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WAR DEPARTMENT

TECHNICAL MANUAL

HANDBOOK ON JAPANESE MILITARY FORCES

September 21, 1942

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No. 30-480

WAR DEPARTMENT,
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HANDBOOK ON JAPANESE MILITARY FORCES

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CHAPTER 1

RECRUITMENT AND MOBILIZATION

1. Recruitment.—*a. Officers.*—(1) *Classifications.*—There are three general classifications of officer personnel in the Japanese Army.

(*a*) Regular Army officers.

(*b*) Regular Army officers with limited promotion, who usually do not advance beyond the grade of captain.

(*c*) Reserve officers.

(2) *Sources.*—(*a*) *Regular Army officers.*—These are commissioned from among graduates of the Japanese Military Academy, technical colleges, Intendance School, medical and veterinary colleges, and graduates of the Military Police School.

(*b*) *Regular Army officers with limited promotion.*—These are commissioned from selected warrant and noncommissioned officers who receive special courses at the Japanese Military Academy, Artificers School, Air Schools, and the Intendance School, Army Medical School, Army Veterinary School, and Military Police Schools.

(*c*) *Reserve officers.*—These are commissioned from the Class A conscripts (and volunteers, in the case of flying schools) who are graduates of the Reserve Military Academies at Morioka and Toyohashi for infantry (11 months), Toyohashi for artillery (11 months), Kurume for transport (11 months), branch schools (1 year). Mito and Kumagaya Flying Schools (1 year), and technical college graduates who complete the course at Artificers School or arsenals (1 year). All candidates for commissions, both regular and reserve, serve as probationary officers with their assigned units for a period of 2 to 6 months after completion of training. Technical college graduates (holding a degree) may be commissioned as first lieutenants initially. This is considered a temporary expedient during the present emergency.

b. Noncommissioned officers.—Regular noncommissioned officers are appointed from the apprentices and noncommissioned candidates who are graduates of courses at the noncommissioned officers' and branch schools, the duration of which is from 1 to 2 years. Reserve noncommissioned officers are appointed from the reserve candidates who

have received training with units and graduates of special courses at flying and technical schools.

c. Conscript law.—(1) *General.*—The conscript law of Japan requires all males between 17 and 40 years of age (except those disabled or those who have been imprisoned for 6 years or more) to serve in the military service. The three components of the Army are—

(*a*) Standing Army (Jōbigun), which is made up of—

1. Active service, that is, men serving with the colors.

2. 1st Reserve, which is composed of men who have completed their active service.

(*b*) Conscript (or Replacement) Reserve, which is divided into 1st and 2d Conscript Reserve, the distinction being based on physical qualifications.

(*c*) The National Army is composed of men who have completed service in the Standing Army (Active Service and 1st Reserve) and of others who are not fitted for service in either the Standing Army or Conscript Reserve but whose physical condition is such that they can be drawn upon in an emergency, particularly for limited service.

(2) *Division of service.*—(*a*) *Jōbi Hei-eki* (service with the colors and in 1st Reserve.

1. Gen-eki (active service with colors), 2 years.

2. Yobi-eki (1st Reserve), 15 years 4 months.

(*b*) *Hojū Hei-eki* (Conscript or Replacement Reserve).

1. 1st Conscript Reserve, 17 years 4 months.

2. 2d Conscript Reserve, 17 years 4 months.

(*c*) *Kokumin Gun* (National Army).

1. 1st National Army, 1⅔ to 2⅔ years, between 37⅓ and 40 years of age.

2. 2d National Army, 20 years, between 20 and 40 years of age. (Youths of 17 to 20 are theoretically members of this category; but no physical examination for conscriptional purposes is normally undergone until the age of 20.)

(3) *Method of selection.*—(*a*) All males upon reaching the age of 20 years are subjected to a medical examination for conscription, and as a result of this they are divided into classes for which the following are the specifications:

1. Class A.—Not less than 5 feet (1.52 meters) in height and in good physical condition.

2. Class B.—Taller than 4 feet 11 inches (1.50 meters) and in poorer physical condition than those of Class A. Subheads B–1, B–2, and B–3 cover grades in physical condition.

3. *Class C.*—Those taller than 4 feet 11 inches (1.50 meters) but physically inferior to those coming under Class B and those between 4 feet 9 inches (1.45 meters) and 4 feet 11 inches (1.50 meters) who are not suffering from a temporary or permanent disabling physical ailment.
4. *Class D.*—Less than 4 feet 9 inches (1.45 meters) in height or suffering from certain specific physical ailments which are not readily improved by treatment.
5. *Class E.*—A temporary rating. This class includes men who are suffering from ailments at the time of the examination but who can very likely be cured by treatment and be passed the following year.

Physical standards for these groups are subject to change at any time by order of the Minister of War.

(*b*) According to the foregoing classification the men examined are available for the different components of the Army as follows:

1. *Classes A and B–1.*—Available for active service.
2. *Class B–2.*—Available for 1st Conscript Reserve.
3. *Class B–3.*—Available for 2d Conscript Reserve.
4. *Class C.*—Available for service in the National Army.
5. *Class D.*—Rejected. Unfit for service.
6. *Class E.*—Re-examined the following year and if condition is improved, placed in appropriate class.

The quotas necessary to fill vacancies within the active Army are selected from Classes A and B–1 and enter into their active service for a period of 2 years in peacetime (actually this period is slightly less than 2 years). Upon completion of active service, they automatically enter the 1st Reserve, where they remain for 15 years 4 months. They then enter the 1st National Army and remain there until reaching 40 years of age.

(*c*) Left-overs from Classes A and B–1, who are not selected for active service, and Class B–2 conscripts are placed in the 1st Conscript Reserve and are subject to call for a 6-month training period with troops, and for additional periods of 50 days upon whatever number of occasions are deemed necessary. At the end of a period covering 17 years 4 months they enter the 1st National Army, where they remain until they reach the age of 40.

(*d*) Class B–3 conscripts enter the 2d Conscript Reserve, where they are subject to call for a 6-month training period with troops, and for additional periods of 50 days whenever deemed necessary. At the end of a period covering 17 years 4 months they enter the 1st National Army and remain until the age of 40.

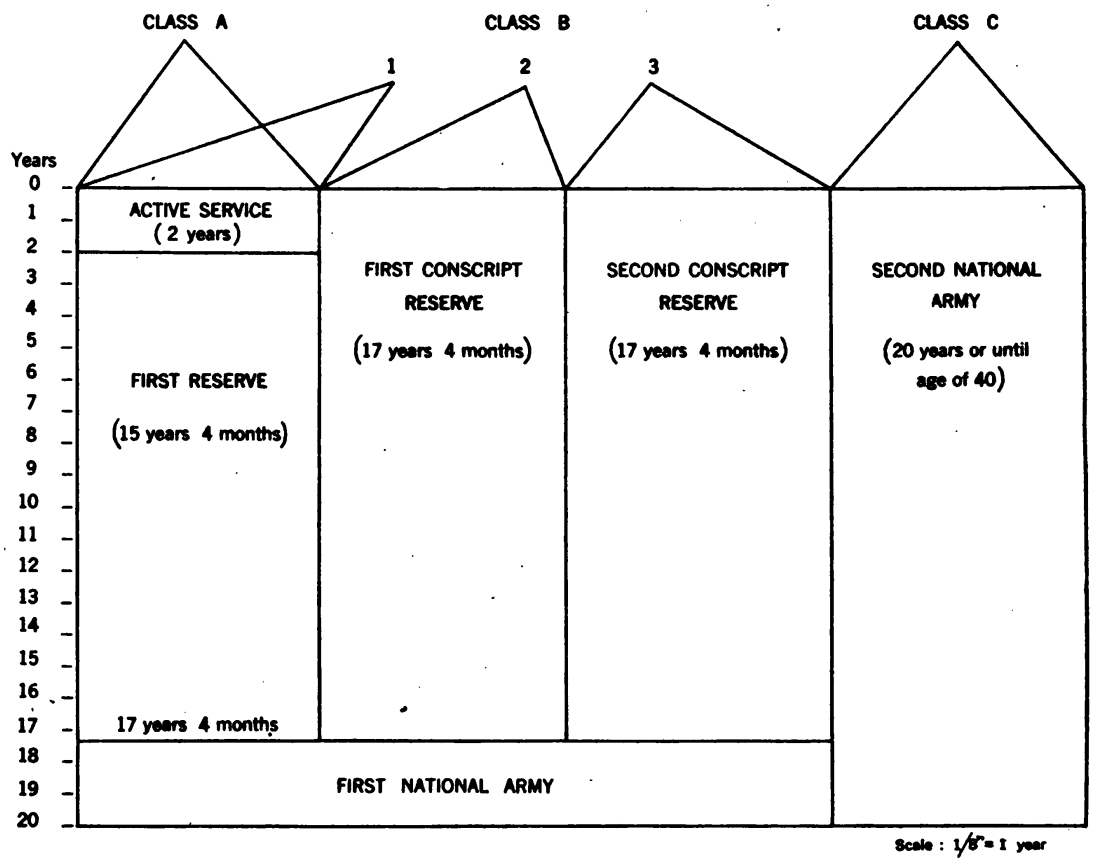
(*e*) Class C conscripts automatically enter the 2d National Army and remain in this group until attaining 40 years of age.

(*f*) Classes D and E are self-explanatory under (*b*) above.

(*g*) The 1st National Army is composed of trained reservists of the active Army or the 1st and 2d Conscript Reserve. The 2d National Army is made up of those who have had no training whatever in the Army.

(*h*) Figure 1 indicates divisions of compulsory service covering the conscript's military career.

(*i*) Volunteers are not shown on figure 1. Men for active service may be selected from those youths between 17 and 20 years of age,



All service ends at age of 40 in peacetime.

FIGURE 1.—Classes of service.

who volunteer for a 2-year period of service in the Army, or a 3-year period of service in the Navy. The qualifications required of those who may be selected for active service are generally the same as those required of men conscripted for active service. However, volunteers must be over 5 feet 2.8 inches (1.6 meters) in height. After having been found qualified for active service, men who elect to perform that

service instead of waiting for the drawings which determine whether or not they are to serve may also volunteer.

2. Mobilization.—*a. Areas.*—For mobilization purposes Japan proper is divided into 14 territorial division areas and each of these is subdivided into regimental areas corresponding to the regiments of the infantry division or army troops allocated to that area. The Guards Division in Tokyo and the 19th and 20th Divisions, stationed in Korea, draw their men from specified localities all over Japan. Mobilation is greatly decentralized, regimental and division headquarters being the control centers. The men required for each regiment of infantry are conscripted from the regimental conscription district. The men required for other branches are conscripted at large from the divisional conscription district.

b. Expansion of existing units.—The 17 divisions and army troops of the Standing Army or proportionate parts thereof are normally brought to war strength by calling to the colors the necessary quota from the 1st Reserve and the Conscript Reserve. This was the procedure followed in 1931 and 1932 during the fighting in Manchuria and in the vicinity of Shanghai when only a part of the Standing Army was brought to war strength.

c. New units.—During the course of the war with China which began in July 1937 new units as well as those of the peacetime Standing Army were mobilized at war strength by calling to the colors necessary personnel from all classes of reserves. This same procedure will probably be followed in the organization of additional units, since it does not remove from civil life all the men in any particular class or age group, and consequently results in minimum dislocation of industry, agriculture, and other essential occupations.

d. Designation of units.—Active Army divisions have retained their usual designations, that is, Imperial Guard, 1st to 12th, 14th, 16th, 19th, and 20th. In addition, four divisions demobilized in 1925, the 13th, 15th, 17th, and 18th, have been reactivated. While the system of designating new units is not entirely clear, definite identifications have been made of the following 54 infantry divisions: Imperial Guard, 1st to 28th, 32d to 41st, 46th, 48th, 51st to 57th, 65th, 88th, 104th, 110th, 116th, and 118th.

e. Probable rate of development of manpower.—In the period July 1937 to January 1939, Japan increased her active Army from 355,000 to 1,500,000, and by July 1, 1942, the strength of her Army, including the Army Air Force, probably exceeded 2,500,000. Until the summer of 1941 mobilization was carried out in a leisurely manner to keep pace with changing conditions in China whose Army was held in

contempt by the Japanese. In a serious emergency, confronted by a first-class power, when time is a vital factor, it is believed that manpower can be developed at the following rate:

(1) Peacetime standing Army units mobilized to war strength, equipped, and ready to move to concentration areas on M-plus-6 day.

(2) Reserve divisions and Reserve army troops commence mobilization in vacated areas on M-plus-7 day, and are ready to move at war strength to concentration areas on M-plus-21 day. With a population of 73,580,000 (in 1942 in Japan Proper), this process might continue until the Army comprises 3,500,000 to 4,000,000 men, if Japan is able to supply organizational equipment (such as airplanes, artillery, and tanks) necessary for a force of this size.

CHAPTER 2

ORGANIZATION

SECTION I

JAPANESE MILITARY SYSTEM AND TERRITORIAL ORGANIZATION

3. Japanese military system.—The Emperor of Japan is the supreme head of the Army and Navy. He appoints the members of the Board of Marshals and Admirals and of the Supreme Military Council from among the higher Army and Navy officers. These bodies are the Emperor's advisers and largely control the military policy of the Empire.

a. Imperial General Headquarters.—(1) An Imperial General Headquarters is the highest body of supreme command. It is established under the supervision of the Emperor to coordinate the strategy of the Army and Navy and to advise the Emperor in the exercise of his command responsibilities. Such a headquarters is established in time of war or other grave emergency, and during the annual grand maneuvers.

(2) An Imperial General Headquarters was first formed on June 5, 1894, some 2 months before the beginning of the Sino-Japanese war. The second was set up February 11, 1904, 4 days after war was declared against Russia. During the first World War an Imperial General Headquarters was not organized. Not counting the customary establishment for the annual grand maneuvers, an Imperial General Headquarters was organized for the third time on November 17, 1937.

