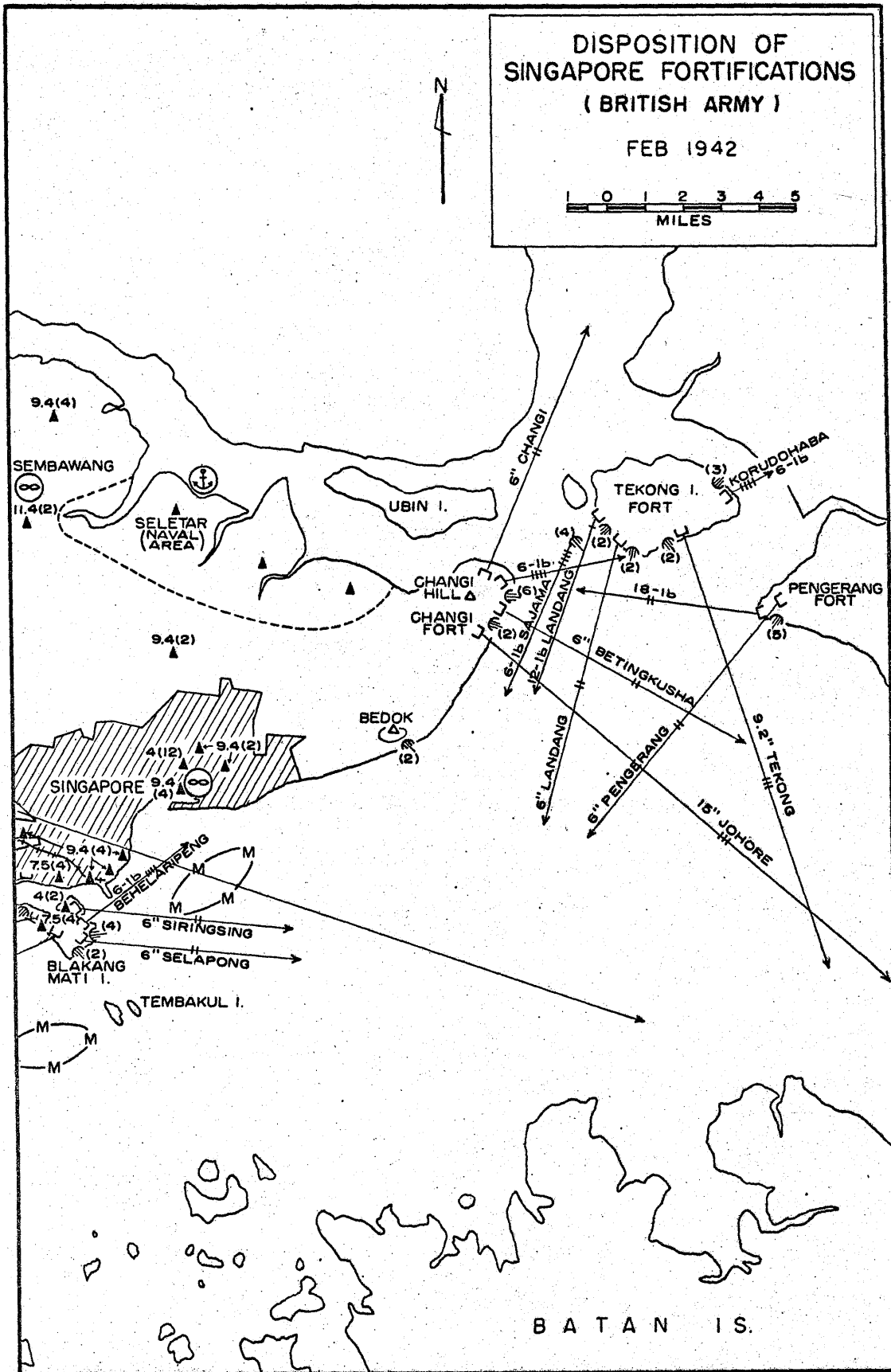
The antiaircraft defense consisted chiefly of approximately fifty 3.7" (94-mm) fixed anti-aircraft guns together with approximately eighty 40-mm machine guns and thirty antiaircraft guns of other types. It is important to note that radar was employed to locate the position of planes and direct the firing.

It is felt that the fact that the British concentrated on the housing and transportation systems rather than on military preparedness is a direct reflection on their national character.

MAP NO. 1a







The damage to the guns and important installations on the island (radar, mine-controlling apparatus, measuring instruments, etc.) was attributable to the British rather than to Japanese bombers.

Details in regard to the location of fortresses and disposition of guns are shown on Map No. 1 and Chart No. 1a-b.

#### Fortress Guns

##### Measures to be Taken on Guns that can be Restored

A large number of fortress guns were either demolished by explosives or by premature explosions in the bore and are beyond repair. However, there are some guns that can be restored and used after minor repairs have been effected. These are:

1. One 15" Gun (Buena Vista Battery)

A careful test will be conducted to determine whether the shell at present in the tube will slide back by its own dead weight by elevating the barrel gradually. Should this method of

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1. Details of the Navy area are not available. Place names of gun sites on Map No. 1 are spelled phonetically according to native pronunciation.

Fortress Guns in Singapore

Forts and Batteries	Size of Gun						Equipment			Remarks
	15"	9.2"	6"	12-lbs	6-lbs	18-lbs (Fld Gun)	Oil Pressure Mechanism	Dynamo	Air Pressure Mechanism	
Pengerang			2			2				4-unusable (scrapped)
Korudohaba					4					4-unusable (scrapped)
Tekong		3					3 (50 HP motors for oil pressure pump)	2 (440 V 120 kw dynamo)	3 (15 HP air compressor)	3-unusable (scrapped)
Iandang			2	1						3-unusable (scrapped)
Sajama					4					4-unusable (scrapped)
Ft. Changi			2		4					6-unusable (scrapped)
Beting Kusha			2							1 (6") repaired; used locally 1-unusable (scrapped)
Ft. Johore	3						3 (150 HP diesel engine for oil pressure pump)	6 (220 V 24 kw)	3 (15 HP air compressor)	3-unusable (scrapped) Sufficient parts salvaged to mount one gun
Belaba				2						2-unusable (scrapped)
Labladore			2							1 (6") repaired and used locally 1-unusable (scrapped)

Fortress Guns in Singapore (Cont'd)

Forts and Batteries	Size of Gun						Equipment			Remarks
	15"	9.2"	6"	12-lbs	6-lbs	18-lbs (Fld Gun)	Oil Pressure Mechanism	Dynamo	Air Pressure Mechanism	
Siring-sing			2							2-unusable (scrapped)
Burofunt						1				1-unusable (scrapped)
Behelarip-eng					4					4-unusable (scrapped)
Selapong			2							2-unusable (scrapped)
Kanaut		3					3 (50 HP motors for oil pressure pump)	2 (440 V 120 kw dynamo)	3 (15 HP air compressor)	3-unusable (scrapped)
Siloso			2	1						1 (12-lbs) - repaired; used locally 2-unusable (scrapped)
Buena Vista	2						2 (150 HP diesel engine for oil pressure pump)	4 (220 V 24 kw)	2 (15 HP air compressor)	1 (15") repaired; used locally 1-unusable (scrapped) Sufficient parts salvaged to mount one gun
Pasir Laba			2							2-unusable (scrapped)
Total	5	6	18	4	16	3	11	14	11	

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Chart No. 1b

extraction be unsuccessful, an attempt will be made to fire the shell with a decreased base charge (3/4 of that employed by the British) after carefully checking the breechblock.

Before doing this, the condition of all parts of the gun, especially the recoil buffer and the counter-recoil, will be thoroughly inspected.

If the damage to the motive power mechanism is slight, the piece will be cleaned, inspected, and repaired by specialists, and tested without delay.

2. Two 6" Guns (Beting Kusha and Labladore Batteries)

Although the breechblocks cannot be opened for inspection, the external appearance of the barrels appears to be satisfactory. These guns may be restored by replacing the breechblocks with spare parts. Since the bores are badly rusted, the tubes will be useless, unless they are cleaned and repaired.

3. One 12-lb Gun (Siloso Battery)

The missing firing mechanism will be replaced immediately with parts (if necessary,

new parts) taken from other fortress guns, and will be thoroughly cleaned and repaired.

Measures Taken on Guns Impossible to Restore

1. The condition of four 15" guns, six 9.2" guns, sixteen 6" guns, three 12-lb guns, and eight 6-lb dual-mount guns is hopeless. The parts of these guns that can be used as spare parts will be saved while the remaining parts will be scrapped.

Total available steel - approximately  
3,300 tons

2. Power Plants for Guns

There are three 15" guns in Johore Fort. The power room for the central gun turret is flooded and cannot be restored. However, the power room for the right gun turret is in perfect condition, while that of the left gun turret has suffered only minor damage.

The power room of the 15" gun in Buena Vista Battery is slightly damaged.

Each battery of 9.2" guns at Kanaut and Tekong Batteries had a electrical power generator, which supplied power to the hydraulic pump engines of each gun turret. Although these generators and

engines have suffered considerable damage, they can be repaired and used.

The power plants will be removed and used elsewhere after reconditioning.

3. Since there are no guns available, the ammunition for the 9.2" guns and the 6-lb dual-mount guns will be dumped into the ocean and the casings collected for scrap.

#### Estimate on the Singapore Fortress Guns

It is obvious that the fortress was constructed to ward off any attack from the open sea and no consideration was given to an attack overland from the north. The principle guns of the fortress consisted of 15" guns, 9.2" guns, 6" guns and 6-lb dual-mount guns. Of these, the 15" guns were to be used in shelling enemy vessels while the 9.2" and the 6" guns were to be used as secondary guns. Guns smaller in caliber than the 9.2" were to be employed in defense against any landing operation. As channel defense, log barriers were installed in the nearby waters and 6-lb guns were to provide the fire power. Other than this, four 12-lb (3" obsolete model) guns and three 18-lb (3.3") field guns were used

as temporary substitutes for the 6-lb guns.

With the exception of the 6-lb dual-mount guns, all the guns are obsolete and are of no technical value.

The 15" guns were Navy guns manufactured in 1915 and 1918. It is believed that they were installed in 1939.

The 9.2" guns were manufactured in 1903 and 1919, but were installed only recently.

The antiquated 6" guns were manufactured in 1900, 1901, 1904 and 1918. The more modern 6-lb dual-mount guns with director firing system were manufactured during the period 1937 - 1941 and were installed recently.

The noctovision method was employed in short range night firings. This method controlled the firing by sighting on the target through the noctovision sights installed on the highest point of the fortress.

Power plants were located adjacent to each 15" gun, and one 150-horsepower diesel engine (for operating the oil pressure pumps), two 220-volt, 24-kilowatt generators, one 17-horsepower



electric fan, and one 15-horsepower air compressor were found in each plant. One main power plant, equipped with two sets of generators (440 volts, 273 amperes), supplied power for one battery of three 9.2" guns. Each gun was in turn supplied with power for operating the 50-horsepower oil pressure pump and the 15-horsepower air compressor.

Chart No. 2 gives details of the investigation on the fortress guns.

#### Fortress Searchlights

##### Searchlights Able to be Restored

Of the 90-cm projectors, the majority of them have the reflectors, the lens or the lamps damaged and it is doubtful whether they can be repaired. However, there are two undamaged searchlights (one each at Fort Changi and Beting Kusa Batteries) and six others (two at Tekong Battery, one at Fort Changi Battery, and three at Sirinsing Battery) with slightly damaged lens that can be restored. These will be inspected thoroughly and repaired immediately, and will be stored after testing.

## Performance of Fortress Guns

Type of Gun	Caliber (mm)	Length of Gun (caliber)	Weight of Projectile (kg)	Muzzle Velocity (m/s)	Maximum Range (m)
15" gun	381	43	approx. 880	745	approx. 33,800
9.2" gun	233.7	48	" 172	830	" 23,000 (angle of elevation 35°)
6" gun	152.4	46	" 45	730	" 13,000 (angle of elevation 20°)
6-lb gun (dual-mount)	57	49	" 2.8	720	" 4,500 (angle of elevation 7.5°)
12-lb gun	72.2	41	" 5.5		" 6,900 (angle of elevation 20°)
18-lb gun	83.8	30	" 8.2	496	" 10,800

The greater number of attached engines had suffered little or no damage at all, consequently they will be put into use immediately after cleaning and testing.