(3) The Imperial General Headquarters consists of chiefs of the Army and Navy General Staffs, and personnel of their offices, and the War and Navy Ministers with as many of their subordinates as are deemed necessary. The Imperial General Headquarters is merely

superimposed upon the existing General Staffs, and to a less extent the War and Navy offices, and its personnel concurrently perform their normal duties in the permanent General Staff and administrative organs.

b. War Department.—The War Department consists of five coordinate agencies responsible only to the Emperor in the exercise of their functions.

(1) *Ministry of War.*—(*a*) The Ministry of War is the administrative, supply, and mobilization agency of the Army. Its chief, the Minister of War, is a member of the Cabinet and provides liaison between the Army and the Diet. The Ministry of War is subdivided into the Secretariat and eight bureaus which are—

1. Personnel bureau.
2. General military affairs bureau.
3. Military administration bureau.
4. Economic mobilization bureau.
5. Ordnance bureau.
6. Intendance bureau.
7. Medical bureau.
8. Judicial bureau which is the only bureau not composed of Army officers.

(*b*) Several of the Army schools are under appropriate bureaus of the Ministry of War. The War Ministry exercises supervision over the various ordnance headquarters and arsenals, the research laboratories, the aviation bureau, the Provost Marshal General, the fortifications bureau, the medical and veterinary supply depots, the transportation division, and the fuel, provision, and clothing depots. The Minister of War must be a general or lieutenant general on the active list. He is appointed by the Emperor in person.

(2) *General Staff.*—The General Staff comprises war plans, operations, intelligence, transport, historical, and topographical sections. It is charged with the preparation of war plans, the direction of large maneuvers, the movement of troops, the compilation of field service regulations, maps, and military histories, and with supervision of the General Staff College. The Chief of the General Staff is appointed by the Emperor and is usually a general. Training and employment of the combined arms are his principal responsibilities.

(3) *Inspectorate General of Military Training.*—The Inspectorate General of Military Training, reorganized to meet changed conditions brought about by the operations in China, consists of two departments which are divided into a general section and six numbered sections responsible in general for—

(*a*) The technical and tactical training of the separate arms, except the Air Corps, and of the services not under the War Ministry.

(*b*) Investigation, research, and the compilation of drill and training regulations.

(*c*) Education in all military schools except those under the War Ministry, General Staff, or Inspectorate General of Aviation. The Inspector General is a lieutenant general or general appointed by the Emperor.

(4) *Inspectorate General of Aviation.*—This agency was created by an ordinance issued December 7, 1938, to supervise Air Corps training. It comprises a General Affairs Department and a Training Department and is headed by a general or lieutenant general appointed by and responsible to the Emperor for all aviation training. Direct responsibility to the Throne is limited to aviation training matters; in others, the Inspector General of Aviation is subordinate to the "Big Three" (War Minister, Chief of Staff, and Inspector General of Military Training). The Inspector General of Aviation may be said to rank with but after the "Big Three." He has, however, more freedom in influencing the development of the Air Corps than the Chief of the Air Corps Headquarters has ever had. The establishment of this inspectorate represents a decided step in the trend toward increased prestige and greater independence for the Air Corps.

(5) *National Defense Headquarters (Kokudo Bōei Shireibu).*—This office was created in 1941 and is under the direct control of the Emperor. It is a logical development of the army divisional organization placing the troops of Japan Proper, Korea, Formosa, and Karafuto under one headquarters for defense.

4. Ranks.—The following is a tabulation of the various grades in the Japanese Army together with their Japanese names, and duties.

Grade	Name	Duty
Field marshal	Gensui	Commander of group of armies.
General	Taishō	Army commander.
Lieutenant general	Chūjō	Division commander.
Major general	Shōshō	Brigade commander.
Colonel	Taisa	Regimental commander.
Lieutenant colonel	Chūsa	Second in command of regiment.
Major	Shōsa	Battalion commander.
Captain	Tai-i	Company commander.
First lieutenant	Chū-i	Platoon commander.
Second lieutenant	Shō-i	Platoon commander.
Warrant officer	Junshikan	Administrative duties.
Special sergeant major	Tokumu sōchō	Regimental sergeant major.
Sergeant major	Sōchō	First sergeant.
Sergeant	Gunsō	Section leader.
Corporal	Gochō	Squad leader.
Lance corporal	Heichō	Acting corporal.
Superior private	Jōtōhei	
First-class private	Ittōhei (Ittōsotsu)	
Second-class private	Nitōhei (Nitōsotsu)	

5. Territorial organization.—*a. Army districts.*—Japan Proper is divided geographically into four Army districts—Northern, Eastern, Central, and Western. The divisional areas within the Army districts are as follows:

Army district	Headquarters	Divisions
Northern	Asahigawa	7th and 8th.
Eastern	Tokyo	1st, 2d, 9th, and 14th.
Central	Osaka	3d, 4th, 10th, and 16th.
Western	Fukuoka	5th, 6th, 11th, and 12th.

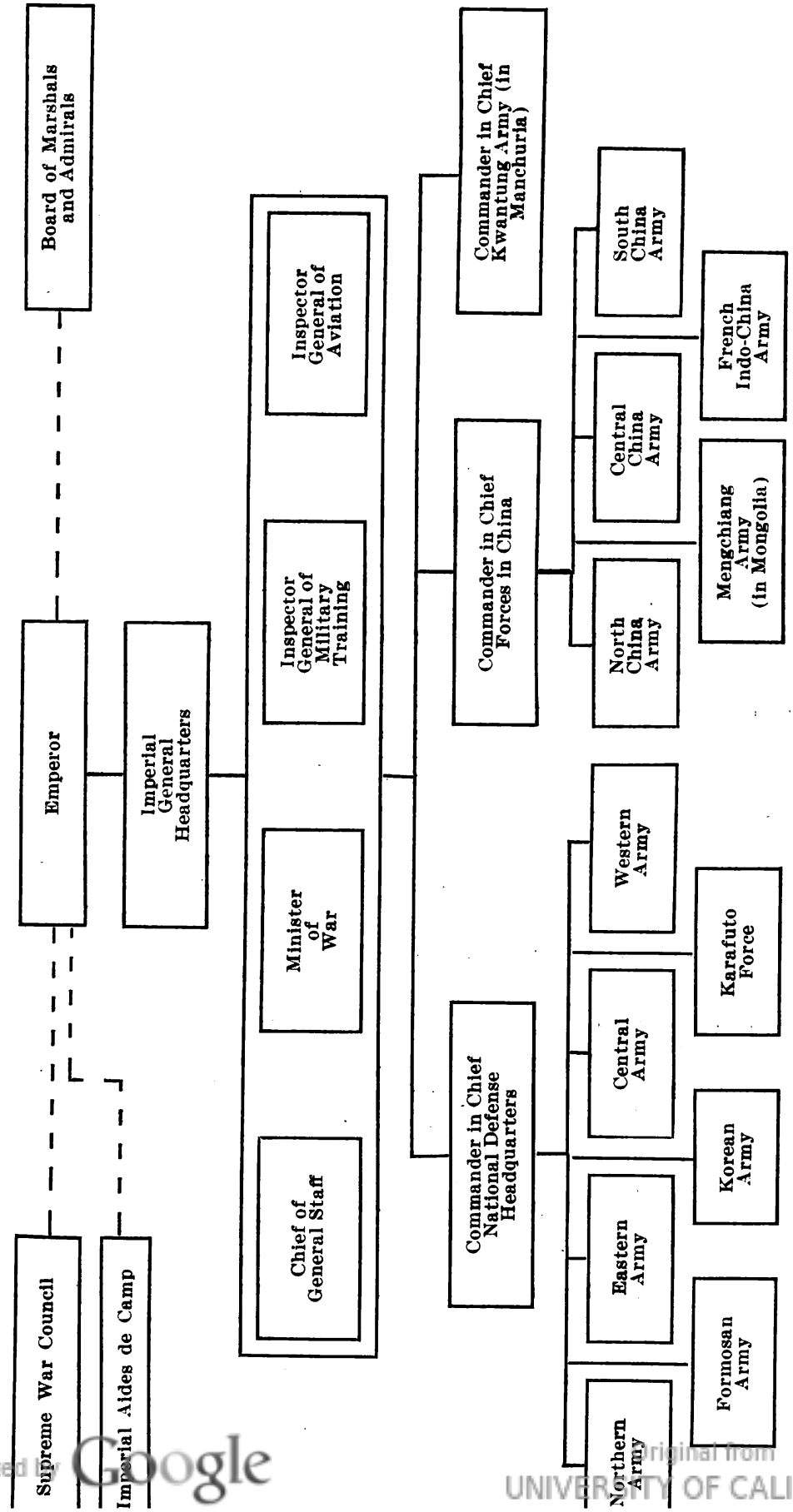


FIGURE 2.—Territorial organization of the Japanese Army, September 1941.

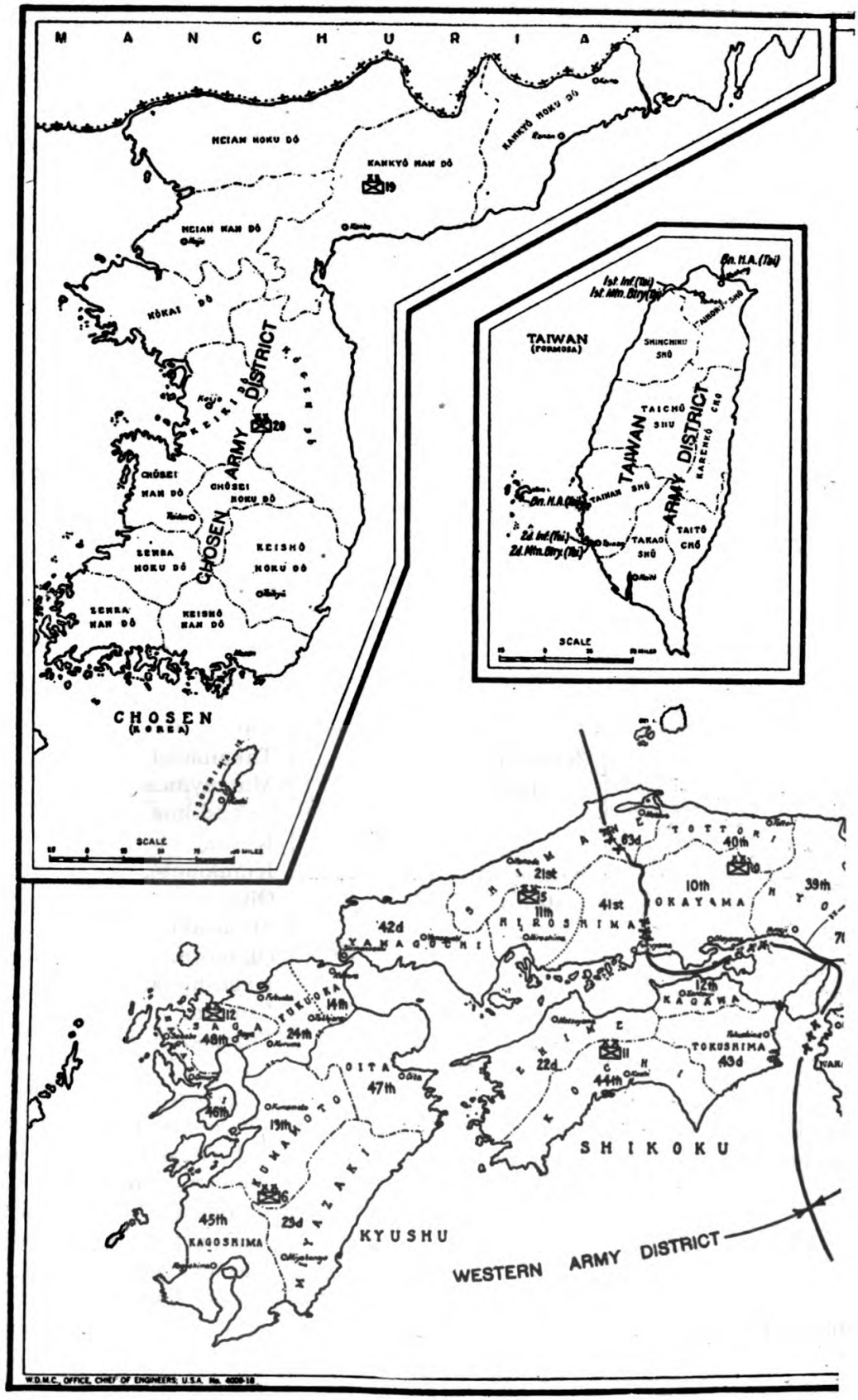
b. Divisional districts.—The divisional district is known by the name of the town or city in which the headquarters of the division is located as shown below:

1st Division District	Tokyo Division District
2d Division District	Sendai Division District
3d Division District	Nagoya Division District
4th Division District	Osaka Division District
5th Division District	Hiroshima Division District
6th Division District	Kumamoto Division District
7th Division District	Asahigawa Division District
8th Division District	Hirosaki Division District
9th Division District	Kanazawa Division District
10th Division District	Himeji Division District
11th Division District	Zentsuji Division District
12th Division District	Kurume Division District
14th Division District	Utsunomiya Division District
16th Division District	Kyoto Division District
19th Division District	Ranan Division District (Korea)
20th Division District	Keijo Division District (Korea)

c. Regimental districts.—The infantry regimental districts are located as follows:

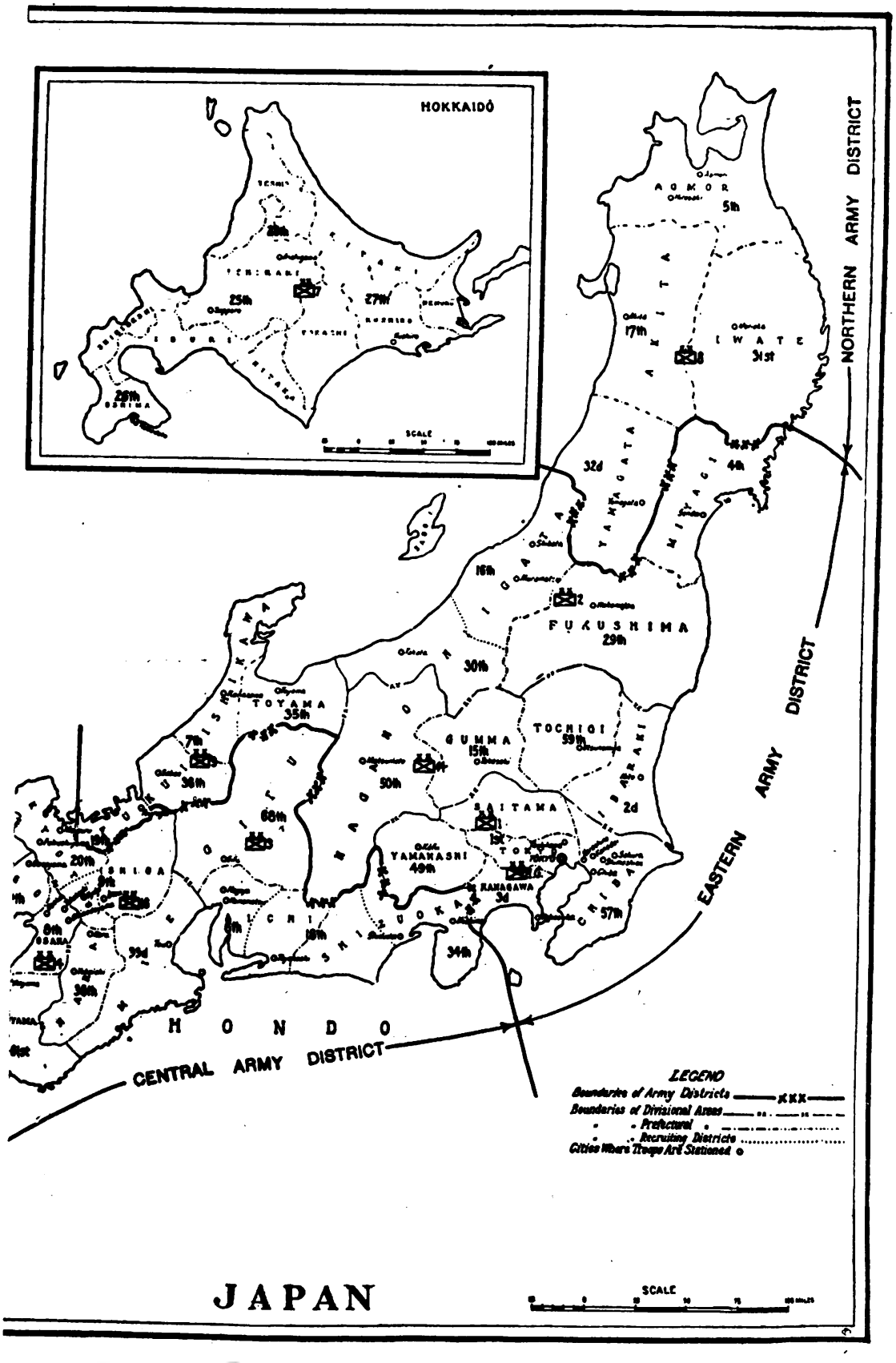
Army district	Divisional district	Regimental district
Northern (headquarters Asahigawa).	Asahigawa (7th).	Sapporo.
		Hakodate.
		Kushiro.
		Asahigawa.
		Toyohara (Karafuto).
	Hirosaki (8th).	Aomori.
		Morioka.
		Akita.
		Yamagata.
Eastern (headquarters Tokyo).	Tokyo (1st).	Azabu (Tokyo Prefecture).
		Kofu.
		Hongo (Tokyo Prefecture).
		Yokohama.
		Chiba.
	Utsunomiya (14th).	Mito.
		Utsunomiya.
		Maebashi.
	Sendai (2d).	Sendai.
		Fukushima.
		Niigata.
	Kanazawa (9th)	Kanazawa.
		Toyama.
		Nagano.

Army district	Divisional district	Regimental district
Central (headquarters Osaka).	Nagoya (3d).	Nagoya. Gifu. Toyohashi. Shizuoka.
	Kyoto (16th).	Kyoto. Fukuchiyama. Tsu. Otsu. Tsuruga. Fukui.
	Osaka (4th).	Osaka. Sakai. Nara. Wakayama.
	Himeji (10th).	Kobe. Himeji. Tottori. Okayama.
Western (headquarters Fukuoka).	Hiroshima (5th).	Hiroshima. Fukuyama. Matsue. Hamada. Yamaguchi.
	Zentsuji (11th).	Takamatsu. Matsuyama. Tokushima. Kochi.
	Kumamoto (6th).	Kumamoto. Oita. Miyazaki. Okinawa. Kagoshima.
	Kurume (12th).	Kokura. Fukuoka. Saga. Nagasaki.
Korea (Chosen) (headquarters Keijo).	Ranan (19th). Keijo (20th).	There are no regimental districts in Korea, and under normal conditions the troops in Formosa, though designated as an army, are less than a division.
Formosa (Taiwan) (headquarters Taihoku).		



The map does not show recent changes included in paragraph 5c, in regimental (mobilization) districts.

FIGURE 3.—Japanese Empire Army districts.



division areas, and mobilization areas.

Although the table above includes many changes made in regimental districts during the past 2 years, no information is available indicating that any changes have been made in divisional districts. As shown in *d* below, recruits for as many as eight divisions may come from one divisional district.

d. Divisional areas of origin of identified divisions.—The following tabulation shows the probable divisional area of origin of 47 out of the 54 divisions which have been identified:

Divisional area	Original division	New divisions
Tokyo	1	*15, 32, *35, 51
Sendai	2	13, *22, 33, 36
Nagoya	3	*15, *26, *38
Osaka	4	34, *41, 104
Hiroshima	5	*17, 24, *37, *38, *39, 52
Kumamoto	6	23, 27, *37, *41, *48, 53
Asahigawa	7	*35
Hirosaki	8	*21, *26, 36, *37
Kanazawa	9	*21, 54
Himeji	10	*17, 110, *35
Zentsuji	11	*21, *35, *39, *40, 55
Kurume	12	18, *37, *40, *48, 56
Utsunomiya	14	*22, *26, *33, *41, 57
Kyoto	16	*15, 116
Ranan (Korea)	19	*22
Keijo (Korea)	20	*41

* Recruited from more than one divisional area.

The Imperial Guards Division draws conscripts from all divisional areas. It is probable that the 28th Division obtains at least some of its recruits from Formosa. The divisional areas of origin of the following divisions have not been identified: 25th, 46th, 65th, 88th, and 118th.

SECTION II

TACTICAL ORGANIZATION

6. High commands in field.—The Japanese Army is organized into groups of armies, armies, and special task forces. The composition of each varies with the specific mission of the force. Some groups of armies have territorial defense missions and are lacking in some of what are normally considered army troops. The Commander in Chief of National Defense has under his command the Northern, Eastern, Central, and Western Armies in Japan Proper, the Formosan and Korean Armies, and the Karafuto (Japanese Sakhalin) forces. The Commander in Chief of Forces in China has under his command the North, Central, and South China Armies, and the Menchiang Army in Mongolia. The Commander in Chief of the Kwantung Army has the several Japanese armies in Manchuria under his command. The Commander in Chief of the South East Asia Group of Armies (South Seas Expeditionary Force) has under his command the armies in the Philippines; Malaya; Burma, Thailand, and French Indo-China; and the forces in the Netherlands East Indies and the Mandated Islands. The Chief of Staff of the Army is responsible for the general direction of the forces in the field, while the Minister of War controls the administration of the forces at home, the raising of troops, the supply of material to depots, and the direction of ordnance, veterinary, and other services at home and in the field.

7. Army.—*a.* An army is composed of a headquarters, usually five infantry divisions, and a variable number of army troops, such as a regiment of tanks, a brigade of cavalry, several regiments of artillery (including antiaircraft), a regiment of engineers, a number of bridge companies, several regiments of aviation, signal troops, and line-of-communication troops and establishments.

b. An army constituted as indicated above will comprise from 125,000 to 160,000 officers and men, depending upon the strength of the infantry division, which at full war strength is estimated to vary from 18,500 to 25,000 officers and men.

8. Army corps.—Recent reports indicate the possibility of the existence of army corps, but there has been no confirmation from captured documents or other Japanese sources. In any case, it is probable that the question is largely one of nomenclature, for a Japanese army might be considered the equivalent of an American army corps, and a group of armies, such as the Kwantung Army, as an American army.

9. Infantry division.—Japanese organization is flexible and often units are formed as a task force for the specific operation contemplated. It is thought that the normal infantry division at present consists of three infantry regiments even though the four-unit or square division still exists. The fourth regiment in many of the square divisions was utilized in forming additional triangular divisions following the mobilization during the summer of 1941.

a. List of units.—The following is a list of divisions which have been identified, showing the units of which they are reported to be composed.[1]

(1) *Imperial Guards Division (Tokyo).*

3d Guard Infantry Regiment (E–6).
4th Guard Infantry Regiment (E–7).
6th Guard Infantry Regiment.
Guard Cavalry Regiment (E–4).
Guard Field Artillery Regiment (E–12).
Guard Engineer Regiment.
Guard Transport Regiment (E–17):

[1] Recent Army regulations discontinued the use of insignia of arm or service in wartime and the regular numbering of units was changed to a numbering of units within the army districts regardless of arm or service. For example, 1st Infantry of the 1st Division is now E–62 (unit number 62 of the Eastern Army District). The purpose of these changes is to make identification of units more difficult. The change is thought to be experimental and will probably be continued throughout the present emergency. Consequently, the old organization numbers are retained and such new numbers as are known are placed after the old in parentheses.

(2) *1st Division (Tokyo).*

1st Infantry Brigade.
1st Infantry Regiment (E–62).
49th Infantry Regiment (E–63).
2d Infantry Brigade.
3d Infantry Regiment.
57th Infantry Regiment (E–64).
1st Cavalry Regiment (E–10).
1st Field Artillery Regiment (E–13).
1st Engineer Regiment.
1st Transport Regiment.

(3) *2d Division (Sendai).*

3d Infantry Brigade.
4th Infantry Regiment (E–22).
29th Infantry Regiment.
15th Infantry Brigade.
16th Infantry Regiment (E–23).
30th Infantry Regiment.
2d Cavalry Regiment (E–25).
2d Field Artillery Regiment.
2d Engineer Regiment (E–67).
2d Transport Regiment.

(4) *3d Division (Nagoya).*

5th Infantry Brigade.
6th Infantry Regiment (C–2).
68th Infantry Regiment (C–4).
29th Infantry Brigade.
18th Infantry Regiment.
34th Infantry Regiment (C–9).
3d Cavalry Regiment (C–6).
3d Field Artillery Regiment.
3d Engineer Regiment.
3d Transport Regiment (C–13).

(5) *4th Division (Osaka).*

8th Infantry Regiment (C–23).
37th Infantry Regiment (C–22).
61st Infantry Regiment (C–24).
4th Mechanized Cavalry Regiment (C–25).
4th Field Artillery Regiment (C–27).
4th Engineer Regiment (C–29).
4th Transport Regiment.
Armored Detachment.

(6) *5th Division (Hiroshima).*

9th Infantry Brigade.
11th Infantry Regiment (W–2).
41st Infantry Regiment (W–60).
21st Infantry Brigade.
21st Infantry Regiment (W–3).
42d Infantry Regiment (W–4).
5th Cavalry Regiment (W–5).
5th Field Artillery Regiment (W–10).
5th Engineer Regiment (W–7).
5th Transport Regiment (W–6).

(120)
Division Headquarters

Officers	29
Other ranks	91
Automobiles	10
Motorcycles and side cars	5

(3,332)
Infantry Regiment

fficers	117
ther ranks	3, 215
5-mm guns	4
)-mm howitzers	6
7-mm guns	12
eavy machine guns	24
ight machine guns	108
renade dischargers	144
ifles	2, 674
orses	400

(3,332)
Infantry Regiment

Officers	117
Other ranks	3, 215
75-mm guns	4
70-mm howitzers	6
37-mm guns	12
Heavy machine guns	24
Light machine guns	108
Grenade dischargers	144
Rifles	2, 674
Horses	400

(3,332)
Infantry Regiment

Officers	117
Other ranks	3, 215
75-mm guns	4
70-mm howitzers	6
37-mm guns	12
Heavy machine guns	24
Light machine guns	108
Grenade dischargers	144
Rifles	2, 674
Horses	400

(2,722)
Artillery Regiment

fficers	110
ther ranks	2, 612
05-mm howitzers	12
-mm guns	36
ight machine guns	138
arbines	296
orses	2, 048
arts	154

(531)
Cavalry Regiment

Officers	21
Other ranks	510
37-mm guns	2
Heavy machine guns	8
Light machine guns	18
Grenade dischargers	12
Carbines	365
Horses	500

(156)
Antitank Company

Officers	6
Other ranks	150
37-mm antitank guns	8
Trucks	24
Reconnaissance cars	2
Motorcycles and side-cars	6
Horses	15

(180)
Tank Company

Officers	7
Other ranks	173
Tanks	17
Half-tracks or trucks	24

(668)
Engineer Regiment

fficers	25
ther ranks	643
ight machine guns	36
ifles	500
orses	90

(1,822)
Division Transport Regiment [1]

Officers	34
Other ranks	1, 788
Trucks	250
Carts (two-wheel)	600
500-gallon tank trucks	5
Automobiles	26
Motorcycles and side cars	75
Horses	650

(160)
Signal Company

Officers	5
Other ranks	155
Trucks	11
Radio trucks	5
Rifles	75
Horses	5

(745)
Division Field Hospital

fficers	25
ther ranks	720
mbulances (horse)	66
tretchers	90
arts	40
orses	121

(536)
Medical Regiment

Officers	31
Other ranks	505
Ambulances (horse)	36
Stretchers	54
Horses	69

(125)
Water Purification Unit

Officers	5
Other ranks	120
Trucks	28
Cars	1

(745)
Division Field Hospital

Officers	25
Other ranks	720
Ambulances (horse)	66
Stretchers	90
Carts	40
Horses	121

There is considerable uncertainty regarding the tonnage required by and the transportation allotted to a division.

Principal weapons

5-mm howitzers	12
-mm field guns	36
-mm mountain guns (Infantry)	12
-mm howitzers	18
-mm guns	38
-mm antitank guns	8
eavy machine guns	80
ght machine guns	516
enade dischargers	444
ifles	8, 597
arbines	661

Total strength

Officers	674
Other ranks	17, 832
Total	18, 506
Horses	4, 819

Vehicles

Tanks	17
500-gallon tank trucks	5
Trucks (two-ton)	337
Automobiles	39
Motorcycles and side cars	86
Two-wheel carts (500-pound capacity)	834
Two-wheel horse ambulances	168
Radio trucks	5

FIGURE 4.—Estimated organization of a triangular division (about 18,500 strength).

(7) *6th Division (Kumamoto).*

13th Infantry Regiment.
23d Infantry Regiment.
45th Infantry Regiment (W–18).
6th Mechanized Cavalry Regiment (W–19).
6th Field Artillery Regiment.
6th Engineer Regiment.
6th Transport Regiment.
Armored Detachment.

(8) *7th Division (Asahigawa).*

25th Infantry Regiment (N–63).
27th Infantry Regiment (N–4).
28th Infantry Regiment.
7th Mechanized Cavalry Regiment (N–5).
7th Field Artillery Regiment.
7th Engineer Regiment.
7th Transport Regiment.
Armored Detachment.

(9) *8th Division (Hirosaki).*

5th or 32d Infantry Regiment (5th=N–81).
17th Infantry Regiment.
31st Infantry Regiment.
8th Mechanized Cavalry Regiment (N–19).
8th Field Artillery Regiment (N–20).
8th Engineer Regiment (N–16).
8th Transport Regiment (N–23).
Armored Detachment.

(10) *9th Division (Kanazawa).*

6th Infantry Brigade.
7th Infantry Regiment.
35th Infantry Regiment (E–48).
18th Infantry Brigade (E–36).
19th Infantry Regiment (E–47).
36th Infantry Regiment (E–64).
9th Cavalry Regiment.
9th Mountain Artillery Regiment.
9th Engineer Regiment.
9th Transport Regiment.

(11) *10th Division (Himeji).*

8th Infantry Brigade (C–45).
39th Infantry Regiment.
40th Infantry Regiment.
33d Infantry Brigade (C–46).
10th Infantry Regiment (C–48).
63d Infantry Regiment.
10th Cavalry Regiment.
10th Field Artillery Regiment.
10th Engineer Regiment (C–52).
10th Transport Regiment.

(12) *11th Division (Zentsuji).*

12th Infantry Regiment.
43d Infantry Regiment (W–33).
44th Infantry Regiment (W–34).
11th Mechanized Cavalry Regiment (W–36).
11th Mountain Artillery Regiment.
11th Engineer Regiment (W–37).
11th Transport Regiment (W–39).
Armored Detachment.

(13) *12th Division (Kurume).*

12th Infantry Brigade (W–45).
14th Infantry Regiment (W–71).
24th Infantry Regiment (W–24).
24th Infantry Brigade (W–46).
46th Infantry Regiment.
48th Infantry Regiment (W–49).
12th Cavalry Regiment.
24th Field Artillery Regiment.
18th Engineer Regiment.
18th Transport Regiment.

(14) *13th Division (Takata?).*

26th Infantry Brigade.
58th Infantry Regiment.
116th Infantry Regiment.
103d Infantry Brigade.
65th Infantry Regiment.
104th Infantry Regiment.
17th Cavalry Regiment.
19th Mountain Artillery Regiment.
13th Engineer Regiment.
13th Transport Regiment.

(15) *14th Division (Utsunomiya).*

2d Infantry Regiment (E–37).
15th or 50th Infantry Regiment (50th=E–50).
59th Infantry Regiment.
18th Mechanized Cavalry Regiment.
20th Field Artillery Regiment.
14th Engineer Regiment.
14th Transport Regiment (E–42).
Armored Detachment.

(16) *15th Division (Toyohashi).*

51st Infantry Regiment.
60th Infantry Regiment.
67th Infantry Regiment.
19th Cavalry Regiment.
21st Field Artillery Regiment.
15th Engineer Regiment.
15th Transport Regiment.

(17) *16th Division (Kyoto).*

[2] 9th Infantry Regiment (C–37).
[2] 20th Infantry Regiment (C–63).
[2] 33d Infantry Regiment (C–38).
[2] 38th Infantry Regiment (C–67).
20th Cavalry Regiment (C–39).
22d Field Artillery Regiment (C–40).
16th Engineer Regiment (C–41).
16th Transport Regiment (C–43).

[2] It is not known which of the above regiments was deleted.

(18) *17th Division (Okayama?).*

53d Infantry Regiment.
54th Infantry Regiment.
81st Infantry Regiment.
21st Cavalry Regiment.
23d Field Artillery Regiment.
17th Engineer Regiment.
17th Transport Regiment.

(19) *18th Division (Kurume).*

23d Infantry Brigade.
55th Infantry Regiment.
56th Infantry Regiment.
35th Infantry Brigade.
114th Infantry Regiment.
124th Infantry Regiment.
22d Cavalry Regiment.
12th Field Artillery Regiment.
12th Engineer Regiment.
12th Transport Regiment (W–54).

(20) *19th Division (Ranan).*

37th Infantry Brigade.
73d Infantry Regiment.
74th Infantry Regiment.
38th Infantry Brigade (K–1).
75th Infantry Regiment (K–3).
76th Infantry Regiment (K–4).
27th Cavalry Regiment.
25th Mountain Artillery Regiment.
19th Engineer Regiment.
19th Transport Regiment.

(21) *20th Division (Ryuzan).*

39th Infantry Brigade.
77th Infantry Regiment.
78th Infantry Regiment.
40th Infantry Brigade.
79th Infantry Regiment.
80th Infantry Regiment.
28th Cavalry Regiment.
26th Field Artillery Regiment (K–26).
20th Engineer Regiment (K–27).
20th Transport Regiment.

(22) *21st Division.*

62d Infantry Regiment.
82d Infantry Regiment.
83d Infantry Regiment.
Reconnaissance Detachment.
51st Mountain Artillery Regiment.
21st Engineer Regiment.
21st Transport Regiment.

(23) *22d Division.*

84th Infantry Regiment.
85th Infantry Regiment.
86th Infantry Regiment.
Cavalry Regiment.
52d Mountain Artillery Regiment.
22d Engineer Regiment.
22d Transport Regiment.

(24) *23d Division.*

64th Infantry Regiment.
72d Infantry Regiment.
88th Infantry Regiment.
Cavalry Regiment.
53d Mountain Artillery Regiment.
23d Engineer Regiment.
23d Transport Regiment.

(25) *24th Division.*

52d Infantry Regiment.
87th Infantry Regiment.
89th Infantry Regiment.
Cavalry Regiment.
54th Mountain Artillery Regiment.
24th Engineer Regiment.
24th Transport Regiment.

(26) *25th Division.*

93d Infantry Regiment.
94th Infantry Regiment.
95th Infantry Regiment.
Cavalry Regiment.
55th Mountain Artillery Regiment.
25th Engineer Regiment.
25th Transport Regiment.

(27) *26th Division.*

11th Independent Infantry Regiment.
12th Independent Infantry Regiment.
13th Independent Infantry Regiment.
Reconnaissance Detachment.
11th Independent Artillery Regiment.
26th Engineer Regiment.
26th Transport Regiment.

(28) *27th Division.*

1st North China Infantry Regiment.
2nd North China Infantry Regiment.
3rd North China Infantry Regiment.
Reconnaissance Detachment.
27th Mountain Artillery Regiment.
27th Engineer Regiment.
27th Transport Regiment.

(29) *28th Division.*

(30) *32d Division.*

210th Infantry Regiment.
211th Infantry Regiment.
212th Infantry Regiment.
Reconnaissance Detachment.
32d Artillery Regiment.
32d Engineer Regiment.
32d Transport Regiment.

(31) *33d Division.*

213th Infantry Regiment.
214th Infantry Regiment.
215th Infantry Regiment.
Reconnaissance Detachment.
33d Mountain Artillery Regiment.
33d Engineer Regiment.
33d Transport Regiment.

(32) *34th Division.*

216th Infantry Regiment.
217th Infantry Regiment.
218th Infantry Regiment.
34th Reconnaissance Regiment.
34th Mountain Artillery Regiment.
34th Engineer Regiment.
34th Transport Regiment.

(33) *35th Division.*

219th Infantry Regiment.
220th Infantry Regiment.
221st Infantry Regiment.
Reconnaissance Detachment.
35th Artillery Regiment.
35th Engineer Regiment.
35th Transport Regiment.

(34) *36th Division.*

222d Infantry Regiment.
223d Infantry Regiment.
224th Infantry Regiment.
Reconnaissance Detachment.
36th Mountain Artillery Regiment.
36th Engineer Regiment.
36th Transport Regiment.

(35) *37th Division.*

225th Infantry Regiment.
226th Infantry Regiment.
227th Infantry Regiment.
Reconnaissance Detachment.
37th Field Artillery Regiment.
37th Engineer Regiment.
37th Transport Regiment.

(36) *38th Division.*

228th Infantry Regiment.
229th Infantry Regiment.
230th Infantry Regiment.
38th Reconnaissance Regiment.
38th Field Artillery Regiment.
38th Engineer Regiment.
38th Transport Regiment.

(37) *39th Division.*

231st Infantry Regiment.
232d Infantry Regiment.
233d Infantry Regiment.
39th Cavalry Regiment.
39th Mountain Artillery Regiment.
39th Engineer Regiment.
39th Transport Regiment.

(38) *40th Division.*

234th Infantry Regiment.
235th Infantry Regiment.
236th Infantry Regiment.
40th Cavalry Regiment.
40th Mountain Artillery Regiment.
40th Engineer Regiment.
40th Transport Regiment.

(39) *41st Division.*

237th Infantry Regiment.
238th Infantry Regiment.
239th Infantry Regiment.
41st Cavalry Regiment.
41st Mountain Artillery Regiment.
41st Engineer Regiment.
41st Transport Regiment.

(40) *46th Division.*

(41) *48th Division.*

1st Formosan Infantry Regiment.
2d Formosan Infantry Regiment.
47th Infantry Regiment.
Reconnaissance Detachment.
48th Mountain Artillery Regiment.
48th Engineer Regiment.
48th Transport Regiment.

(42) *51st Division (Tokyo).*

101st Infantry Regiment.
149th Infantry Regiment.
157th Infantry Regiment.
51st Reconnaissance Regiment.
Artillery Regiment.
51st Engineer Regiment.
51st Transport Regiment.

(43) *52d Division (Hiroshima).*

111th Infantry Regiment.
121st Infantry Regiment.
142d Infantry Regiment.
52d Reconnaissance Regiment.
Artillery Regiment.
52d Engineer Regiment.
52d Transport Regiment.

(44) *53d Division (Kumamoto).*

69th Infantry Regiment.
113th Infantry Regiment.
123d Infantry Regiment.
53d Reconnaissance Regiment.
Artillery Regiment.
53d Engineer Regiment.
53d Transport Regiment.

(45) *54th Division (Kanazawa).*

107th Infantry Regiment.
119th Infantry Regiment.
136th Infantry Regiment.
54th Reconnaissance Regiment.
Artillery Regiment.
54th Engineer Regiment.
54th Transport Regiment.

(46) *55th Division* (*Zentsuji*).

112th Infantry Regiment.
143d Infantry Regiment.
144th Infantry Regiment.
55th Reconnaissance Regiment.
Mountain Artillery Regiment.
55th Engineer Regiment.
55th Transport Regiment.

(47) *56th Division* (*Kurume*).

146th Infantry Regiment.
148th Infantry Regiment.
154th Infantry Regiment.
56th Reconnaissance Regiment.
Artillery Regiment
56th Engineer Regiment.
56th Transport Regiment.

(48) *57th Division* (*Utsunomiya*).

66th Infantry Regiment.
102d Infantry Regiment.
115th Infantry Regiment.
57th Reconnaissance Regiment.
Artillery Regiment.
57th Engineer Regiment.
57th Transport Regiment.

(49) *65th Division.*

122d Infantry Regiment.
141st Infantry Regiment.
142d Infantry Regiment.
Artillery Regiment.

(50) *88th Division.*

(51) *104th Division* (*Osaka*).

107th Infantry Brigade.
108th Infantry Regiment.
132d Infantry Brigade.
137th Infantry Regiment.
161st Infantry Regiment.
170th Infantry Regiment.
104th Cavalry Regiment.
104th Field Artillery Regiment.
104th Engineer Regiment.
104th Transport Regiment.

(52) *110th Division* (*Himeji*).

108th Infantry Brigade.
139th Infantry Regiment.
140th Infantry Regiment.
133d Infantry Brigade.
110th Infantry Regiment.
163d Infantry Regiment.
110th Cavalry Regiment.
110th Field Artillery Regiment.
110th Engineer Regiment.
110th Transport Regiment.