An ample supply of approximately 100,000 16-mm carbon rods (both positive and negative) is available.

#### Searchlights that cannot be Restored

These will be abandoned as even after installing new reflectors and repairing the motors, they would be of no particular value.

#### Estimate on the Fortress Searchlights

The projectors and the attached motors are recent products and, judging from its efficiency and the amount of electrical pressure and current used, the 90-cm searchlight is believed to be an excellent piece of equipment. The following are its special features:

Two to four searchlights, sheltered in reinforced concrete, are aligned in each battery and fixed in one common direction. Their operation is controlled by a system of push buttons and a simple computer from the observation tower.

The used carbon rod is easily and promptly replaced with a fresh rod by a chain automatic rotation system, in which several rods were inserted in the slots at one time.

Chart No. 3 gives details of the number and condition of the searchlights in Singapore Fortress.

#### Fortress Observation Establishments

The observation equipment was totally destroyed, but the installations were left untouched and can be used.

#### Estimate of the Observation Facilities

##### Observation Equipment of Various Batteries

##### 1. 15" (380-mm) Gun Battery

There were two or three observation points where range finders of the inverted coincidence type and the stereoscopic type were in joint use. Calculation and transmission of various data was made through electrical induction.

##### 2. 9.2" (230-mm) Gun Battery

Range finders of the stereoscopic type and the inverted coincidence type were used jointly. Data was transmitted through electrical induction.

##### 3. 6" (150-mm) Gun Battery

Range finders of the stereoscopic type were used. Data was transmitted through electrical induction.

Report on Number and Condition of Searchlights in Singapore

Fortress Region	Forts	Searchlights Quantity	Degree of Damage		Dynamos 100-volt						Degree of Damage		
			Repairable Locally	Badly Damaged	77kw	60kw	40kw	22kw	12kw	5kw	None or Slight	Moderate	
Pengerang	Pengerang	3		3		2					1	1 (5kw)	2
	Korudohaba	3		3		2					1		3
Pulau-Tekong	Tekong	2	2	0			2				1		3
	Sphinx	2		2			2				1		3
	Landang	2		2			2				1		3
	Sajama	4		4	2						1	1 (5kw)	2
Changi	Changi	6	2 (one is complete)	4	2		2				2	1 (77kw) 2 (40kw) 2 (5 kw)	1
	Beting Kusha	3 (including one 50-cm)	1 (50 cm)	2			2				1		3
	Bedog	2		2			2				1		3
Tarakku-Buranka	Belaba	3		3		2				1		2 (60kw)	1
	Labradore	2		2				3			1		4
	Siringsing	3	3	0			2	2	1			5	
	Burofunt	2		2				3			1	1 (22kw)	3
	Behelari-peng and Selapong	6 (including one 30-cm)		6	2	2 (old type)							4
	Kanaut	0		0									
	Siloso	4		4		2					1		3
Tangeh	Pasir Iaba	2		2				3			1	1 (22kw)	3
	Dengeluk	0		0				3			1		4
<b>Total</b>		<b>49</b>	<b>8</b>	<b>41</b>	<b>6</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>2</b>	<b>15</b>	<b>16</b>	<b>45</b>	

Note: It is estimated that a sufficient number of dynamos can be repaired to operate approximately 40 searchlights.

#### 4. 6-lb (57-mm) Dual-Mount Gun Battery

For short range night firing, the noctovision method was used together with the stereoscopic type range finder.

##### Points of Note on the Observation Equipment

Almost all of the transmission of data to the firing commander was made through the electrical induction section and the commander in turn relied on the indicator sight (electrically operated) to lay on the target. The majority of the stereoscopic type range finders were of the obsolete type (plotting board method), however, there were range finders that automatically transmitted the necessary data by electrical induction.

Considering the special features of the auto-sight method, detailed research will be made from captured documents and the instrument itself.

The electric calculating machine found in the observation station of the 15" gun battery is considered excellent and is somewhat similar to that of the Japanese Navy.

The 100' range finder (found in Changi Fortress) was manufactured in 1920. The range finder

data apparently was transmitted to the calculation post by the electrical induction system.

#### Fortress Fortification Establishments

It would appear that the military was primarily interested in placing their efforts and funds in living, transportation and defense establishments, rather than in the various installations in the fortifications.

Although, with the exception of the following batteries, shelters, gun platforms and emergency magazines of the fortresses still remain intact and could be redeployed, it is believed that they would be of little value:

- Tekong 9.2" Gun Battery
- Fort Changi 6" Gun Battery
- Fort Johore 15" Gun Battery
- Kanaut 9.2" Gun Battery
- Buena Vista 15" Gun Battery

Shelters and emergency magazines of the anti-aircraft batteries (94-mm permanent antiaircraft gun positions) can be used elsewhere.

The Tekong Observation Post was destroyed, however, the adjacent posts with guns below medium caliber and the observation tower of the 6-lb dual-mount guns (protected by walls 20 meters

high and 20 cm thick) remain. Almost all observation posts with guns of large caliber are intact and can be redeployed.

The searchlights are encased in reinforced concrete shelters with approximately 50-cm thick walls and one or two 20-cm X 70- or 80-cm rectangular windows. In consequence, they are undamaged. Although these are usable it is believed that their use is limited.

The majority of the ammunition dumps and ordnance store houses are intact. Repair shops (attached 9.2" and 15" gun batteries) and their machinery tools and motors are still intact and their use is favored. The neighboring barracks and other housing facilities are all undamaged.

Construction of docks extending to various batteries had been completed. Railroads in the large caliber batteries, motor car transportation between batteries on Tekong Island, cable cars to the Beting Kusa Battery (200 m above sea level), and automobile roads in other batteries had been established. Effective measures will be taken to utilize these after the batteries have either been removed or their positions changed.



## Anti-Submarine and Under-Water Establishments

The existing minefields and underwater obstacles will be employed without change. Naval vessels' sonar will be used in place of damaged stationary sonar.

### Mine-Controlling Systems

A mine-controlling station was located in the Beting Kussa Battery of the Changi Fortress. It has been damaged considerably.

The objective of this system was to sink naval vessels, especially submarines, by tracing their course and detonating mines at an opportune time. In other words, if a strong magnetic object approached or entered a magnetic field created by the searching coil in a designated ocean area (underwater or surface), a disturbance would be experienced in the magnetic field which appeared on a screen indicating its position, and the detonation of the pre-positioned mine followed.

Anti-submarine nets have been laid connecting Singapore and the various islands (Bukum, Tembakul and others) on which are batteries, oil storage tanks or quarantine stations. Continued use of these is recommended.

Estimate of the Change of Fortress  
Positions in Singapore

Ocean Front Establishments

As the principal aim is to establish defense against enemy submarines in the Singapore Harbor anchorage, the major portion of the fortified zone established by the British Army will be abandoned and a new zone will be set up around the anchorage. This will constitute an area enclosed by a line through Merbau, Bukum, and Tembakul Islands.

Batteries consisting of two to four 6" (150-mm) guns will be established on Merbau, Bukum, and Tembakul respectively, and sonars will be installed in the principal channels and outside the line of islands. Furthermore, subchasers will be assigned to escort our ships and to prevent enemy submarines from entering the anchorage. The Buena Vista 15" (380-mm) and the Siloso 12-lb gun batteries will be completed in order to extend the control beyond the harbor and into the anchorage.

Measures to be Taken on Guns Mentioned  
in the Preceding Text

Two 6" (150-mm) guns in good condition will be removed from the Labladore and Beting Kusaha Batteries and installed on Merbau Island. In

addition, guns will be shipped from Japan or transported from Java. (Approximately 26 captured 6" (150-mm) guns are available on Java.)

15" (380-mm) guns in Buena Vista Battery and 12-lb guns in Siloso Battery will be used in the same positions after being repaired.

The observation posts of the respective batteries mentioned in the preceding text will be established (15" and 12-lb gun batteries will use the present observation posts) and will be equipped temporarily with Type 89 battery telescopes. It is necessary to note the elevation of the following localities:

Merbau Island

Approximately 25 meters

Bukum Island (south)

Approximately 30 meters

Tembakul

Approximately 30 meters

15" Gun Observation Posts (3)