(53) *116th Division (Kyoto).*

119th Infantry Brigade.
109th Infantry Regiment.
120th Infantry Regiment.
130th Infantry Brigade.
133d Infantry Regiment.
138th Infantry Regiment.
120th Cavalry Regiment.
122d Field Artillery Regiment.
116th Engineer Regiment.
116th Transport Regiment.

(54) *118(?) Division.*

b. Wartime numbering of units for secrecy.—(1) For purposes of secrecy the Japanese adopted code names for divisions and independent mixed brigades, with numbers for regimental and other component units. Thus the Thirty-third Division is known as the Yumi (bow) Division and its components are numbered as follows:

Division Headquarters	YUMI	6820
Division Infantry	YUMI	6821
213th Infantry Regiment	YUMI	6822
214th Infantry Regiment	YUMI	6823
215th Infantry Regiment	YUMI	6824
33d Mountain Artillery Regiment	YUMI	6825
33d Engineer Regiment	YUMI	6826
33d Transport Regiment	YUMI	6828

(2) In the case of the 9th Independent Mixed Brigade the following numbers are used:

9th Independent Mixed Brigade	4200
36th Independent Infantry Battalion	4201
37th Independent Infantry Battalion	4202
38th Independent Infantry Battalion	4203
39th Independent Infantry Battalion	4204
40th Independent Infantry Battalion	4205

(3) These identifying names and numbers appear on identification tags, in pay books, and in other captured documents, particularly those dealing with signal communication.

(4) *These names and numbers are most important and every effort should be made, through interrogation of prisoners and examination of personal effects and documents, to complete knowledge of them. Present knowledge is shown in appendix II.*

c. Duties and organization of division staff.—(1) *General.*—A division is commanded by a lieutenant general. Triangular divisions include a major general who is believed to be the infantry commander. A colonel of the General Staff is Chief of Staff. The staff is in two sections—the General Staff section and the administrative section.

To the staff are attached five departmental sections (see (4) below). In all, there are about 29 officers.

(2) *General Staff section.*—(*a*) The Chief of Staff is a colonel who supervises and coordinates the work of the general and administrative staff. He acts as the link between the division commander and the heads of departments and the civil authorities. All questions are referred to the Chief of Staff before being submitted to the division commander, either by heads of departments or by brigade or regimental commanders.

(*b*) G–1 is a lieutenant colonel who deals with operations, movements, security, quartering, communications, reports and dispatches, orders, and training.

(*c*) G–2 is a major who deals with mobilization, intelligence, maps, and censorship.

(*d*) G–3 is a captain who deals with rear services, supplies, and line-of-communication questions.

(3) *Administrative staff section.*—This section is composed of a lieutenant colonel or major who deals with all reports except those relating to operations and general supervision of administrative work; a captain or lieutenant in charge of promotions, appointments, personal records of officers and noncommissioned officers, personnel, and administrative details of mobilization; a captain or lieutenant in charge of all affairs connected with the departmental services, and who is responsible for administrative orders; and a captain or lieutenant in charge of documents and secretarial work of the division.

(4) *Departmental sections.*—The number of officers employed in each section varies somewhat with divisions. The services represented are as follows:

(*a*) *Intendance.*—A major general or colonel, three field officers, and seven or more captains or lieutenants.

(*b*) *Medical.*—Major general or colonel and two or three other medical officers.

(*c*) *Veterinary.*—Lieutenant colonel and one or two other veterinary officers.

(*d*) *Ordnance.*—One field officer and two or more captains or lieutenants.

(*e*) *Legal.*—Civilian officials.

d. Composition and strength of infantry divisions.—(1) *General.*—Several different divisional organizations have been observed during the course of Japanese operations. From observation, captured documents, and statements of prisoners, the general outlines of three divisional organizations have been determined. In general, the

organizations agree with available pre-war tables except for an increase in automatic weapons, artillery, and antitank weapon strength and in some cases a decrease in manpower. The information available is not complete. In most instances the number of rifles in the combat branches cannot be accurately determined, nor can all the weapons in the service units. However, the general combat strength of the different types of infantry divisions can be estimated from the information given below. As in other armies, actual strength in the field is usually considerably less than that called for by the war tables of organization.

(2) *Normal triangular division.*—(*a*) *Estimated composition.*

Division headquarters.

1 signal company consisting of headquarters and 3 platoons, including wire, radio, and visual signals.

3 infantry regiments each comprising a headquarters, and a signal company, 3 battalions, a regimental gun company, and an antitank company.

1 field artillery regiment comprising a headquarters, 3 battalions of 75-mm guns, and 1 battalion of 105-mm howitzers. (Some reports indicate each battalion may include 3 75-mm gun batteries and 1 105-mm howitzer battery.)

1 cavalry regiment comprising a headquarters, 2 saber and light machine-gun troops, a heavy machine-gun troop, and an antitank and antiaircraft troop.

1 engineer regiment comprising a headquarters, 3 field companies, and a train.

1 tank company comprising a headquarters and 3 platoons.

1 antitank company comprising a headquarters, 4 platoons, and an ammunition platoon.

1 transport regiment comprising a headquarters, 5 motor truck companies, and 6 companies of horse-drawn carts. The capacity of the regiment is 650 tons. (There is considerable uncertainty regarding the tonnage required by and the amount of transportation allotted to a division.)

1 water purification unit of 125 men and 28 trucks.

1 medical regiment comprising a headquarters, 2 or 3 advance field hospitals or dressing stations, and 3 clearing companies, each clearing company having 3 collecting platoons of 6 stretcher squads each.

1 division field hospital unit comprising 2 or 3 division field hospitals, each consisting of 2 hospital sections, 2 ambulance companies, and a train.

PROBABLE ORGANIZATION OF JAPANESE TRIANGULAR DIVISION OF ABOUT 18,500 STRENGTH

(Personnel, horses, weapons, and equipment)

	Division headquarters	Signal company	Infantry company	Infantry battalion	Infantry regiment	3 Infantry regiments	Field artillery regiment	Cavalry regiment	Engineer regiment	Transport regiment	Tank company	Antitank company	2 field hospitals	Medical regiment	Water purification unit	Total
Total commissioned	[a] 29	5	5	33	117	351	110	21	25	34	7	6	50	31	5	674
Total enlisted	91	155	185	951	3, 215	9, 645	2, 612	510	643	1, 788	173	150	1, 440	505	120	17, 832
Aggregate	120	160	190	984	3, 332	9, 996	2, 722	531	668	1, 822	180	156	1, 490	536	125	18, 506
Horses, riding	----	1	5	13	58	174	566	460	25	25	----	3	30	33	----	1, 317
Horses, pack	----	----	----	59	227	681	10	40	36	----	----	----	----	----	----	[b] 767
Horses, draft	----	4	----	20	115	345	1, 472	----	29	625	----	12	212	36	----	[b] 2, 735
Total horses	----	5	5	92	400	1, 200	2, 048	500	90	650	----	15	242	69	----	4, 819
Rifles	----	75	156	788	2, 674	8, 022	----	----	500	----	----	----	----	----	----	8, 597
Carbines	----	----	----	----	----	----	296	365	----	----	----	----	----	----	----	661
Pistols	108	15	22	195	655	1, 965	361	134	----	----	180	156	----	----	----	2, 919
Sabers	37	----	----	----	----	----	152	524	----	----	----	----	----	----	----	713
Light machine guns	----	----	9	36	108	324	138	18	36	----	----	----	----	----	----	516
Heavy machine guns	----	----	----	8	24	72	----	8	----	----	----	----	----	----	----	80
Guns, 75-mm regimental mountain	----	----	----	----	4	12	----	----	----	----	----	----	----	----	----	12
Howitzer, 70-mm battalion	----	----	----	2	6	18	----	----	----	----	----	----	----	----	----	18
Guns, 37-mm	----	----	----	2	12	36	----	2	----	----	----	8	----	----	----	46
Guns, 75-mm field	----	----	----	----	----	----	36	----	----	----	----	----	----	----	----	36

Caissons, 75-mm							128									128
Limbers, 75-mm							176									176
Howitzers, 105-mm							12									12
Caissons, 105-mm							128									128
Limbers, 105-mm							176									176
Tanks, 3-ton or 7-ton											17					17
Carts, ammunition							154									154
Grenade dischargers			12	48	144	432		12								444
Cars, motor	10									26		2			1	39
Motorcycles with side cars	5									75		6				86
Trucks		11								255	24	24			28	[b] 342
Radio sets			1	6	24	72					6					78
Dogs, military		50														50
Automobile radio trucks		5														5
Stretchers													180	54		234
Ambulances, 2-wheel, horse													132	36		168
Carts, transport 2-wheel										600			80			[b] 680

[a] Other officers may be attached for various special duties.

[b] There is considerable uncertainty regarding the tonnage required by and the amount of transportation allotted to a division.

A chemical unit may be organic in the normal triangular division, but no information on the subject is available.

(*b*) *Strength.*

1. Personnel.—War tables of organization are believed to call for a strength of approximately 18,500 officers and men.

2. Animals.—4,800.

3. Weapons.—Primary weapons are estimated to include—

Weapon	Caliber	Number
Rifles and carbines	6.5-mm or 7.7-mm [1]	9, 258
Light machine guns	6.5-mm	516
Heavy machine guns	6.5-mm or 7.7-mm	80
Grenade dischargers	50-mm	444
Antitank guns	37-mm or 57-mm	8
Rapid-fire gun	37-mm	38
Battalion howitzer	70-mm	18
Mountain guns (infantry)	75-mm	12
Field guns	75-mm	36
Field howitzers	105-mm	12

[1] 7.7-mm rifle reported used by mechanized units in Suiyuan in 1939–40.

(3) *Square division.*—(*a*) *Estimated composition.*

1 division headquarters.
1 signal company.
2 infantry brigades, each consisting of headquarters, and 2 infantry regiments.
1 field artillery regiment, consisting of 3 battalions of 75-mm guns and 1 battalion of 105-mm howitzers. (Some reports indicate each battalion may include 3 75-mm gun batteries and 1 105-mm howitzer battery.)
1 cavalry regiment, consisting of 2 saber troops and 1 heavy machine-gun troop.
1 engineer regiment, consisting of 3 field companies and 1 supply train.
1 medical regiment.
4 field hospitals.
1 veterinary unit.
1 division transport regiment.

(*b*) *Strength.*

1. *Personnel.*—War tables of organization are believed to call for a strength of approximately 25,000 officers and men.

2. *Weapons.*—Primary weapons are estimated to include—

Rifles, 6.5-mm or 7.7-mm	12,699
Light machine guns, 6.5-mm	434
Heavy machine guns, 6.5-mm or 7.7-mm	98
70-mm howitzers	24
75-mm mountain guns (infantry)	16
75-mm field pieces	36
105-mm howitzers	12

(4) *Special triangular divisions for use in Manchuria.*—As a result of their experience with Russian mechanized forces at Nomonhan in 1939 the Japanese reorganized at least some of their divisions, giving them greater fire power and antitank strength. Although the information is incomplete and unconfirmed, there are indications that some of the divisions in Manchuria may have a special organization characterized principally by a considerable increase in antitank weapons over that found in the reorganized divisions. The lack of certainty regarding the standard organization of Japanese divisions and the capacity the Japanese have displayed for improvising organizations and equipment suitable for special situations make it seem desirable to outline the organization reported in 1941 for a division from Manchuria operating in North China.

(*a*) *Reported composition.*

Division headquarters.
1 signal company of 3 platoons.
3 infantry regiments, each comprising a headquarters, 3 battalions, a regimental gun battalion of 2 companies with 4 guns each, a unit for mopping up and decontamination, a signal unit, and a regimental ammunition train.
1 engineer regiment comprising a headquarters, 3 field companies, and a regimental tool and supply train.
1 light armored car company of 12 light armored cars for battlefield supply and decontamination.
1 reconnaissance regiment consisting of 2 motorized companies, 1 mounted troop, 1 light armored car company, and a truck company.
1 antitank gun battalion consisting of 3 antitank gun companies with 6 antitank guns each and a battalion ammunition train.
1 ordnance service unit.

1 transport regiment of 3 motortruck companies and 3 draft-horse companies.
1 medical regiment.
4 field hospitals.
1 veterinary unit.
1 water purification unit.

(*b*) *Strength.*

1. Personnel.—The strength of the division is estimated to total not less than 20,000 nor more than 25,000.

2. Weapons.—Primary weapons are reported to include—

	Caliber	Infantry	Reconnaissance regiment	Artillery	Antitank battalion
Rifles	6.5-mm or 7.7-mm	Undetermined	Undetermined	Undetermined	------
Light machine guns	6.5-mm	Undetermined	Undetermined	----------	------
Heavy machine guns	6.5-mm or 7.7-mm	108	8	----------	------
Antiaircraft or antitank guns.	20-mm	72	----------	----------	------
Antitank guns	37-mm or 57-mm	36	8	----------	18
Battalion howitzers	70-mm	36	----------	----------	------
Regimental guns	75-mm	24	----------	----------	------
Field guns	75-mm	----------	----------	36	------
Howitzers	105-mm	----------	----------	12	------

10. Infantry.—The Infantry is the backbone of the Japanese Army.

a. Brigade.—(1) The brigade is a tactical rather than an administrative unit. Infantry brigades are not of high relative importance in the organization, as is indicated by a small staff. The normal brigade consists of a headquarters and a signal detachment and two regiments of Infantry.

(2) *Independent mixed brigades.*—An independent mixed brigade consists of a headquarters, five independent infantry battalions, and signal, artillery, engineer and transport units. It is generally commanded by a major general or a junior lieutenant general. The independent infantry battalions are generally numbered consecutively throughout the brigades raised at a given time. These brigades are

used for border garrison, line of communication and antiguerrilla duties. The strength of these brigades vary from 7,500 to 10,000.

b. Regiment.—The infantry regiment is both an important administrative unit and a tactical unit.

(1) *Headquarters.*—The regiment is commanded by a colonel who has three lieutenant colonels on his staff who are in charge of training, weapons, and finance.

(2) *Officers.*—(*a*) The regimental adjutant is a major and has a lieutenant as assistant adjutant; he works between the regimental commander and the battalion commanders who are majors. The company commanders are normally captains. For training and interior economy duties, a number of supernumerary officers of the regiment are attached to headquarters, the average number being about six. In addition, officers, warrant officers, and noncommissioned officers of the intendance, medical, and ordnance services are attached for pay and supply, hospital, and ordnance duties, respectively.

(*b*) There are usually about 117 officers on the strength of an infantry regiment in peacetime. A certain number (seldom less than a fifth) of the rank of captain and above are employed as instructors of military training in schools and on other extra-regimental duties.

(3) *War strength.*—In war, the battalion is expanded to include an antitank and battalion howitzer company of 2 37-mm antitank guns and 2 70-mm battalion howitzers, and a machine-gun company of 4 platoons each of which has 2 heavy machine guns. The rifle companies are also increased in strength. The total war strength of the battalion is believed to be about 984 all ranks.

(4) *Transport.*—Units have no transport in peace. In war, regimental transport is formed from personnel and equipment of the transport regiment belonging to each division. It is divided into pack and cart transport. The former carries ammunition and tools, and is organized on a battalion basis; the latter carries 1 day's rations, baggage, and stores, and is organized on a regimental basis, but may be split up among battalions when circumstances so require.

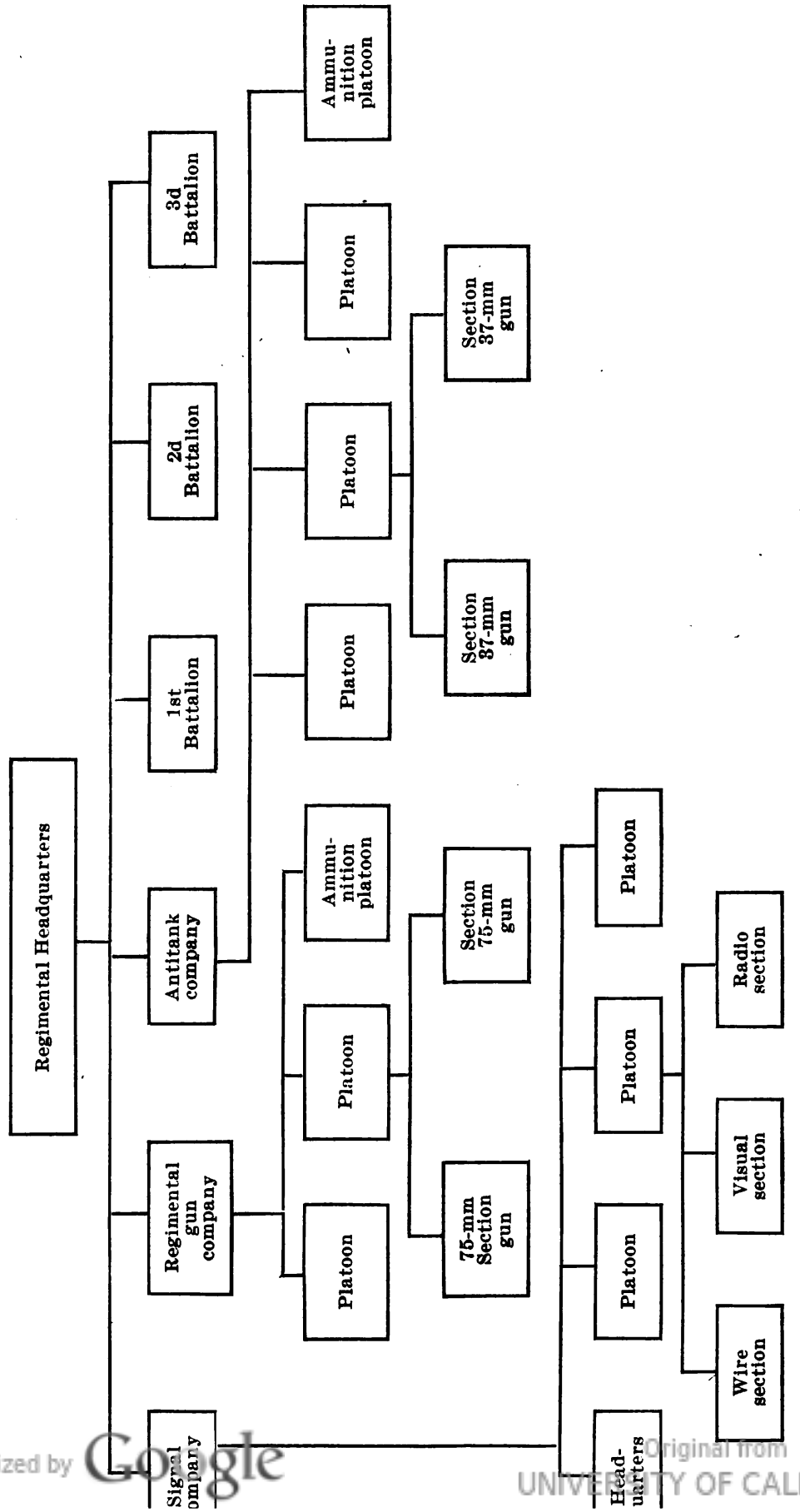


FIGURE 5.—Organization of an infantry regiment.

(5) *Personnel and weapons.*

PERSONNEL

Unit	Officers	Warrant officers	Noncommissioned officers	Privates	Total
Regimental headquarters	6	1	11	50	68
3 Infantry battalions	99	15	351	2, 487	2, 952
Regimental gun company	3	1	9	125	138
Antitank company	4	1	8	87	100
Signal company	5	0	13	56	74
Total	117	18	392	2, 805	3, 332

WEAPONS

Unit	75-mm	70-mm	37-mm	Heavy machine guns	Light machine guns	Grenade discharges	Rifles	Pistols
Regimental headquarters	------	------	------	------	------	------	42	26
3 Infantry battalions	------	6	6	24	108	144	2, 364	585
Regimental gun company	4	------	------	------	------	------	125	13
Antitank company	------	------	6	------	------	------	87	13
Signal company	------	------	------	------	------	------	56	18
Total	4	6	12	24	108	144	2, 674	655

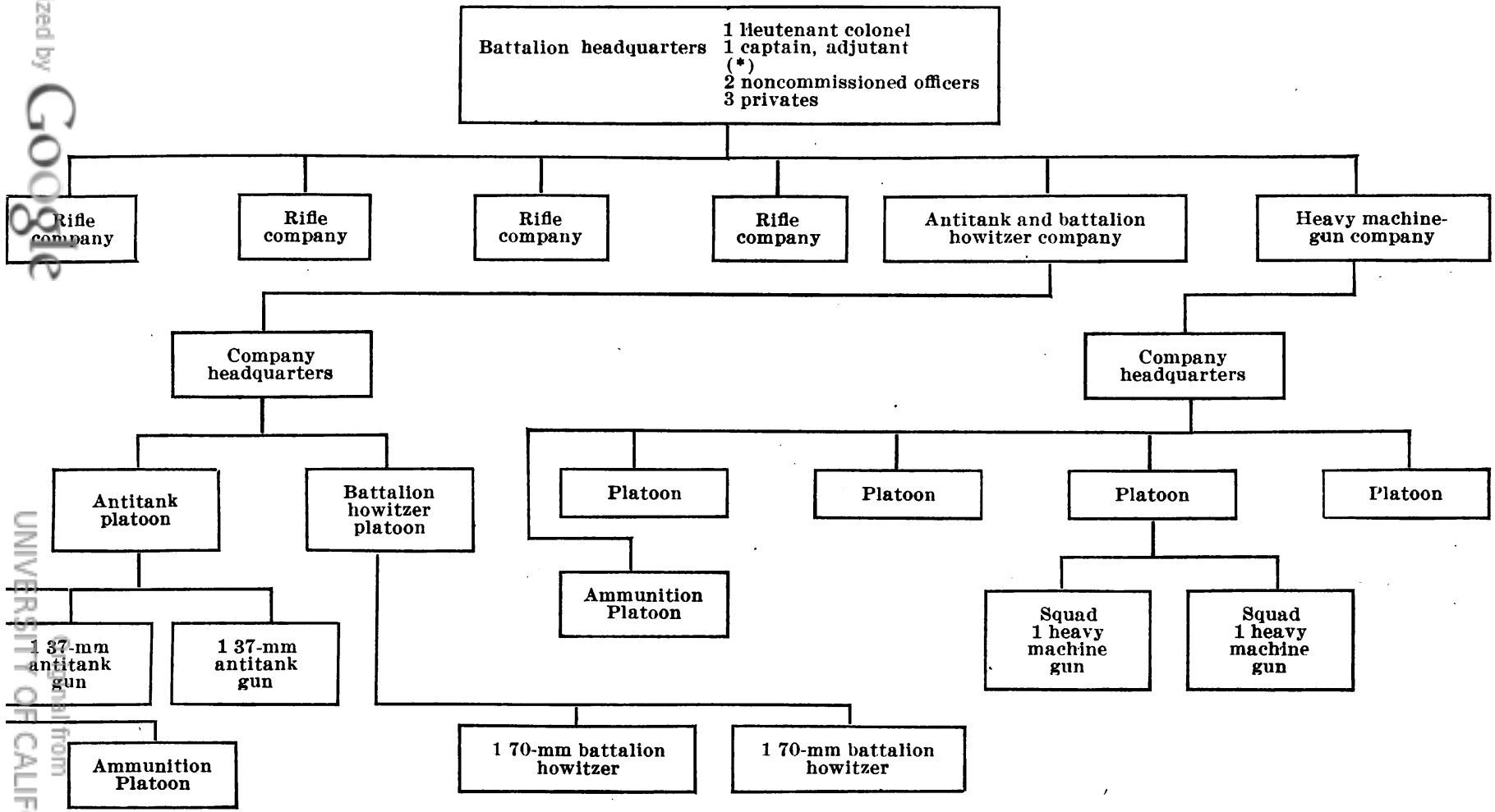
c. Battalion.—The battalion is primarily a tactical unit.

(1) *Infantry battalion.*—(*a*) *Organization and weapons.*—See figure 6.

(*b*) *Aggregate personnel and weapons.*

1. Personnel.

	Officers	Warrant Officers	Noncommissioned Officers	Privates	Total
Headquarters	4	0	2	3	9
Antitank and battalion howitzer company	4	0	9	66	79
Heavy machine-gun company	5	1	18	112	136
Four infantry companies	20	4	88	648	760
Total	33	5	117	829	984



Attached :
1 captain, medical.
1 1st lieutenant, intendance.

FIGURE 6.—Organization of an infantry battalion.

2. Weapons.

70-mm howitzers	2
37-mm or 57-mm antitank guns	2
7.7-mm or 6.5-mm heavy machine guns	8
6.5-mm light machine guns	36
Grenade dischargers model '89	48
Rifles 6.5- or 7.7-caliber Arisaka	788
Pistols	195

(2) *Heavy machine-gun battalion.*—The heavy machine-gun battalion contains a headquarters and three machine-gun companies. Each company is equipped with eight heavy machine guns. It is not an integral part of a division. It is attached as the situation requires.

(3) *Trench mortar battalion.*—Trench mortar battalions have been reported as attached to certain divisions. There is no information regarding its organization or armament.

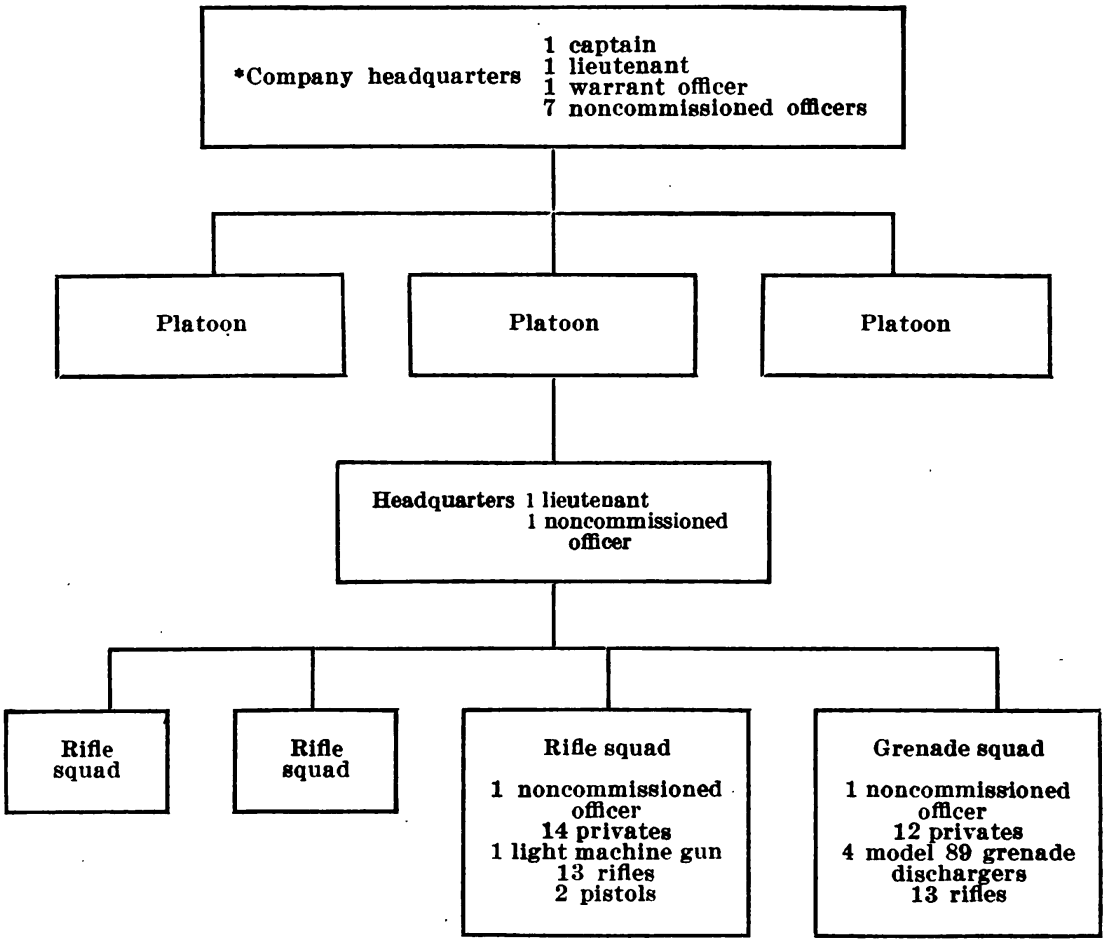
d. Company.—The company is both tactical and administrative. The probable outline of the structure of the rifle company is given in figure 7.

e. Ammunition supply.—(1) *Rifle.*—According to regulations the supply of ammunition with the unit for each infantryman in the field is—

	Rounds
In pouches of men	120
First-line pack transport	60
Total	180

The ammunition is carried in clips containing five rounds each, and every three clips are packed together in a wedge-shaped cardboard box. Two of these boxes are carried in each of the side pouches and four in the pouch at the back. In war extra ammunition is carried, when necessary, in the haversack or pockets.