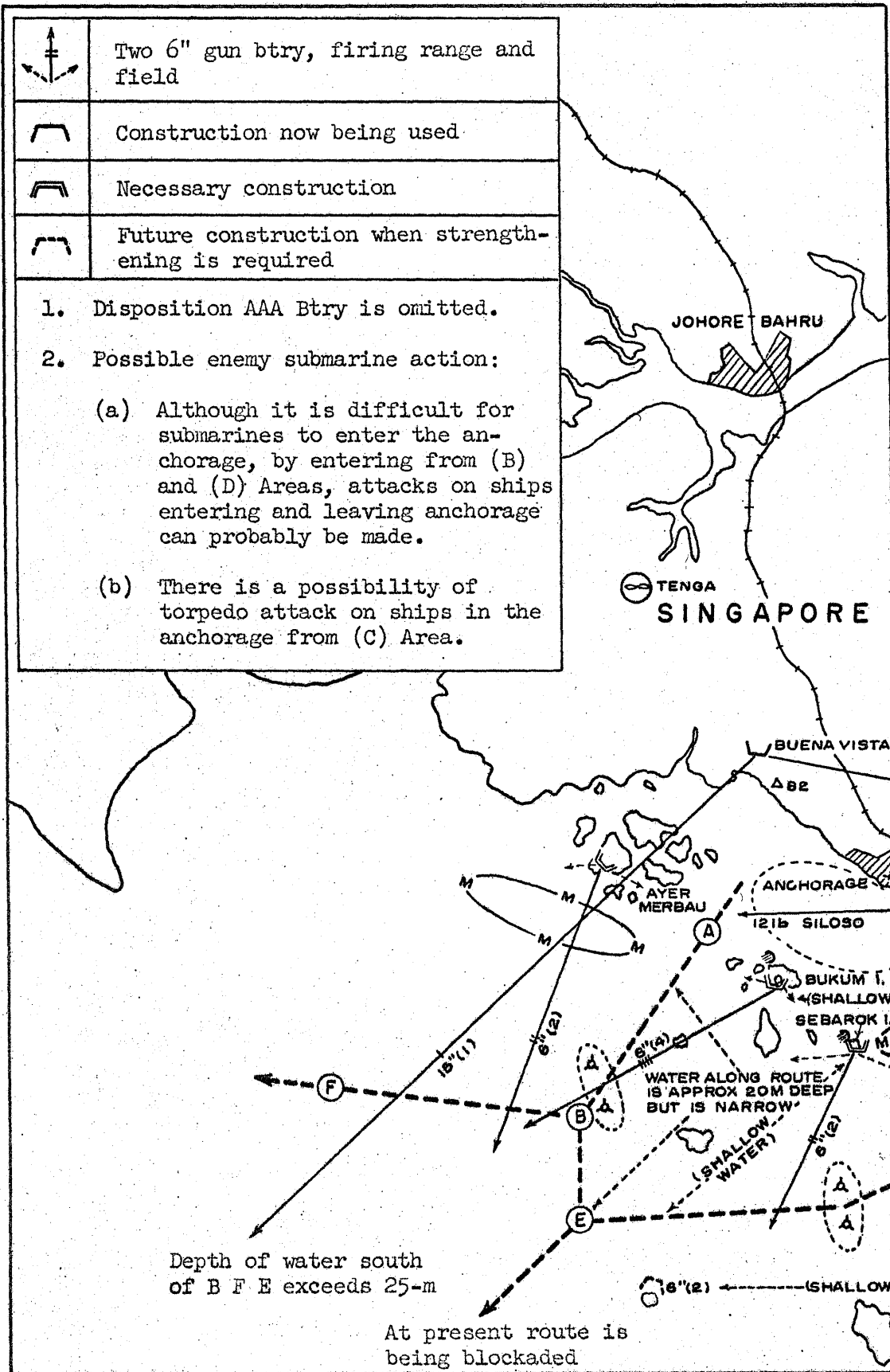
Approximately 100, 80, and 60 meters

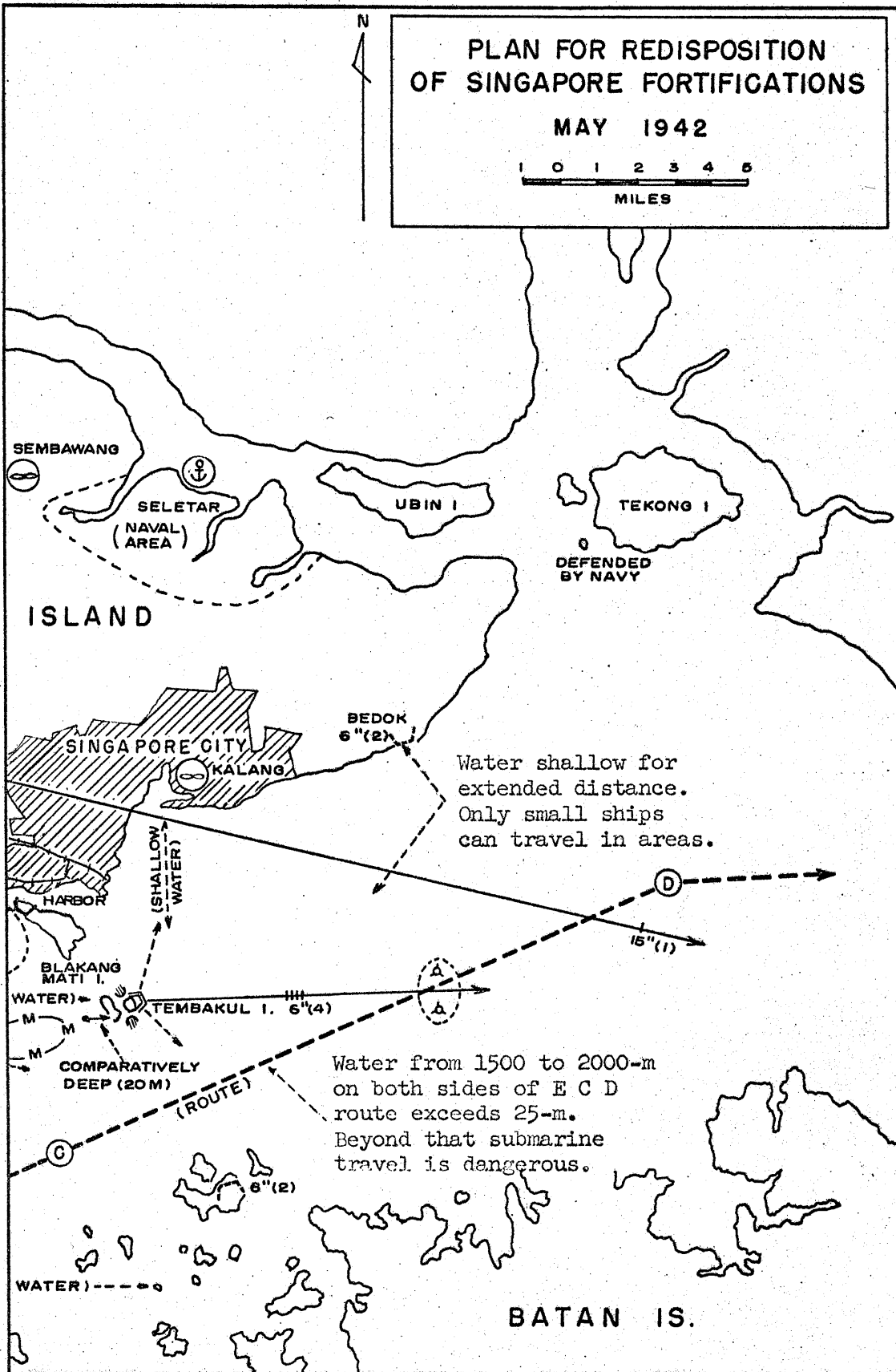
12-lb Gun Observation Post

Approximately 20 meters

New establishments of sonar and liaison facilities will be made and further research in detail will be conducted. Future use of anti-

MAP NO. 2a





submarine nets connecting Bukum and Tembakul Islands is recommended.

There are eight (one being 50-cm) fortress searchlights that, after being repaired, can be used locally. One or two searchlights in the vicinity of the each battery, (including 15" gun batteries), would be sufficient.

Present anti-submarine mines and obstacles should prove adequate for some time.

#### Air Defense Establishments

A small number of captured 3.7" (94-mm) fixed antiaircraft guns, 40-mm antiaircraft machine guns and others would be sufficient to defend the three islands outside the anchorage and other key points in Singapore City. Further consideration must be given to the required numbers of gun positions, based on conditions prevailing at a particular time.

See Map No. 2 for plan on use of fortresses in Singapore.

The foregoing simply states the minimum military requirements for the immediate future. Further strengthening would be imperative with any change in the war situation.

Because of the natural resources and the excellent anchorage found on Bintan Island south of Singapore, it may become an important center for the future expansion of fortresses to the Southern Islands.

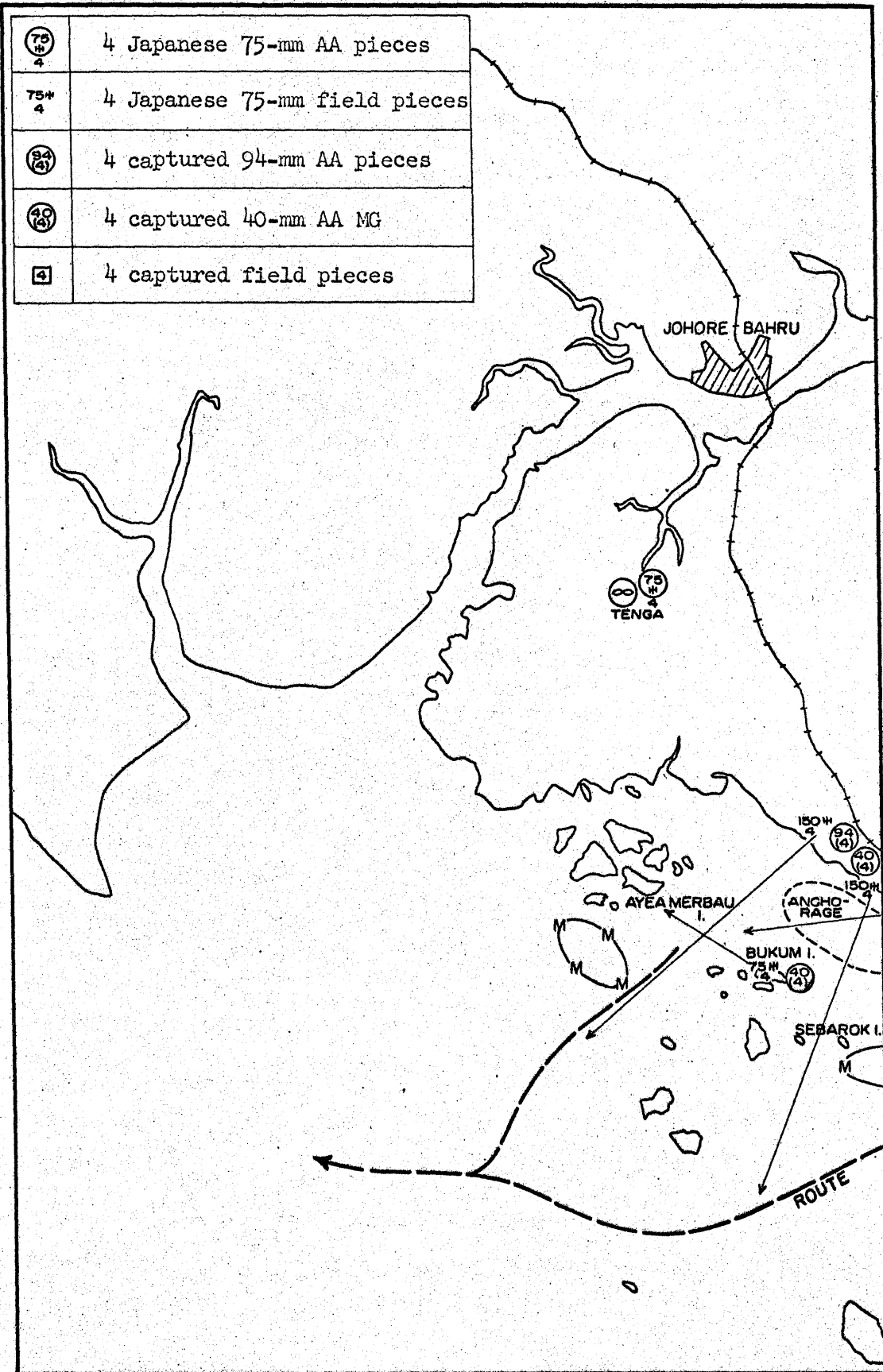
### Estimate of the Singapore Defense Artillery Force

#### Prior to the Redistribution of Weapons within the Fortresses

See Map No. 3 for the disposition of the Singapore defense in mid-May 1942.

One battalion of field artillery (model 90) and another of 150-mm (model 89) make up the anchorage defense, while approximately three companies of the field antiaircraft artillery and the Indian prisoners of war, equipped with captured 40-mm antiaircraft machine guns and 94-mm fixed antiaircraft guns, compose the air defense. As it is necessary to augment the harbor defense force, it is recommended that a heavy artillery unit be dispatched to man the fortress guns and searchlights. It should comprise two companies (to be assigned the anchorage defense duties with captured guns or field guns), and one company, to include specialists to be engaged chiefly in the disposal of captured 15" guns and searchlights, in addition to manning guns and searchlights.

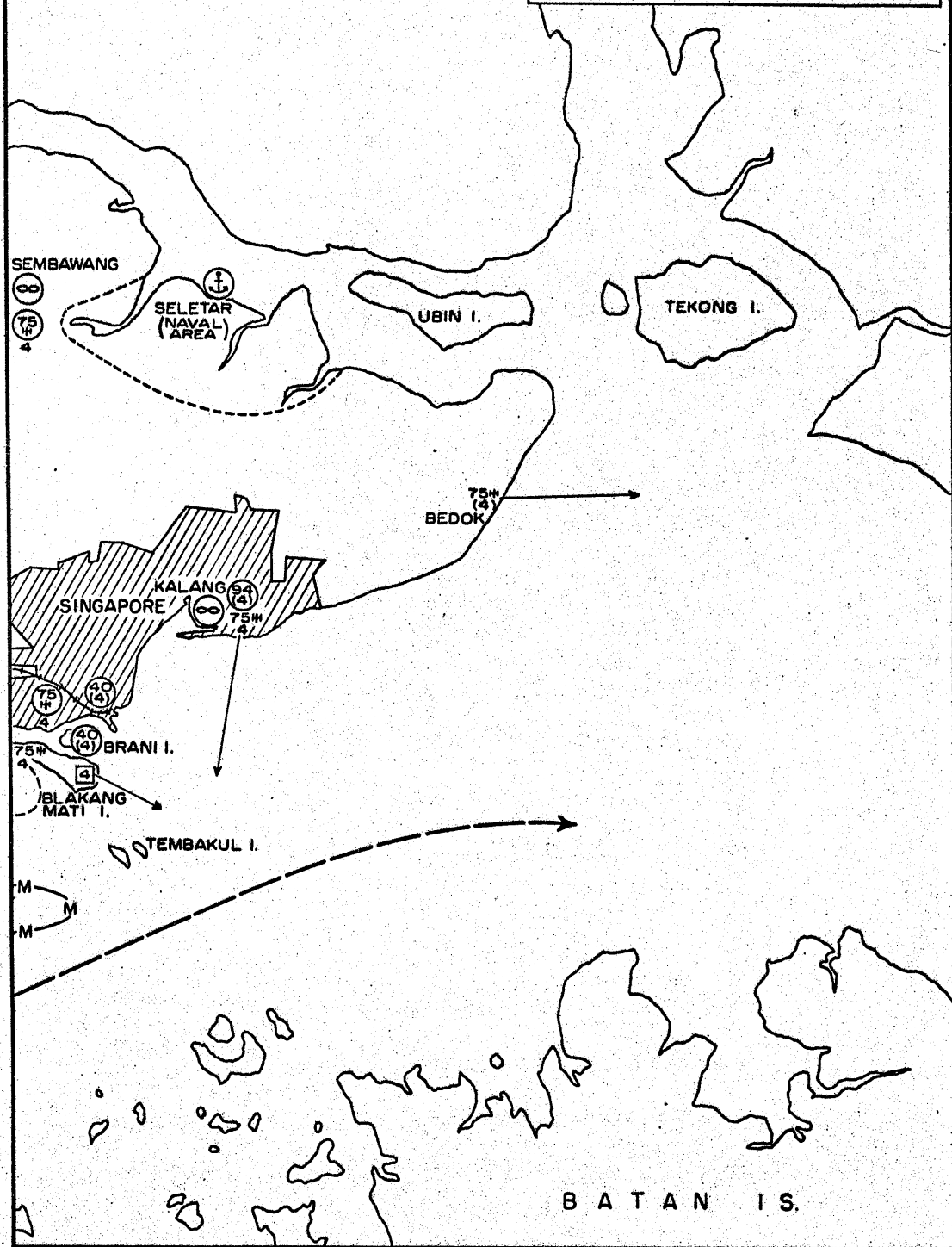
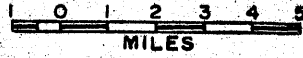
MAP NO. 3a





# DISPOSITION FOR SINGAPORE DEFENSE

MID - MAY 1942



Disposition of the Defense Artillery  
Unit Following Redistribution

It is recommended that in the near future an antiaircraft unit and approximately four companies of the heavy artillery unit (fortress) be assigned to Singapore. It is considered especially important that sonar and sub-chaser divisions be established as soon as possible.