(2) *Light machine-gun.*—Light machine-gun ammunition with the gun is carried in steel boxes by the men of the section. Each box contains 120 rounds in clips, each holding 5 rounds.



Aggregate strength:	
Commissioned officers	5
Warrant officers	1
Noncommissioned officers	22
Privates	162
Total	190

Weapons:	
Light machine guns	9
Grenade dischargers	12
Rifles	156
Pistols	22
Hand grenades.	

Reports from Burma show platoons organized with light machine guns in only the first two squads, the third squad entirely rifles, and grenade dischargers in the fourth squad only.

*Some reports indicate that a company may include, in addition to the three rifle platoons, a company heavy weapons unit consisting of three platoons, one with two 20-mm antitank rifles, another with two machine guns, and a third with ammunition.

FIGURE 7.—Organization of an infantry company.

(3) *Infantry machine-gun.*—6.5-mm machine-gun ammunition is packed in brass strips, each strip separated in a cardboard casing. A strip of ammunition contains 30 rounds, and a box of ammunition contains 20 strips, that is, 600 rounds. The weight of a full box of ammunition is 48 pounds. Each gun has 3 ammuntion ponies attached to it, 1 with the gun itself and 2 with tbe ammunition platoon, thus giving 12 boxes per gun. On the assumption that the boxes will be filled to their maximum capacity when an action is imminent, this would give—

	Rounds
Each gun:	
With gun	2,400
With ammunition platoon	4,800
Total	7,200
Each regiment:	
With guns	57,600
With ammunition platoons	115,200
Total	172,800

(4) *Weapons sections and unit ammunition platoons.*—The weapons sections and unit ammunition platoons carry 1 day of fire for all infantry weapons.

11. Artillery.—*a. General.*—In peacetime the Japanese maintained the following artillery organization:

(1) Fourteen regiments of divisional light artillery (1 regiment for each division except the 9th, 11th, and 19th).

Regiment	Division	Regiment	Division
Imperial guard	Imperial guard	7th	7th.
1st	1st	8th	8th.
2d	2d	10th	10th.
3d	3d	20th	14th.
4th	4th	22d	16th.
5th	5th	24th	12th.
6th	6th	26th	20th.

(2) Three regiments of divisional pack artillery (1 regiment each for the 9th, 11th, and 19th divisions).

Regiment	Division
9th	9th.
11th	11th.
25th	19th.

(3) Two independent regiments of pack artillery.

(4) One regiment of pack artillery (Formosa).

(5) One independent regiment of horse artillery.

(6) Eight regiments of medium field artillery (6 regiments of horse-drawn 155-mm howitzers, 2 regiments of tractor-drawn 105-mm guns, grouped into 4 so-called heavy field artillery brigades).

Heavy field artillery brigades	Regiments
1st	2d, 4th.
2d	5th, 6th.
3d	1st, 7th.[1]
4th	4th, 8th.[2]

[1] 105-mm guns.

[2] Originally 105-mm guns. In 1937 15-cm guns were issued but whether as replacement or simply additional matériel is not known.

(7) Eleven regiments of fortress artillery. (At Yokosuka, Miyama, Shimonoseki, Hakodate, Sasebo, Maizuru, Keichi (Tsushima Island), Masan (Korea), Ryojun (Port Arthur), Keelung (Formosa), and Mako (Formosa).)

(8) Six regiments of antiaircraft artillery.

b. Brigade organization.—The only artillery grouped into brigades is the so-called heavy artillery (see *a*(6) above). In peace no brigade headquarters company exists. In war a small permanent brigade headquarters company is organized.

c. Regimental organization, field artillery.—(1) *Divisional 75-mm field artillery regiment (horse-drawn), infantry division.*—The regiment consists of a regimental headquarters and a headquarters battery, 3 battalions of 75-mm guns (each battalion having a battalion headquarters battery, 3 batteries, combat train, and field train), 1 battalion of 105-mm howitzers (composition same as for 75-mm gun battalion), and a regimental combat train, which includes a small field train

section for the supply of the regimental headquarters battery. (Some reports indicate each battalion may include 3 75-mm gun batteries and 1 105-mm howitzer battery.)

	Total
Officers	110
Men	2, 612
75-mm guns	36
105-mm howitzers	12
Light machine guns	138

(2) *Divisional pack artillery regiment.*—The regiment consists of a regimental headquarters battery, 3 battalions of 75-mm howitzers (each battalion having a battalion headquarters battery, 3 batteries, combat train, and a field train), and a regimental combat train (which includes a small field train section for the supply of the regimental headquarters battery). All transport is pack, using horses.

(3) *Independent regiment, pack artillery.*—The regiment differs from the divisional pack artillery regiment in that it has only 2 battalions.

(4) *Regiment, 155-mm howitzers (horse-drawn).*—The regiment consists of a regimental headquarters battery, 2 battalions (each battalion having a battalion headquarters battery, 3 batteries, combat train, and field train), and a regimental combat train, which includes a small field train section for the supply of the regimental headquarters battery.

(5) *Regiment, 105-mm guns (tractor-drawn).*—The regiment consists of a regimental headquarters battery, 2 battalions (having a battalion headquarters battery, 2 batteries, combat train, and field train), and a regimental combat train. All trains have trucks for cargo transport.

(6) *Regiment, antiaircraft artillery.*—The antiaircraft regiment is composed of regimental headquarters and 2 battalions each consisting of 2 batteries and a searchlight company. Each battery has 4 guns (tractor-drawn) and antiaircraft machine guns. Each searchlight company consists of the computing squad, 3 searchlights, 3 sound locators, and a signal squad.

d. Battalion organization (field artillery).—(1) *75-mm gun battalion (horse-drawn).*—The battalion consists of a battalion headquarters battery, 3 batteries (having a headquarters detail, 2 platoons of 2 sections each, and a combat train), a combat train, and a field train. All combat trains are wheeled (limbers and caissons). The field train

employs the standard small two-wheeled transport cart. Seven hundred forty-four rounds of 75-mm ammunition are carried in the battery and 900 rounds in the battalion ammunition train, a total of 3,132 rounds within the battalion. Chinese reports indicate that Japanese artillery is never without chemical shell.

(2) *105-mm howitzer battalion (horse-drawn).*—The organization is exactly the same as for the 75-mm gun battalion. Ammunition carried is less, being 432 rounds in the battery and 540 in the battalion combat train, a total of 1,836 rounds within the battalion.

(3) *105-mm gun battalion (tractor-drawn).*—The battalion is composed of a battalion headquarters battery, 2 batteries (having a headquarters detail, 2 gun platoons of 2 sections each, an ammunition platoon, and a combat train), a combat train, and a field train. All trains have trucks for cargo.

(4) *155-mm howitzer battalion (horse-drawn).*—The battalion consists of a battalion headquarters battery, 3 batteries (having 2 howitzer platoons of 2 sections each, an ammunition platoon, and a combat train), a combat train, and a field train. The combat trains are all limbers and caissons; the field train employs the small standard two-wheeled transport cart.

e. Battery organization (field artillery).—(1) *Battery 75-mm gun or 105-mm howitzer (horse-drawn).*—The battery consists of a headquarters detail, 2 platoons of 2 gun sections each, and a combat train.

(2) *Battery 75-mm howitzer (pack).*—The battery consists of a headquarters detail, 2 platoons of 2 howitzer sections each, and a combat train. Horses are used as pack animals.

(3) *Battery 155-mm howitzer (horse-drawn).*—The battery consists of a headquarters detail, 2 howitzer platoons of 2 howitzer sections each, an ammunition platoon, and a combat train.

(4) *Battery 105-mm guns (tractor-drawn).*—The battery consists of a headquarters detail, 2 gun platoons of 2 gun sections each, an ammunition platoon, and a combat train.

12. Coast artillery (fortress) organization.—The internal organization of the regiments at Yokosuka, Miyama (near Osaka), Shimonoseki, Hakodate, Maizuru, Keichi (Tsushima Island), Sasebo, Masan (Korea), Ryojun (Port Arthur), Keelung (Formosa), and Mako (Formosa) is not known. It undoubtedly varies with the fixed armament of the fortresses garrisoned by the organizations. While the organizations are said to have, in addition to the permanently emplaced seacoast artillery, a certain amount of more or less obsolete

portable siege artillery, these guns will seldom be encountered in the field.

13. Corps of Engineers.—*a. General.*—The Engineer Corps consists of division engineer regiments, which are really battalion organizations, and the following army troops:

Independent field engineer regiments.
Communications regiments.
Railway regiments and construction units.
Bridging trains.
Road construction units.
Field gas companies.

b. Engineer regiment, infantry division.—(1) *General.*—These units are an integral part of the divisional organization and usually bear the same serial number as the division. An exception to that is the 18th Regiment which is part of the 12th Division. Normally, the regiment consists of a headquarters (21 officers and men) and three companies, a fortification company, a bridging company, and a mining company. Each company (207 officers and men) has a headquarters and three platoons and each platoon is divided into three sections. All companies are also trained in general engineer duties. Information obtained from Chinese sources showed that the engineer regiment of the 20th Division consisted of a landing operations company and a signal company in addition to the companies mentioned above.

(2) *Headquarters.*—The regiment is commanded by a colonel or lieutenant colonel, with a senior lieutenant or junior captain as adjutant. There are attached to the regiment a lieutenant colonel and a major, the former acting as second in command in peace and taking command of the depot unit on mobilization. The major, in peacetime, has charge of the equipment and material of the unit, and is assisted in this work by three or four junior officers who belong to regimental headquarters. One of these, a captain, is responsible for mobilization matters. One intendance and one medical officer are also attached to the regiment. All officers of the regiment are mounted.

(3) *Fortification companies.*—The field companies of the divisional engineer regiments may be organized for drill, maneuver purposes, etc., into 3 sections, each under a lieutenant, but this organization is not normal during works training. An average number of 3 lieutenants, in addition to those commanding platoons, are included in the strength of each company, while under instructions at schools, arsenals, etc. There are 1 warrant officer and about 12 noncommis-

sioned officers in each company. The company is commanded by a captain.

(4) *Mining companies.*—Although no definite details are available, it is probable that the personnel of these companies are trained in the handling of military landing craft.

(5) *Training.*—(*a*) *General.*—Engineers, in addition to their technical work, receive training along the same lines as the Infantry in drill, musketry, tactics, etc. For the purposes of technical training, the engineer regiment is usually divided into 3 companies called the fieldworks, bridging, and mining companies, respectively. These companies carry out training as follows:

	"A" Field Company (Fieldworks)	"B" Field Company (Bridging)	"C" Mining Company (Mining)
1. Individual training.	Digging, rowing, explosives, jointing, lashing, picket driving, handling weights, and carpentry.	As for "A" Company.	As for "A" Company except rowing.
2. Section training:			
(a) *Field works.*	Mined and concrete dugouts only.	General fundamentals only.	Fieldwork in detail.
(b) *River crossing.*	Assault and medium bridging. Fundamentals of heavy bridging.	Fundamentals of assault and medium bridging. Heavy bridging in detail.	None.
(c) *Road making.*	Simple road making under supervision.	Simple road making in detail. Other types of road making in general.	As for "A" Company.
(d) *Mining.*	None.	None.	None.
3. Company training.	Fieldworks.	Roads. Heavy bridging.	Offensive and defensive mining.
4. Regimental training.	Works coordinating the various characteristics of the three companies.		

(*b*) *Trade tests.*—The following are among the trade tests carried out in a field company:

1. Carpenters.

3 second-year men (2 assistants).	Construction of an improvised flat-bottomed boat, capable of holding 3 men.
1 second-year man, 4 first-year men. (4 assistants).	Simple repairs to folding boats. These are about 8 feet long by 2 feet broad, and are made of rubberized canvas stretched over a wooden and steel frame.

2. Masons.

4 first-year men, 3 second-year men.	1. Drilling holes in stone blocks, by hand, both straight and at an angle; of a sufficient size to take cylindrical explosive charges.
	2. Doing the same using an air-driven drilling machine.
	3. Sharpening and retempering of the drills used in the above machine, using an air-driven Ingersoll Rand drill sharpener.
	4. Use and care of an Atlas Diesel (Swedish) type K–2 air compressor.

3. Smiths.

2 second-year men.	Repairs to a steel ponton (riveting).
1 second-year man.	Sharpening and changing of blades of heavy wire entanglement cutters.
1 second-year man.	Making a cold chisel.
1 first-year man	Cutting threads on bolts and screws.