Captured Field Guns in Singapore

The British Army in Malaya generally was equipped with obsolete guns. However, it did have some 100-mm and 150-mm howitzers.

1. 25-lb Field Gun

This is a towed type gun with detachable gun mount having a comparatively long range. It is equipped with direct and indirect telescopic sights, used extensively in antitank firing by using the specially built mount to fullest advantage. The special feature of the gun is the cylindrical cone-shaped, graduated scale which corrects deflection of trajectory. Although it is of the towed type, it lacks body springs and pneumatic tires act as shock absorbers. It was manufactured and emplaced in Singapore around 1940.

2. Mountain guns consist of only the obsolete 94-mm howitzers (new tubes installed) mounted on carriages. No infantry regimental guns were found.

3. Vickers 40-mm Antitank Gun

This is a modern, highly powerful gun with a traverse of  $360^{\circ}$ , manufactured around 1940.

4. Generally gun motor trailers use pneumatic tires. Since the storage life of hard rubber tires is short, further research will be required in regard to the advantages and disadvantages of these trailers.

Further details of these guns are given on Chart No. 4a-b. The number and condition of the guns is summarized on Chart No. 5.

## Types and Data on Captured Artillery

Type of Piece	Caliber (mm)	Length of Tube (calibers)	Traverse (degrees)	Maximum Elevation and Depression (degrees)	Weight of Projectile (kg)	Muzzle Velocity (m/s)	Maximum Range (m)	Weight of Carriage (kg)
Vickers 6" Howitzer	152	15	8	0 +45	45	392	9000	4100
4.5" Howitzer	114	15	6	-5 +45	16	308	6620	1450
Vickers 3.7" Howitzer	94	13	40	-5 +40	8.8	336	5500	700
25-lb Field Gun	88	28	8 (360)	-5 +40	11.3	518	12200	1750
18-lb Field Gun (Motor Trailer)	83.8	30	9	-5 +37.5	8.2	496	10800	1550
18-lb Field Gun (1904 Mod)	83.8	28	8	-5 +16	8.2	--	9500	900

## Types and Data on Captured Artillery (Cont'd)

Type of Piece	Caliber (mm)	Length of Tube (calibers)	Traverse (degrees)	Maximum Elevation and Depression (degrees)	Weight of Projectile (kg)	Muzzle Velocity (m/s)	Maximum Range (m)	Weight of Carriage (kg)
Vickers 40-mm Antitank Gun	40	52	360	-- +25	1.1	805	7300	800
75-mm Field Gun (Split Trail Type)	75	31	--	--	5.9	518	7950	--
Bohler 47-mm Gun (Breda)	47	35	50	-10 +60	1.5	650	--	270
3" Mortar	76.2	--	--	--	--	--	1600 (approx)	--
2" Mortar	50.8	--	--	--	--	--	--	--

Chart No. 5

## Number and Condition of Captured Artillery

Type of Gun	Perfect	Minor Repair	Extensive Repair	Scrapped	Total No.
Vickers 6" Howitzer	(1)	--	--	1	2
4.5" Howitzer	2 (20)	21	11	14	68
Vickers 3.7" Howitzer	(3)	--	--	13	16
25-lb Field Gun	1 (35)	15 (12)	23	64	150
18-lb Field Gun (Motor Trailer)	1 (2)	5	6	1	15
18-lb Field Gun (1904 Type)	7 (11)	4	4	2	28
75-mm Field Gun	1 (8)	1 (1)	--	7	18
Vickers 40-mm Antitank Gun	24 (16)	56	2	2	100
Bohler 47-mm Gun	(9)	--	--	--	9
3" Mortar	63 (25)	--	--	--	88
2" Mortar	121 (19)	--	--	--	140

References:

1. 63 detachable gun mounts available, including those delivered to units with 25-lb field guns.
2. Figures shown in parenthesis under "perfect" column indicate the number delivered to units (including those shipped to Japan).
3. Minor repairs will be made on small parts (firing mechanism, etc.) with locally available parts. It is doubtful whether there are adequate facilities, materials or technicians for making extensive repairs on damaged breechblocks, sights, etc.
4. The figures in parenthesis under "repair" columns indicate number of guns that can be completely restored after replacing telescopes.
5. Five 4.5" howitzers and ten 25-lb field guns have shells in the intermediary positions of the tubes, consequently extreme care must be taken in attempting to clear the tubes. (Guns without breechblocks will be temporarily equipped with those taken from other guns).
6. This table was compiled after an investigation had been made on assembled captured guns in Singapore. Some changes may be expected.

Disposal of Captured Field Guns

As shown in the preceding tables, redeployable guns have already been used to strengthen the local Army.

Since the number of captured Vickers 6" howitzers, Vickers 3.7" howitzers, 75-mm field guns, and Bohler 47-mm guns is relatively small, their disposal has been completed, while the disposal of others will be as follows:

1. 4.5" Howitzer

Antiquated model (pneumatic tires) with motor trailer, having a maximum range of approximately 6,600 m. It is equal in efficiency to the Japanese Type-38 120-mm howitzer. Guns requiring minor repair will be restored locally. Others will be torn down for spare parts, while some will have to be scrapped.

2. Type 1904 18-lb Field Gun

This is an obsolete horse-drawn model. These guns will be equipped with simple detachable gun mounts (similar to those employed by the British Army in coastal defense) manufactured locally, and will be employed directly as coastal defense artillery. For this purpose, guns requiring minor repairs will be repaired locally. The disposal of others will be conducted in the same manner as paragraph "1".

3. 18-lb Field Gun (motor trailer)

This gun employs the screw-type breechblock. There are very few of these guns. Since it is of the "inch system", there should be no difficulty in manufacturing or supplying a few



breechblocks. Guns requiring minor repairs will be restored locally and used to strengthen the local Army.

#### 4. 25-lb Field Gun

Since the gun is a recent type and possesses great fire power, every effort will be made to restore it. To do this, parts from salvaged guns, especially sights, will be used.

This gun has a detachable gun mount and, since it can fire armor-piercing shells effectively, it would be of great value for antitank defense. The following plans have been drawn up for its use:

##### Plan No. 1

To be shipped to Japan to be used against U.S.S.R., in the event of a conflict with that country. The Soviets undoubtedly will use heavy tanks to spearhead their attack. As our Army has no adequate armament to meet heavy tanks, the 25-lb field guns could be employed for that purpose.

##### Plan No. 2

To be used by the local Army at the right time and place. Blue prints of required parts (breechblocks, sights, etc.) will be made locally, and, if at all possible, the parts will be manufactured at the Bandoeng Work Depot in Java. If not, parts will be ordered from the depot and assembled locally.

In any case, the old type sights of the model-38 field gun will be used in place of the missing telescopic sights. Further research will be made on gun mounts and other parts.

#### 5. Vickers 40-mm Antitank Gun

This is a recent model and an excellent antitank gun, equipped with 360° traversing mount. A great number of this type of gun was found but the majority of them were damaged (change of firing pin). Repairs can be done locally. Approximately 15 sights are missing and these can be replaced with sights taken from our tanks or antitank guns.

Should there appear to be any likelihood of sizeable antitank warfare in the Southwest Pacific, these guns will be reconditioned and kept as reserve guns. If not, they will be shipped to Japan to be used as anti-U.S.S.R. defense (guns already in use by the local Army will remain in Singapore).

#### 6. Trench Mortars

The 3" and the 2" mortars will be reconditioned and used by the local Army.

#### Technical Manuals on Captured Guns

Many manuals, especially the operation and firing tables, have been preserved. These will

be collected and placed in order without delay. At least one copy of each manual will be forwarded to the Technical Headquarters.

### Captured Antiaircraft Guns in Singapore

#### Estimate of Captured Antiaircraft Guns

Among the antiaircraft guns employed in the Singapore Air Defense, a great number of them were 3.7" AA guns. These were scattered over the island at 22 points, principally to defend the harbor, the anchorages and airports.

Two to four AA guns were installed in each AA position, which was equipped with a computing director and a height finder. In addition, radar stations (refer to the report on signal communication) were established to enable firing at night or during an overcast by pin-pointing the positions of attacking planes and transmitting the information to the computing director, which in turn directed the firing.

Light AA guns (Bofors 40-mm AA machine guns) supplemented the heavy AA guns for the defense of the AA positions or important military installations.

The AA guns generally were fixed but there were a few mobile guns mounted on carriages. Among the latter type the 3.7" AA guns and the 40-mm AA machine guns were used in the field.

With few exceptions, electrically operated sights were used. In the case of the 4.5" AA gun battery, the plotter directed the firing from within a shelter and totally out of sight of the plane. It is true that this electrically-operated sight traces the flight and measures the speed of the aircraft unerringly, however, in the event of malfunctioning or the destruction of the computing director or the source of electrical power, this instrument would be useless. Therefore, it is imperative that a simple sight be attached to meet such emergencies.

The construction of the fixed AA guns is simplified by placing a counter-balance in rear of the breech in place of the equilibrator.

Most guns do not have fuse timers. Shells with set fuses (10 - 30 seconds) were found in the immediate vicinity. Spare tubes for the 3.7" and the 40-mm AA guns also were found.

1. 4.5" AA Gun (fixed)

Only two guns of this recent type were found, but, since the breechblocks had been damaged considerably, their sole use is for research purposes.

2. 3.7" AA Gun (fixed)

This is a recent model and a powerful weapon equipped with an electrically-operated sight. The counter-balance (filled with lead) takes the place of the equilibrator. Two spare tubes are available for each gun.

3. 3.7" AA Gun (mobile)

This is a recent model of the field AA gun, equipped with a recoil cradle axial and an equilibrator, in order to decrease the weight of the guns.

4. 3" AA Gun (fixed)

This is a obsolete model (1915-1917), not very effective, equipped with mechanically operated sights.

5. 3" AA Gun (semi-fixed)

This is a obsolete model, not very effective, equipped with both electrically and mechanically operated sights, screw-type breech-

block, rendered mobile when wheels are attached to gun cradle axial.

6. Bofors 40-mm AA Machine Gun (mobile)

This was designed by Bofors and manufactured in England. It is a highly effective recent model light AA gun, equipped with electrically operated sights. Basically, firing is controlled by the computing director but firing by sight can be done by use of a simple AA sight. Each gun is equipped with a minimum of one spare barrel, which replaces the old one after continuous firing of 600 rounds. Required time is two minutes. There are a considerable number of these guns.

Further data on these guns is given on Chart No. 6. The type, number and condition is shown on Chart No. 7.

Data on Captured AA Guns

Type of Gun	Caliber (mm)	Weight of Projectile (kg)	Weight of Cartridge (kg)	Muzzle Velocity (m/s)	Maximum Vertical Range (m)	Rounds
						Minute
Vickers 4.5" AA Gun (fixed)	114	25	36	732	9,150	8
Vickers 3.7" AA Gun (fixed)	94	12.7	22.2	792	9,150	10 - 12
Vickers 3.7" AA Gun (mobile)	94	12.7	22.2	792	9,150	10 - 12
3" AA Gun (semi-fixed)	76.2	7.25	10.9	610	5,170	15 - 20
3" AA Gun (fixed)	76.2	7.25	10.9	610	5,170	15 - 20
Bofors 40-mm AA Gun	40	0.91	2.16	850	--	120

Types, Number and Condition of Captured AA Guns

Type of Gun	Perfect	Minor Repair	Extensive Repair	Scrapped	Total No.	Spare Tubes
Vickers 4.5" AA Gun (fixed)	--	--	2	--	2	--
Vickers 3.7" AA Gun (fixed)	2	3	30	3	38	115
Vickers 3.7" AA Gun (mobile)	4	5	1	--	10	--
3" AA Gun (fixed)	5	--	4	--	9	--
3" AA Gun (semi-fixed)	9	--	1	7	17	--
Bofors 40-mm AA Gun	46	7	16	7	76	51



References:

1. Minor repairs will be made locally. It is doubtful whether there are adequate facilities, material or technicians for making extensive repairs on damaged breechblocks, sights, etc.
2. Figure under "perfect" column, indicates number of guns (including those shipped to Japan) to be delivered to units.
3. This table was compiled after an investigation was conducted on assembled, captured guns in Singapore. A few changes in figures may be expected.

Disposal of Captured Guns

1. Vickers 4.5" AA Guns

Two available guns (breechblocks missing) will be shipped to Japan for research purposes.

2. 3" AA Guns

Four semi-fixed guns (excluding those already delivered to local units) will be reconditioned locally. Eight of the extensively damaged, fixed guns (four guns have breechblocks missing) will be completely reconstructed after major repairs.

Blue prints of breechblocks (plug type) will be made locally. They will be manufactured by the Bandoeng Work Depot (necessary materials will be shipped) or, if this is not possible, requisitioned from Japan.

The fixed and semi-fixed guns use mechanically operated sights. If three sets of AA observation instruments are provided, three batteries of four guns each can be organized (two batteries of eight guns will be formed immediately) and assigned the AA defense of the essential positions.

### 3. 3.7" AA Guns (fixed)

This is a comparatively effective AA gun. There are large numbers of these guns in Singapore, however, most of them lack breechblocks. They are equipped with electrically operated sights but the computing directors were destroyed. Therefore, even if the breechblocks were replaced, the result would be poor.

It is recommended that these guns be shipped to Japan for air defense purposes. Breechblocks will have to be replaced and the sights of the Type 88 AA guns installed, or, as an alternative, research could be conducted in order to evaluate their adaptability as coast artillery.

In any case, it would be well worth while if the guns equipped with electrically-operated sights could be reconditioned, after the research and the repairing and readjusting of captured computing sights is completed. A great number of the

sights were damaged.

Since there are 115 new spare tubes available, it would be a good idea to attempt to restore a few guns in order to use these tubes.

4. Vickers 3.7" AA Gun (mobile)

This is a recent model of field AA gun. There are a few available. See paragraph "2" under "semi-fixed" for disposal.

5. Bofors 40-mm AA Machine Gun

Although the electrically-operated sights and the computing directors are badly damaged, it would be possible to use them after installing simple AA sights and firing by sight.

Since they are light guns, it is recommended they be used for the Homeland defense or in a war against U.S.S.R. However, a great number have already been delivered to local units, and still more could be used by the local Army. For this reason, breechblocks and other essential parts will be manufactured in the Bandoeng Work Depot. There are 51 spare tubes.

Estimated Number of Rounds

Items	Total No. of Captured Rounds End of March '42	No. of Rounds Delivered to Units	Present No. of Rounds Available End of March '42	Condition	
				Superior	Inferior
4.5" Howitzer HE Shells	17,935	20	17,915	--	--
4.5" Howitzer HE Long Pointed Shells	73,558	--	73,588	72,085	1,503
25-lb Field Gun HE Shells	68,852	--	68,852	--	--
25-lb Field Gun Long Pointed Shells	73,196	--	73,196	--	--
25-lb Field Gun HE Armor-piercing Shells	2,692	--	2,692	--	--
25-lb Field Gun Smoke Shells	12,776	--	12,776	8,748	4,028
25-lb Field Gun Shell Cases	228,225	--	228,225	158,125	70,100
18-lb Field Gun Shells	58,529	--	58,529	--	--

Estimated Number of Rounds (Cont'd)

Items	Total No. of Captured Rounds End of March '42	No. of Rounds Delivered to Units	Present No. of Rounds Available End of March '42	Condition	
				Superior	Inferior
40-mm AT Gun HE Shells	18,888	11,100	7,788	--	--
3" AA Gun HE Shells	44,702	--	44,702	41,502	3,200
3" AA Gun Anti-personnel Shells	2,308	--	2,308	--	--
40-mm AA Machine Gun HE Shells	89,620	10,000	79,620	--	--
3" Trench Mortar HE Shells	28,566	--	28,566	--	--
2" Trench Mortar HE Shells	169,856	--	169,856	126,082	43,774
2" Trench Mortar Smoke Shells	60,528	--	60,528	35,644	24,884

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Chart No. 8b

## Ammunition for Captured Guns in Singapore

See Chart No. 8a-b.

### References:

1. The figures in Chart Nos. 8a-b will vary with the progress of disposal.
2. 3.7" AA shells (found in large numbers) are not represented in this table. The shells were mixed with the 3" AA shells. This necessitates immediate steps to segregate them.

### Disposal of Captured Ammunition

Judging from the foregoing table, the captured guns and ammunition can be used jointly to the best advantage. Both were found in large numbers.

Since the 40-mm AT guns and the 40-mm AA guns are similar to those used by the Dutch Army, it will be necessary to carry out a combined study of these and the guns and the ammunition in Java.

Among the shells and cases listed under "inferior" in the foregoing table, those that can be used after restoring the guns (coastal defense 6-lb dual-mount guns and 9.2" howitzers) will be collected and the others dumped in the ocean.

Although the disposal of captured shells is expected to take considerable time, every possible effort will be made for their rapid disposal. The superior shells will be stored.

## Captured Small Arms in Singapore

See Chart No. 9 for figures on captured small arms. Some changes may be expected with the progress of their disposal.

### References:

Figures under "superior" column represent arms in perfect condition, while those under "medium" column can be restored.

## A General Notation on Small Arms According to Types

### Pistols

0.38" (9.65-mm) revolvers -  
a very great number

Wavell (11.43-mm) pistols - a few

### Submachine Guns

Thompson (11.43-mm) submachine guns -  
582 pieces (excluding those delivered  
to units) in excellent condition

### Rifles

Ross-Enfield (7.7-mm) rifles -  
a very great number

Lee-Enfield (7.7-mm) rifles -  
a considerable number

### LMG (excluding those delivered to units)

Lewis (7.7-mm) LMG - 173

Bren (7.7-mm) LMG - 240

Vickers-Bertier (7.7-mm) - 87

Czhech (7.92-mm) LMG - a few

Captured Small Arms

Items	Total No. Captured	No. of Arms Delivered to Units	Present Figures and Condition			Remarks
			Superior	Medium	Inferior	
Bayonets	58,079	2,965	26,077	1,111	27,926	--
Sabers	34	--	30	4	--	--
Rifles	64,597	14,113	26,578	3,573	5,199	Burned 5,134
Automatic Rifles	1,350	669	238	91	40	" 312
Pistols	3,775	417	1,860	10	96	" 1,392
Very Pistols	248	--	24	2	--	" 222
Rifle Grenade Launchers	105	--	25	2	3	" 75
Hunting Rifles	750	--	511	210	29	" --
LMG	2,297	438	761	213	491	" 394
HMG	707	101	106	21	46	" 433
AA IMG Tripods	218	5	8	2	203	--
Double Barrel AA MG	5	4	--	--	1	--
13.97 mm AT Rifles	248	12	171	45	20	--



HMG

Vickers 7.7-mm water-cooled HMG -  
39 in good condition

Vickers 7.7-mm vehicle-mounted HMG -  
a considerable number

Vickers 12.7-mm vehicle-mounted HMG -  
a considerable number

AT Rifles

13.97-mm AT rifles -  
230 pieces in good condition

AA MG

Vickers 7.7-mm dual-mount flexible MG -  
a few

Browning 7.62-mm fixed MG - a few

Browning 12.7-mm fixed MG - a few

The following table gives ammunition, of superior quality, to be classified and disposed according to types of small arms:

<u>Items</u>	<u>Present Number</u>	<u>Round Delivered to Units</u>
Pistol ball ammunition	165,320	51,060
Submachine gun ball ammunition	800	142,400
Rifle ball ammunition	14,409,088	3,664,550
Rifle tracer ammunition	69,120	--
Rifle blank ammunition	92,900	--

<u>Items</u>	<u>Present Number</u>	<u>Round Delivered to Units</u>
7.92-mm IMG ball ammunition	15,000	5,000
7.7-mm IMG ball ammunition	68,340	400,000
7.7-mm IMG tracer ammunition	7,396	--
Water-cooled HMG ball ammunition	12,900	--
Link belt MG ball ammunition	5,400	--
7.62-mm AA HMG ball ammunition	48,000	8,000
13.9-mm AP rifle ball ammunition	349,600	10,894

#### Disposal of Small Arms

There are many types of small arms ammunition, and considerable time will be required for their classification and disposal. However, the local Army may use them as and when required.

The use of small arms for the purpose of strengthening the local Army is limited and there still remains a great surplus of arms and ammunition. For instance, it is estimated that there are approximately 550 rounds for each 30,000 rifles available. It will be necessary to investigate the amount of ammunition available for

each type of small arms. It is recommended that this ammunition be store for future use by a Army Special Unit (for instance, a native army) that may be organized.

Speedy disposal of HMG (AA Trail Mount) will be required to facilitate use in defense of strategic positions or AA defense of ships.

Small arms listed under the "inferior" column will be stripped of useful parts and the rest will be scrapped.

Captured Optical and Observation  
Instruments in Singapore

The majority of optical and observation instruments found in Singapore were either destroyed or abandoned. The number that can be restored is comparatively small. The following table gives figures on restorable instruments. These figures are subject to change with progress of disposal.

<u>Items</u>	<u>Number</u>	<u>Remarks</u>
Binoculars	450	-
Telescopes	140	-
Battery Commander's telescope	6	-
AA sights	5	-

<u>Items</u>	<u>Number</u>	<u>Remarks</u>
80-cm range finder	30	Base type
1-m range finder	13	"
3-m height finder	6	"

## CHAPTER 2

### Matters Investigated on Java

#### Fortresses on Java

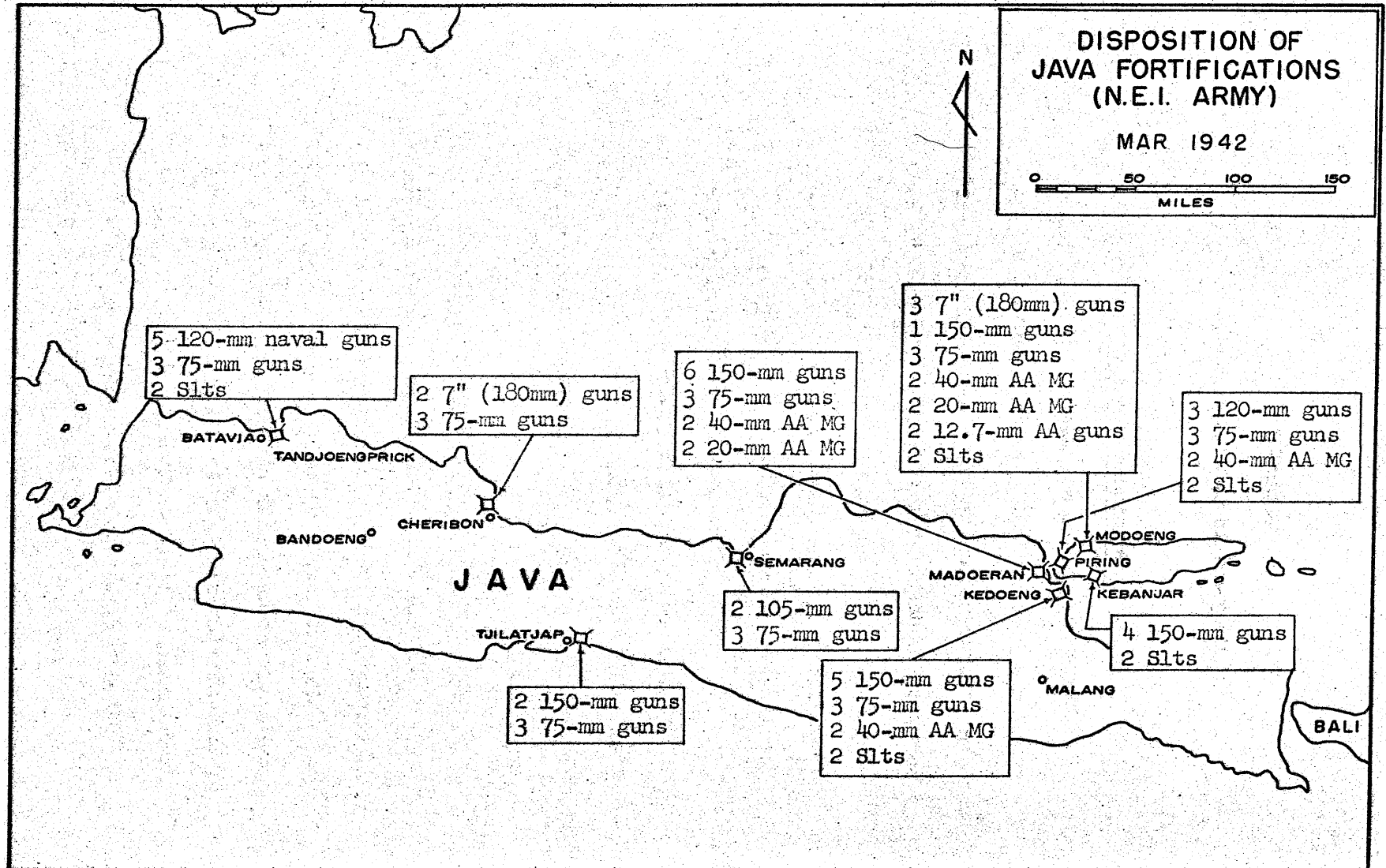
Various fortresses on Java, formerly under the command of the Netherlands East Indies Army, were constructed mainly to protect strategically important harbors on the island. It appears as though the fortresses on the northern coast of Java, especially in the proximity of Soerabaja, were in the process of being strengthened.

The fortresses are small, and practically all of them are equipped with old types of guns of less than 180-mm caliber.

Disposition of fortress on Java is as shown on Map No. 4.

#### Fortresses in the Vicinity of Soerabaja

Modoeng, Piring, Madoeran, Kedoeng and Kebanjar Fortresses are in almost perfect condition. The Modoeng Fortress is well equipped. The large quantities of construction materials accumulated in the vicinity of this fortress indicate that it was planned to strengthen it. There are three 7" (180-mm) guns, one 150-mm twin-mount, 15 150-mm



guns, three 120-mm guns, and 12 75-mm guns, totaling 34 artillery pieces, besides 10 antiaircraft machine guns in this fortress. All of these guns are in perfect condition.

In the Modoeng Fortress a short wave target locator is installed, which apparently was operated solely by the British officers and men.

#### Tandjoengpriok Fortress in the Vicinity of Batavia

This fortress was constructed to protect Tandjoengpriok Harbor and was equipped with five 120-mm guns, three 75-mm guns and some others. All were completely destroyed.

#### Cheribon Fortress

Construction was not completed. In addition to two 7" guns that were in process of being installed, various fortification materials, all in good condition, are stockpiled near this site. Three 75-mm guns had already been installed, but these were totally destroyed.

#### Tjilatjap Fortress

Tjilatjap is by far the largest suitable harbor on the southern coast of Java facing the Australian continent. Numerous installations

have been utterly demolished by our aerial bombings. Approximately 50 ships of all sizes were sunk in the harbor and it will require considerable time to clear it. The two 150-mm guns and three 75-mm guns, which had been placed at strategic points commanding the harbor entrance, have been completely destroyed.

#### Semarang Fortress

Though actual on-the-ground investigations have not been conducted, it has been ascertained that the fortress was equipped with two old type 100-mm guns and three old type 75-mm guns, but they have been almost completely destroyed.

#### Fortress Artillery Pieces

Guns installed in the coastal fortresses of Java, except those in the vicinity of Soerabaja, were generally old types. They were all completely destroyed. The five 120-mm and the three 75-mm Krupp-type guns in Batavia, together with two 150-mm and three 75-mm Krupp-type guns in Tjilatjap, have been destroyed and the breeches are beyond repair.

The fortresses in the vicinity of Soerabaja were not destroyed. The artillery pieces there



are intact. The types, quantity, and other data pertaining to these pieces is as shown on Chart No. 10.

A description of these guns is as follows:

1. 7" American Bethlehem Gun

This gun was manufactured by the Bethlehem Steel Company in 1906 or 1907. It is an old type of gun, and cannot be regarded as an efficient weapon. It is believed these guns were recently purchased from America. In the Madoeng Fortress on Madoera Island three of these guns have been completely installed and one partially installed. In Cheribon there are two guns of this type partially installed. Accessories to this type of gun were distributed to various fortresses.

The breechblock is of the Reinmetall-Borsing type, with a sealing gasket. The bore has been defaced considerably. There are no shields or telescopes.

Although these guns are of an old type, the caliber is large and the tube is long. They can, therefore, be regarded as having considerable power.

## Chart No. 10

## Fortress Artillery Pieces

Type	Quantity	Cal. (mm)	Tube Length (cal)	Max'm Range (m)	Remarks
7" American Bethlehem Gun	11	177.8	46	15,500	Three completed. At least eight others are partially assembled. Accessories are scattered.
150-mm Krupp-type Gun	15	150	40	16,000	Three have no telescopes for sighting. However, they have indicators (for laying), making possible indirect laying.
150-mm Twin Mount Bofors Gun	1	150	53	19,000	New type of gun.
120-mm Krupp-type Gun	3	120	40	12,600	Not equipped with telescopes.
75-mm Krupp-type Gun	5	75	55	8,300	Two have no telescopes, one has no breechblock and no telescope.
75-mm Bofors Gun	9	75		10,500	Two have no telescopes, one has no breechblock and no telescope.

## References:

1. The correct evaluation of guns can be obtained from the data given in regard to trajectories, the handling method, range table, etc.
2. Due to the limited angle of elevation, some of the maximum ranges on the tangent sights shown in this table are comparatively small, considering the length of the gun tube.

## 2. 150-mm Krupp-Type Gun

There are six pieces of this caliber in the Madoeran Fortress, five in the Kedoeng Fortress and four in the Kebanjar Fortress on Madoera Island, totalling 15 pieces. Those in the Madoeran and Kodoeng Fortresses were manufactured at the Krupp Works between 1900 and 1902, and have tower mounts. Those in the Kebanjar Fortress were manufactured at the Krupp Works in 1909 and their mounts are equipped with side shields.

Breechblocks of these guns are of the plug type. Cartridge cases are used, and the shields are 55-mm thick.

Three of the six guns in the Madoeran Fortress are not equipped with telescopes, but do have indicators for indirect laying.

Although the guns are old, they are in satisfactory condition, and can be used as fortress guns.

## 3. 150-mm Twin-Mount Bofors Guns

There is only one which had been installed recently in Madoeng Fortress. This is a new type of gun manufactured by Bofors in 1939, and is recognized as a superior weapon. Its breech-

block is of the horizontal-sliding type. It has an electrical sighting device (with a repeater) and is equipped with telescopes for direct sighting.

#### 4. 120-mm Krupp-Type Gun

There are three of these guns in the Piring Fortress on Madoera Island. These were manufactured by Krupps in 1896. The breechblocks are of the horizontal-sliding type and have tower mounts. They are equipped with shields but have no telescopes.

Although they are old, these guns are intact and can be used as artillery pieces for fortresses of lesser importance.

#### 5. 75-mm Krupp-Type Gun

There are five of this type of gun, three being in the Madoeng Arsenal. They were manufactured by Krupps in 1912. The breechblock is of a semi-automatic vertical-sliding type. The guns are equipped with tower mounts and shields. Two of them are without telescopes and one is without a breechblock and a telescope. They are in good condition and can be used as fortress artillery pieces.

## 6. 75-mm Bofors Gun

There are three of this type in the Kedoeng Fortress, three in the Modoeng Fortress, and three in the Piring Fortress, totaling nine in all. Two have no telescopes and one has no breechblock or telescope. They were manufactured by Bofors in 1922 or 1923. Although the mounts are of the side shield type, the guns are capable of traversing the full circle of 360 degrees. The breechblocks are of the semi-automatic vertical-sliding type, without the shield. These are in satisfactory condition and can be used as fortress guns.

### Measures to be Taken with Artillery in Java Fortresses

Destroyed guns must be used as reconstruction material. The following measures, therefore, will be taken:

#### 1. 7" American Bethlehem Guns

As mentioned above these guns were in the process of being emplaced. Local units must investigate just how many of them can be assembled immediately from the accessories scattered at various points.

In addition, investigations must be carried out as to the quantity of ammunition available. According to the war prisoners, some ammunition was expected to arrive in the near future. If the ammunition has not arrived or if the quantity is small, one complete gun will be sent to Japan for research and determination as to its suitability and efficiency as a fortress artillery piece.

If sufficient ammunition is available, the guns will be used as fortress guns in the Southern Theater.

2. 150-mm Krupp-Type Gun

These will be used as fortress guns in the Southern Theater.

3. 150-mm Bofors, Dual-Mounted Guns

The quantity of ammunition for these guns is unknown, since they were only recently emplaced. But even with a small quantity of ammunition these superior guns should be used as essential artillery in the local fortress.

4. 120-mm Krupp-Type Gun

These will be used in the Southern Theater at less important points.

5. 75-mm Gun (Krupp and Bofors type)

These will be used in the Southern Theater. In using the various types of guns mentioned above, the local units must ascertain immediately the quantity of ammunition available and collect the manuals concerning the range tables. Prisoners will be interrogated in regard to data on telescopes.

Searchlights

1. Measures for Repair and Maintenance of Searchlights

a. 150-cm Fixed Searchlights  
(to be used in fortresses)

Most searchlights are of the Siemens-Schukert type. Six can be regarded as still usable. Their preservation, maintenance and method of utilization is important.

b. 150-cm Mobile Searchlights (for anti-aircraft defense and for use in fortresses)

The greater number is of the Sperry type. There are four of these intact, and six slightly damaged. These can be repaired easily.

c. Accessories

1). Fixed Dynamos

There are six 17-kilowatt (110

volt) diesel engines of the old type and one 22-kilowatt oil dynamo. They are in workable condition and can be used.

## 2). Mobile Generators

There are six that are intact and approximately ten that can be repaired. These should be repaired as soon as possible.

## 2. Observations Concerning the Searchlights

The greater number of the projectors, except those of Dutch or French manufacture, are made by Sperry and Siemens-Schukerts. Their efficiency is already known. Each has a 150-cm diameter, and is similar to those used in our country. These projectors will be widely used.

To supplement the shortage of fixed searchlights, mobile searchlights, some of which could be used for antiaircraft purposes, will be attached to the fortresses.

### Captured Field Artillery Pieces in Java (including AA Guns)

#### Appraisal of Captured Artillery Pieces

There are several types of field pieces, but their quantity is small. The field pieces had been purchased from foreign countries and the



British and Americans had combined forces. The artillery pieces are new with the exception of the field pieces. All of them are vehicle-drawn (even the mountain guns). The greater number of them was manufactured at Bofors in Sweden although some were manufactured in England, America and Germany.

1. 75-mm Bofors Mountain Gun

This is an excellent mountain gun. Although some have iron wheels, the greater number are equipped with pneumatic rubber tires. Furthermore, they are equipped to be horse-drawn (removable).

If the sights of these guns are damaged, auxiliary sights with clinometers can be attached to the breeches.

2. 105-mm Bofors Howitzer

This gun is superior to the 100-mm howitzer (1929). The wheels being of solid rubber and the buffers attached to the gun-carriage, make it convenient to be drawn by a vehicle. This gun is equipped with an auxiliary sight similar to that of the mountain gun described in the previous article.

3. 80-mm Bofors Antiaircraft Field Gun

Made in 1939, this gun is a new type of antiaircraft artillery. It resembles and was manufactured in the same factory as the 75-mm antiaircraft gun, which was captured during the China Incident. It is not necessary to bring down the slide supporting the carriage of the mounting when moving it. Having a caliber of 80-mm this gun has an electric sight, the lenses of which, according to war prisoners, are a product of Zeiss, Germany.

4. 80-mm Bofors Fixed Antiaircraft Gun

This gun is similar to that described above, except that it is fixed.

5. 105-mm Bofors Mobile Antiaircraft Gun

Manufactured in 1931 this gun cannot be considered a particularly good weapon but it can be used as an antiaircraft gun.

The only laying apparatus attached is the electric laying mechanism. To move the gun, mobile wheels can be attached to the front and rear of the mount.

6. 3.7" Mobile Antiaircraft Gun

Made in England, this gun corresponds to those captured in Singapore.

#### 7. 40-mm Bofors Antiaircraft Machine Gun

Similar guns were captured in Singapore. These antiaircraft artillery pieces were made in Sweden and in England. The guns manufactured in Sweden are equipped with mechanical sights and antiaircraft laying telescopes. Those made in England, instead of the laying telescopes, have front and rear sight attachments.

There are 25 spare barrels for this type of gun.

#### 8. Field Artillery

Manufactured in England, Germany, and America, the guns are of the old type. They are, however, equipped with rubber tires, enabling them to be drawn by vehicles.

The English 1917-type, American-made 75-mm field artillery pieces are very similar to the 18-lb vehicle-drawn field guns captured in Singapore, with the exception of the difference in caliber.

The 1919-type Krupp field artillery are of the old type.

The American 75-mm field guns, although made in 1939, are not regarded as a good weapon.

9. 47-mm Boyler-Type Antitank Gun

This gun corresponds to those captured in Singapore.

10. 40-mm Vickers-Type Antitank Gun

Similar to those captured in Singapore, these guns were purchased from England.

11. 37-mm American-Made Antitank Gun

It seems that several of these guns were purchased from America recently. Although the gun data has not been clarified, the gun has a limber. It is a 58 caliber and the initial velocity is estimated to be at least 800 meters.

12. 20-mm Rheinmetall-Borsing  
Antiaircraft Machine Gun

This is similar to those in Japan.

13. 20-mm Automatic Gun

Manufactured at the Solothurn factory, this gun is moved by a simple two-wheel carriage.

14. 80-mm Trench Mortar

This mortar resembles the 81-mm Stokes-Brandts, and was made at the Bandoeng Arsenal.

15. Light Trench Mortar

Closely related to the grenade launcher, this gun has a caliber of 47-mm. It has the mark

of the Brandt Factory. It is understood that several of these trench mortars were purchased from that factory.

Chart No. 11 shows the principal data of the captured field pieces. The type, quantity and condition of the captured guns are shown on Chart

No. 12a-b.

## Principal Data Field Pieces Captured on Java

Type	Cal. (mm)	Tube Length	Traverse (degrees)	Elevation (degrees)	Weight of Projec- tiles (kg)	Muzzle Velocity (m/sec)	Maximum Range	Remarks
75-mm Bofors Mt Gun	75	19		-10 +50	6.5	390	7,750	Some have rubber tires and circular shafts, others have iron wheels. Vehicle-drawn.
English 1917 Type 75-mm Fld Gun American Make	75	29	8	16.5			5,800	Vehicle-drawn
1917-Type 75-mm Fld Gun (Krupp)	75	29	7	-8 +30	6.5	544	9,800	Vehicle-drawn
American 1917 Type 75-mm Fld Gun	75	36	42	-11 +45			9,700	Vehicle-drawn Oscillating type
105-mm Bofors Howitzer	105	21	8		14.1	462	10,500	Solid tires and axle springs
80-mm Bofors AA Gun	80	50	360	-5 +85	6.44	750		
105-mm Bofors Mobile AA Gun	105	44	360	-5 +85		750		
80-mm Trench Mortar	80							Stokes-Brandit-type made in the Netherlands East Indies
47-mm Trench Mortar	47							Brandit-type
American 37-mm AT Gun	37	58						Limber attachment Vehicle-drawn

Type, Quantity and Condition of Captured Guns

Type	Guns with Parts Missing (Excluding Unusable Guns)					Estimate			
	No Breech Block	Lacking Firing Mechanism	No Telescope	Damaged Sights or No Sights	Complete Gun	Light Repair	Heavy Repair	Unusable	Total
75-mm Bofors Mt Gun	2	4	15	12	1	2 (1)	12		16
75-mm Bofors Mt Gun (Iron wheels)		2	6	6			6		6
English 1917 Type 75-mm Fld Gun (American Make)	8	1	42	9		(32)	10		42
1917 Type 75-mm Fld Krupp Fld Gun			1		7	(1)			8
1939 Type 75-mm Fld Gun American			1		9	(1)	1		11
105-mm Bofors Howitzer	4		3	1	9		4		13
80-mm Mobile AA Gun		3			1	3			4
105-mm Bofors Mobile AA Gun	1			3		2	1	1	4
3.7" Mobile AA Gun	1			2			3(exchangeable bar'ls)		3

Type, Quantity and Condition of Captured Guns (Cont'd)

Type	Guns with Parts Missing (Excluding Unusable Guns)				Estimate				Total
	No Breech Block	Lacking Firing Mechanism	No Telescope	Damaged Sights or No Sights	Complete Gun	Light Repair	Heavy Repair	Unusable	
80-mm Bofors Fixed AA Gun	5	5		1	3	5	5	3	16
40-mm Bofors AA MG			3		9 (6)	(3)			18
40-mm Bofors AA MG (Eng. Make)	16			16			16		16
20-mm Rheinmetall AA MG	3		6		7 (2)	(3)	3		15
47-mm Bayler AT Gun			9	13	5	1 (2)	14		22
40-mm Vickers Type AT Gun		4	29	2	19	3 (23)	3		48
37-mm American AT Gun	1		2	6			8		8
20-mm Solothurn Machine Gun					12	7	9		28
80-mm Trench Mortar			54		18	(44)	10	5	77
47-mm Trench Mortar					5				5



References:

1. In the column of "Complete Guns" the numbers in parenthesis show those delivered to the units.
2. "Light Repairs" means repairs requiring attachment of such small accessories as firing mechanisms, etc., which can be accomplished easily. Under the column of "Light Repairs" the numbers in parenthesis designate guns which could be completed by equipping them with telescopes.
3. "Heavy Repairs" specifies those which require necessary adjustments to breechblocks, sights, etc.
4. There are 25 spare gun tubes for the 40-mm antiaircraft machine gun.
5. With the progress of adjustments, the number of usable guns will increase.

## Utilization of Captured Guns

Such guns as the 40-mm Bofors antiaircraft machine guns, shown in the preceding chart, are already being used by our units.

### 1. 75-mm Bofors Mountain Guns

These guns have two types of wheels - rubber or iron. The majority have neither sights nor telescopes, however, they do have auxiliary sights which will satisfy the requirements when attached to the breeches.

Since this type of gun was captured during the China Incident and since their firing tables have been compiled in Japan, it would be far better to send them back to Japan for readjustment.

### 2. Field Artillery

The major portion of the English-type 75-mm field guns is usable, provided telescopes are installed. It is necessary, therefore, to experiment with the old-type telescopes of the 38 field gun type in order to fit them to the 75-mm field pieces. In the meantime, a simple laying apparatus is being prepared for immediate use.

in direct sighting.

The 75-mm field guns, manufactured at the Krupp factories and in America, can be used immediately. Since these field pieces are of the old type and few in number, it is preferable to employ them as reinforcements for local units or for coastal defenses.

### 3. 105-mm Bofors Howitzer

There are nine complete guns of this type. Two batteries can be organized with four guns to each battery and they can be satisfactorily used as reinforcements for local units. Necessary repairs will be undertaken at the Bandoeng Arsenal.

### 4. 80-mm Bofors AA Gun

The use of these guns is two-fold. They can be used either in field operations or employed at key points. Only one electric sight is attached to each gun. They are not equipped with calculators. Since they cannot function as anti-aircraft weapons, it is necessary to send one of them to Japan for research purposes to determine whether the 88-type antiaircraft sighting instrument (mechanical) and the calculator developed in

Japan could be adapted to this type of gun. Repairs will be carried out in local regions.

The Bandoeng Arsenal will manufacture necessary breechblocks, etc. Orders for required parts will be sent to Japan only in cases of absolute necessity.

5. 105-mm Bofors Mobile Antiaircraft Guns

Measures mentioned above will be applied to this type of gun. One out of every three will be repaired by substituting a spare gun tube for the old one.

6. 3.7" Mobile Antiaircraft Guns

Premature explosions at the muzzles have damaged the gun tubes. Three spare ones have been requested to be sent from Singapore to the Bandoeng Arsenal to replace the damaged tubes.

7. 40-mm Bofors Antiaircraft Machine Gun

These guns were produced in England and Sweden. All of those made in England lack breechblocks but they can be made at the Bandoeng Arsenal.

These guns are similar to those captured in Singapore, however, the Bofors have only mechanical sights. Ammunition on hand for the guns will be used by local units.

8. 20-mm Rheinmetall Antiaircraft  
Machine Gun

Since there are very few of these guns and there are already some of them being used in Japan, it is better to send these to Japan where, after necessary repairs, they could be used advantageously.

9. 47-mm Bayler Antitank

Some lack sights and telescopes. The sights can be manufactured locally. Requisitions for parts will be sent to Japan only in case of dire necessity.

After the completion of repairs the guns will serve as reserve equipment to be used in essential areas.

10. 40-mm Vickers-Type Antitank Gun

Since these guns are identical with those captured in Singapore, they will be dealt with in the same way.

11. 37-mm Antitank Guns Made in America

Since there are very few of this type of gun, it is recommended that they be used for training purposes.

12. 20-mm Solothurn Automatic Guns

Guns of this type will be used for reinforcement of local units.

13. Trench Mortars

The majority of the 80-mm mortars lack the laying apparatus. The Bandoeng Arsenal will manufacture this apparatus. Spare parts may be obtained from Japan, if necessary. The trench mortars are to be used to reinforce local units.

As there are very few 47-mm trench mortars, these can be disregarded.

14. Besides the abovementioned, there are 14 old type mortars; 25 old type infantry artillery pieces; three old type mountain guns; 20 old type Krupp field guns, and four 3.7" anti-aircraft gun mounts (without tubes) made in England. These guns will be used for reconstruction purposes, with the exception of the 3.7" anti-aircraft gun mounts. These will be used if the plans for their production are put into effect.

Ammunition Captured in Java

As the ammunition captured in Java is now being checked and classified the actual quantity cannot be stated as yet. In the vicinity of

## Chart No. 13

## Other Weapons Captured in Java

Division Article	Degree of Usability			Total
	Serviceable	Repairable	Scrap	
Sabers	7,273	7,071	26,208	40,552
Bayonets	9,839	13,652	3,773	27,264
Rifles	14,184	6,216	16,881	37,281
Carbines	7,961	3,829	9,874	21,664
Auto. Rifles	612	719	185	1,516
Pistols	5,849	3,922	3,349	13,120
Submachine Guns	1,551	98		1,649
Shot Guns	11,018		3,634	14,652
Light Machine Guns	858	101	122	1,081
Heavy Machine Guns	2,037	657	94	2,788
13.97-mm Anti- tank Rifles	14		1	15

Bandoeng along there are about 40 semi-cave and cave storage dumps, 1440 to 3600 feet square, each filled with ammunition. It is necessary to check the condition and to classify this ammunition.

Other Weapons Captured in Java

Chart No. 13 shows the weapons captured in Batavia, Bandoeng, Soerabaja, and Malang. Some changes in numbers may be expected after necessary adjustments are made at a future date.

The Netherlands East Indies Army used a wide variety of arms. Some of the principal ones can be classified as follows:

Pistols

8.9-mm M-1 (probably made in Holland)

Mausers (7.62-mm)	Approx.	600
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Colts (7.62-mm)	"	600
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Colts (11.43-mm revolver)	"	1,000
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Aster (11.43-mm)	"	700
------------------	---	-----

Automatic Pistols

Thompson (11.43-mm)	723 complete
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Schmeisser (8.82-mm)	797 "
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USA Harrington - Richardson (11.43-mm)	31 "
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<u>Rifles</u> (numerous in type)		
Steyer rifles	(6.5-mm)	13,850
Lee-Enfield type rifles	Remington (7.62-mm)	11,066
Johnson rifles	(7.62-mm)	4,885
Hembrug	(6.5-mm)	1,267
Steyer carbines	(6.5-mm)	17,650
Hembrug carbine	(6.5-mm)	2,803
Johnson automatic rifles (1941-type	7.62-mm)	614

Besides those listed above, various other rifles were found, such as 7.7-mm caliber rifles, including Teruni and Steyer guns.

Bayonets must be classified according to their adaptability to rifles.

Light Machine Guns

Madsen	(6.5-mm)	430
Bren	(7.7-mm)	325
Lewis-type	Hembrug	69

Heavy Machine Guns

USA Hotchkiss heavy machine gun	(7.62-mm)	300 complete (new)
Vicker's water-cooled type	(6.5-mm)	168
Vicker's water-cooled type	(7.7-mm) (made in Australia)	126

Heavy Machine Guns (Cont'd)

Colt (7.62-mm) 53

Fiat (8-mm) 20

A few vehicle-mounted Colts (7.7-mm) Brownings (7.7-mm) antiaircraft machine guns, Shwarz-  
Roze heavy machine guns, heavy machine guns (6.5-  
mm), and Hembrug heavy machine guns, etc.

Colt 13.7-mm antiaircraft machine guns 94

Antitank Rifles

13.97-mm antitank rifles, made in Australia,  
are similar to those captured in Singapore.

Weapons for Airplanes

Vickers-Armstrong (7.7-mm) 536 complete

Colts (7.7-mm) 103 "

Colts (12.7-mm) 350 new

Others considerable  
number

The present quantity of ammunition for weap-  
ons is as follows:

<u>Item</u>	<u>Quantity</u>
Rounds of ammunition for pistols	2,488,000
Rounds of ammunition for rifles	26,902,000
Rounds of armor piercing ammunition for rifles	583,500
Blank cartridges for rifles	52,000
12.7-mm antiaircraft machine gun bullets	7,826,000

The numbers listed above are round figures and might be drastically changed with the progress of the sorting out process.

Sorting out and classification of ammunition according to the types of weapons and caliber will be effected later.

#### Measures to be Taken for Disposal of Arms

The weapons and ammunition used by the Netherlands East Indies Army are many and varied. It will require an extended period of time to thoroughly classify them.

Among the various types of arms, those of which there is a large quantity must be sorted out first, together with their ammunition, so that the special units (Native Volunteer Army), after their activation, may be equipped with them at once. On the other hand, if there is only a few they will be used for reconditioning purposes, with the exception of those which can be used for training purposes.

There are only a few antiaircraft machine guns and antitank rifles but there is a large stockpile of ammunition for these weapons. The available guns will be used at vital defense

points for ship protection and for the strengthening of units.

Some of the weapons, especially the machine guns, are similar to those captured in Singapore.

Optical Items and Observation  
Apparatus Captured in Java

Among the numerous captured items, those that are in satisfactory conditions and can be used are as follows (the figures listed below will be changed after their classification is completed).

<u>Article</u>	<u>Quantity</u>	<u>Remarks</u>
Field clinometers	38	Largest in number are of Zeiss make
Binoculars	428	Very few good ones
700-mm range finders	63	Zeiss make
1-m range finders	2	
1.25-m range finders	10	Zeiss make
2-m range finders	11	Zeiss make
3-m range finders	4	
4-m range finders	1	
Directors for the 40-mm antiaircraft machine gun	2	Manufactured at the Gamma Factory in Budapest
Coastal fire control instruments	1	The apparatus is in the Kebanjar Fort- ress - manufac- tured in the Neth- erlands East Indies

## Apparatus of Any Value

### Short-Wave Target Locator (Antiaircraft)

Mechanism of this type was found only in the Madoeng Fortress on Madoera Island. It was made in America about 1940. According to war prisoners this device was handled by British and Australian officers and was kept a secret from the Dutch soldiers. Though slightly damaged the original structure remains unchanged. Since it is an important apparatus, it is necessary to have experts conduct investigation of this device immediately.

### Directors Used in Antiaircraft Artillery

Manufactured at the Gamma factory in Budapest, this device, small in size, is used in the 40-mm antiaircraft machine gun.

One of these should be sent to Japan for research purposes.

### Coastal Fire Control Instrument

This mechanism was attached to the 150-mm guns in Kebanjar Fortress on Madoera Island. It was made at the Bandoeng Arsenal in the Netherlands East Indies. Research work on this device should be conducted immediately. After due investigation of its operational methods have been

completed the apparatus will be used in local fortresses.

Measures for Disposal of Optical  
Items and Observation Apparatus

These instruments will be used by local units or fortresses, with the exception of those sent to Japan for research purposes.

## CHAPTER 3

### Equipment Problems in Tropical Regions

Operations in Malay and Java revealed the adaptability of Japanese equipment, such as guns, small arms, observation instruments, etc. to tropical operations.

Although some damage, such as the premature explosion in one of the type-"90" mobile field guns; damage to the breech of one type-"96" 150-mm howitzer caused by breakage of the cartridge case; damage to the front of the under-carriages of three type-"92" 100-mm guns; a premature explosion in the type-"92" 100-mm howitzer, etc., has been reported by local units, the basic causes of these accidents cannot be attributed solely to the special conditions of the tropical region. Slight damage to equipment has been repaired locally.

The problems yet to be solved concern the liquid and rubber obturator of the recoil buffer. The present service type is inefficient because it corrodes the counter-recoil cylinder and greatly defaces the rubber of the obturator. These

problems must be studied immediately. (The fact that the British use leather obturators will serve as a reference.)

As the campaigns have been successfully terminated in this area and combat units have moved forward, there was no opportunity to obtain an official opinion on the decisions stated above. However, the following is a consensus of testimony obtained in various operational areas:

#### Equipment

In the regions densely covered by tropical growth self-propelled guns, especially self-propelled field guns, are essential. With these guns enemy resistance can easily be broken (Note: One self-propelled field gun did not arrive in time for the Malay Operations. It may have been diverted to the Burma Operations.)

The type-"94" 37-mm guns are not effective against tanks, and the antitank units are requesting antitank mines for close-quarter attack against enemy tanks. While the howitzer shells are fairly effective, the armor-piercing shells fail to penetrate the armor and are useless since the initial velocity is small.



The antitank guns are cumbersome to load and unload on and off the vehicles. Superior guns are required against the special type of enemy tanks that has appeared recently.

It is generally believed that this problem could be solved if the type-"1" 37-mm gun was adapted for antitank warfare.

#### Supply

In some instances water was substituted for the recoil buffer liquid, which did not arrive in time. At times oxygen in recuperators replaced the insufficient quantity of compressed air. (In tropical regions now and then the additional air for the type-"96" 150-mm howitzer must be pumped to replenish the deficient supply of air.) The number of air-compressing pump vehicles must be increased.

Strict controls and inspection of work involving unskilled labor are required. Projectiles without fuses and off center in their axis caused by the faulty methods of placing them in boxes were discovered.

## Guns

### 1. Type-"88" 70-mm Antiaircraft Gun

The mechanism for pumping air in recuperators is faulty. It must be improved.

It is necessary to install an oil vent on the direction sights.

### 2. Type-"89" 150-mm Gun

Some of the guns do not recoil properly due to noticeable defacements on the lug of the recoil regulator.

Functioning of the elevator mechanism of the tube carrier is faulty.

### 3. General Matters

There are many faulty air pipes, especially those that supply the air within the air chamber of the recuperators.

Tools are often poor or useless.

The method of handling the recoil buffer must be explained in detail by graphs. Additional information also is required in order to prevent accidents to the personnel handling the guns, as well as instructions in regard to accessories.

### Mobile Repair Section

Since the field ordnance depot cannot handle all the repairs it is necessary to enlarge its capacity by organizing a mobile ordnance section for guns, optical items, signal instruments, etc. The necessary personnel and equipment will have to be dispatched from Japan at an opportune moment.

## CHAPTER 4

### Miscellaneous

#### Weapons to be Sent to Japan for Technical Research

Although the individual units have completed lists, the following additional list of items from Java, was requested to be added. (Chart No. 14)

#### Artillery Pieces Destroyed by the Enemy

The following methods were used by the English and Netherlands East Indies Armies to destroy guns:

Fortress guns were completely destroyed by setting fire to ammunition dumps or by demolition charges. Precision gauges were destroyed with either hammers or pistols. These methods are quite obvious but the method by which premature explosions contributed to the destruction of guns was not quite clear at first. However, after due investigation it was discovered that the following methods had been used:

#### The Use of the Cartridge Case for a Premature Explosion

Similar in appearance to a common blank cartridge, the cartridge cases used for explosive

Chart No. 14

List of Captured (confiscated) Weapons and Ammunition to be Sent to Japan		9 May 1942 24th Field Ord. Depot		
Item	Quantity	Remarks		
Mauser LMG	2			
Schmeisser Machine Pistol	3			
Fiat HMG (8-mm)	3			
Harrington-Richardson Machine Pistol, USA	3			
75-mm Field Gun Made in 1939 USA	1			
105-mm Bofors Howitzer	1			
105-mm Bofors Mobile AA Gun	1			
80-mm Bofors Mobile AA Gun	1			
Bofors Mobile AA Gun (Fixed)	1			
40-mm Bofors AA Machine Gun	2			
20-mm Solothurn Machine Gun	2			
47-mm Trench Mortar	2			
Ammunition	Auto. Rifles	1941-type Johnson (7.62-mm)	2,000	
		1918-type Browning (7.62-mm)	2,000	
		Soshinite	2,000	
		Type M-1 (7.62-mm)	2,000	
	Browning 53A HMG (18.7-mm)	2,000		
	37-mm Antitank Gun (Armour piercing)	500		
	Mauser LMG	2,000		
	Schemeisser Machine Pistol	3,000		
	Fiat HMG (8-mm)	3,000		
	Harrington-Richardson Machine Pistol, USA	3,000		
	75-mm Field Gun Made in 1939 USA	200		
	105-mm Bofors Howitzer Made in 1939 USA	300		
	80-mm Bofors Field Anti-Aircraft Gun	300		
	80-mm Bofors Fixed AA Gun	300		
40-mm Bofors AA Machine Gun	2,000	With no cartridge clips		
105-mm Mobile AA Gun	300			
20-mm Solothurn Machine Gun	2,000			
47-mm Trench Mortar	300			

Note: Ammunition belts are to be sent with the items.

purposes were marked with a skull on the outside surface. These cases were filled with a powerful explosive then loaded into the gun and fired. This was confirmed by witnesses and testimony of the war prisoners. Guns destroyed in this manner are beyond repair as they are damaged near the breeches.

The Use of Cartridge Case with a Shell  
Especially Prepared for Premature Explosion

In this case a very small quantity of gunpowder was used in a cartridge so that, after firing, the projectile's fuse, which was set on the maximum delay, and the projectile exploded later near the muzzle. The guns damaged by this method can be repaired by replacing the destroyed tube with a new one.

No definite data is available on the method by which guns were destroyed by the shell being placed in an inverted position.

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