(6) *Regimental transport.*—The first-line transport of a divisional engineer regiment consists of 18 pack horses. All other transport vehicles and animals required for mobilization are in charge of the transport regiment of the same division.

c. Communications regiment.—(1) *General.*—There is no separate Signal Corps in the Japanese Army. Signal Corps duties are performed by the telegraph regiments of the engineer branch. In 1941 there were six such regiments, located at Aomori and Hiroshima in the mainland and Peking, Harbin, Canton, and Hainan overseas. These regiments come under the general supervision of the Inspector General of Communications which makes them in effect a Signal Corps in everything but name. Communication other than by these units is furnished from personnel of the branch concerned.

(2) *Composition.*—A communications regiment is commanded by a colonel of Engineers, and its officers are engineer officers who have been assigned to this branch of their arm because they have shown ability in electrical work during their studies at the Artillery and Engineer School. Once sent to a telegraph regiment, officers may return to duty with divisional engineer regiments, but usually for only short periods. The rank and file are engineer soldiers, armed and equipped like the Infantry, but with cavalry carbines in place of the

rifle. They are specially recruited in all divisional districts for previous knowledge in the telegraphic or electrical trades, but the proportion of technical personnel is only about 5 percent. On mobilization, nondivisional units are formed from the signal regiments and consist of—

(*a*) General headquarters signal battalions, which have 5 or 6 companies.

(*b*) Army signal battalions, which have 4 or 5 companies. One such battalion provides sufficient personnel for communication between an army headquarters, its divisions, and army troops.

(3) *Duties.*—Theoretically the higher unit furnishes communication with the next lower unit. The communications regiments are army troops and are assigned to the headquarters of armies or army groups. They are responsible, within the army to which assigned, for all communication down to, and including, the divisional headquarters of divisions in the army and with all installations in the zone of communications of the army. They also furnish message center personnel for army headquarters, divisional headquarters, and for the headquarters of any large units which may be attached to the army, with the exception of army cavalry. The communications regiments each have a mechanized section equipped with light tanks which furnish communication for mechanized forces attached to, or working in cooperation with, the Army.

(4) *Use.*—All signal units without exception are equipped with both wire and radio, the amount of equipment varying with the size of the unit. In the installation of a communication net there is no variation in functions between large and small units, the only difference being in the extent of the installations. The guiding factor in any communication net is to reduce the use of radio to an absolute minimum and to keep radio free for the use of mechanized elements and air-ground liaison. Ground troops may use radio extensively in the initial stages of an operation while wire lines are under construction, but its use after the construction of wire lines is severely discouraged by rigid prohibitions. Wire is relied on as the main means of communication by all ground troops. Wire lines are normally lance-pole lines carrying bare copper wire although insulated ground lines are used in fast moving situations. Whenever these ground lines are used they are invariably replaced as soon as possible by bare wire lance-pole lines. In the army net, wire lines are almost invariably simplexed, but lower units do not use any simplexed lines.

(5) *Message center.*—Message centers function much as in the United States Army. The message center sections of the telegraph

regiments are divided into a forward and a rear section, nearly identical in composition. These sections normally work together but when advanced command posts are established the forward section operates with the advanced command post. There is no noticeable confusion caused by rapid shifts in command posts and communication is maintained smoothly at all times.

(6) *Organization.*—Estimated organization is as follows:

ENGINEER REGIMENT, COMMUNICATIONS

War organization and equipment

	Regimental headquarters	One battalion			Total battalion	3 battalions	Total regiment
		Headquarters	1 company	2 companies			
Colonel	1	------	------	------	------	------	1
Lieutenant colonel	1	------	------	------	------	------	1
Majors	1	1	------	------	1	3	4
Captains	1	1	1	2	3	9	10
Lieutenants	2	------	3	6	6	18	20
Officers, medical	3	------	------	------	------	------	3
Officers, intendance	3	------	------	------	------	------	3
Officers, technical specialists	3	------	------	------	------	------	3
Total commissioned	15	2	4	8	10	30	45
Warrant officers	2	------	1	2	2	6	8
Sergeants major	1	------	1	2	2	6	7
Sergeants and corporals	2	2	8	16	18	54	56
Privates	8	------	138	276	276	828	836
Total enlisted	13	2	148	296	298	894	907
Horses, riding	19	4	6	12	16	48	67
Horses, pack	2	------	4	8	8	24	26
Horses, draft	------	------	4	8	8	24	24
Total horses	21	2	14	28	32	96	117
Carbines	8	------	138	276	276	828	836
Pistols	20	4	14	28	32	96	116
Sabers	20	4	14	28	32	96	116
Truck, 1½-ton	------	------	2	4	4	12	12
Truck, 2-ton radio repair	2	------	------	------	------	------	2
Tank, light, wire-laying	2	------	------	------	------	------	2
Tank command radio	4	------	------	------	------	------	4
Set, radio, 5-watt C. W.	------	------	3	6	6	18	18
Set, radio, 10-watt C. W.	------	------	2	4	4	12	12

War organization and equipment—Continued

	Regimental headquarters	One battalion		Total battalion	3 battalions	Total regiment
		Headquarters	1 company	2 companies			
Set, radio, 15- to 20-watt, C. W	------	------	1	2	2	6	6
Wire (bare) kilometers	25	------	50	100	100	300	325
Wire (insulated) kilometers	25	------	10	20	20	60	85

Engineer company, communications regiment

	Company headquarters	Platoon	Total 2 platoons	Operating section	Radio section	Total company
Captain	1	------	------	------	------	1
Lieutenants	------	1	2	1	------	3
Total commissioned	1	1	2	1	------	4
Warrant officer	------	------	------	------	1	1
Sergeant major	1	------	------	------	------	1
Sergeants and corporals	1	2	4	2	1	8
Privates	------	55	110	18	10	138
Total enlisted	2	57	114	20	12	148
Horses, riding	1	1	2	1	------	4
Horses, pack and draft	------	2	4	2	2	8
Trucks, 1½-ton	------	1	2	------	------	2
Set, radio, 5-watt, C. W	------	------	------	------	3	3
Set, radio, 10-watt, C. W	------	------	------	------	2	2
Set, radio, 15- to 20-watt, C. W	------	------	------	------	1	1

d. Railway regiments.—(1) *Organization.*—There are 2 railway regiments in the normal peacetime establishment of the Japanese Army, the 1st Railway Regiment stationed at Chiba and the 2d Railway Regiment stationed at Narashino. Additional regiments have been organized until a total of 7 are now reported. Each regiment has 2 battalions of 4 companies; otherwise the organization is similar to that of an infantry regiment. The strength of a company is about 5 officers and 180 other ranks. On mobilization, railway regiments do not take the field as such, but act as depots for providing technical personnel for railway management and maintenance in the field. In

addition, they have complete units, the largest of which would normally be a battalion, for either standard-gage work, or the construction and operation of light railways and tramways. These units are also responsible for the repair and construction of railway and heavy bridges.

(2) *Personnel.*—Officers and men of railway units belong to the Engineers. The officers are selected on passing through the Engineer School, and normally, when once assigned to a railway regiment, remain at railway work for the whole of their active service. The men are recruited from all divisional districts.

(3) *Training.*—Officers are trained in all branches of railway work, but the men as a whole receive training only in the construction, operation, and demolition of railways and the construction of heavy bridges. Selected men are, however, taught telegraphy, engine driving, and workshop duties. Such men are given practical experience in driving freight trains on a selected section of one of the Government lines.

e. Boring units.—(1) *Personnel.*—Apart from the mining companies of the divisional engineer regiments, small water-boring units were reported to have been mobilized during the operations in China but no details are available.

(2) *Tools.*—Electrical boring machines of American make have been seen in use in mining companies. The tool more commonly used, however, is a hand-driven boring tool. This is a 2-inch pipe with a pressure hand-pump water-jet nozzle. When handled by five men in a main gallery it has a range in ordinary soil of about 20 yards. It takes 2 hours to lay and fire a charge at this range.

f. Mining units.—(1) *Personnel.*—The "C" Companies of some of the 17 engineer regiments receive a specialized training in mining.

(2) *Tools and material.*—(*a*) *Frames.*—There are six sizes of mined gallery but it is probable that their number will be reduced to four, of the following dimensions:

Gallery	Height		Breadth	
	Ft.	*In.*	*Ft.*	*In.*
Large main gallery	5	11	5	2
Small main gallery	5	11	3	11
Large branch gallery	4	7	3	3
Small branch gallery	2	7	2	3

There are three sizes of shaft, but only the large is commonly used.

Large shaft, 4 feet 3 inches square.
Medium shaft, 3 feet 3 inches square.
Small shaft, 2 feet 7 inches square.

Frames and lagging are used for the main galleries and close sets for the branch galleries.

(*b*) *Tools.*—The shovel, pick, etc., are similar to those used elsewhere.

(*c*) *Ventilator blowers.*—Hand-operated blowers are used for ventilation. The larger one gives a blast through a 10-inch pipe of 33 feet per second at a range of 50 yards. The smaller one gives a blast through a 4½-inch pipe of 50 feet a second at 35 yards range.

(*d*) *Listening sets.*—An up-to-date listening set is used, but its range is not known.

(*e*) *Pumps.*—Hand diaphragm type pumps are used for drainage purposes.

g. Bridging train.—(1) *Organization.*—On mobilization, each divisional transport regiment forms a complete divisional bridging train, which receives the divisional number. In war this bridging train operates independently of the division, as army troops. It is manned by transport personnel and commanded by a captain of the transport regiment. The bridging train is divided into three independent sections each under the command of a lieutenant. The material of each section is handled by an engineer platoon; that of the whole train by an engineer company. Sections are not further subdivided but, on the march, a noncommissioned officer is in charge of each 10 or 11 wagons. Three officers and about 40 men are attached to the bridging train from the engineer battalion. In peacetime, the equipment of the bridging train is used by the divisional engineer regiment, and during 3 days in the summer, practice is carried out by a portion of the bridging train in conjunction with the engineer regiment.

(2) *Material carried.*—The bridging train of a division carries enough equipment to construct 480 feet of light bridge, reduced to 294 feet if pontons only are used, or to construct 300 feet of heavy bridge, reduced to 245 feet if pontons only are used. There are also three motorboats for towing and anchorage purposes.

(3) *Ponton wagon.*—The ponton wagon is a light, two-wheeled dray with shafts, drawn by one horse. It carries one section of a

ponton. The ponton rests on three slats and is roped down to rings on the sidebars. The principal dimensions of the wagon are—

Width of track, 5 feet.
Width of floor, 4 feet, 6 inches.
Length of floor, 7 feet.

h. Depots.—On departure of a division for a theater of operations, an engineer depot is one of the depot formations left behind in the divisional administrative district. These depots take over all the partially trained men and continue the enrollment and training of recruits, with the object of supplying depots for the units in the field and, if necessary, of forming new units. All casualties from active and reserve units are returned, on discharge from hospitals at home, to their depot units.

14. Cavalry.—*a. Strength.*—(1) *Nondivisional (10 regiments).*—Nondivisional cavalry is organized into brigades. The assignment of regiments to the first four independent cavalry brigades is as follows:

Regiment	Brigade	Regiment	Brigade
13th	1st.	23d	3d.
14th	1st.	24th	3d.
15th	2d.	25th	4th.
16th	2d.	26th	4th.

(2) *Divisional.*—Division cavalry of the 17 peacetime divisions follows:

Regiment	Division	Regiment	Division
Guard	Guard.	9th	9th.
1st	1st.	10th	10th.
2d	2d.	11th	11th.
3d	3d.	12th	12th.
4th	4th.	18th	14th.
5th	5th.	20th	16th.
6th	6th.	27th	19th.
7th	7th.	28th	20th.
8th	8th.		

b. Organization.—(1) *Division cavalry.*—Cavalry regiment, infantry divisions, consists of a headquarters, communications section, transport section, two saber and light machine-gun troops, one heavy machine-gun troop, and a 37-mm antitank and heavy antiaircraft machine-gun troop.

(*a*) *Personnel.*

	Officers	Warrant officers	Noncommissioned officers	Privates	Total
Headquarters	5		2	7	14
Troop "A"	5	2	29	131	167
Troop "B"	5	2	29	131	167
Heavy machine-gun troop	3		9	54	66
Antitank and antiaircraft troop	3	1	7	60	71
Communications section		1	3	18	22
Transport section		1	3	20	24
Total	21	7	82	421	531

(*b*) *Weapons.*

	37-mm gun	Antiaircraft machine gun	Heavy machine gun	Light machine gun	Grenade dischargers	Carbine	Saber	Pistol
Headquarters						5	14	9
Troop "A"				9	6	141	165	15
Troop "B"				9	6	141	165	15
Heavy machine-gun troop			6				66	66
Antitank and antiaircraft troop	2	2				40	79	23
Communications section						18	21	3
Transport section						20	23	3
Total	2	2	6	18	12	365	524	134

FIGURE 8.—Organization of a division cavalry regiment.

(2) *Cavalry regiment, pack division.*—This organization differs from the cavalry regiment, infantry division, only in its field train, which consists of the following:

	Total		Total
Enlisted	115	Cargo load	6.5
Horses, pack and riding	79	Days ration and forage	1
Road space	350		

(3) *Nondivisional cavalry.*—The nondivisional cavalry regiment probably consists of a headquarters, four troops, and a machine-gun troop.

	Total		Total
Officers and men	788	Light machine guns	6
Horses, riding and pack	884	Heavy machine guns	8
Carbines	680	Road space	1, 635

This type of regiment is found in the five independent cavalry brigades. Independent cavalry brigades include a brigade headquarters, one battery horse or pack artillery, armored car troop, and a detachment of engineers.

15. Tanks.—Very little information of a definite nature has been received regarding the organization and strength of Japanese tank units participating in the fighting in southeastern Asia. The estimated organization is as follows:

a. Heavy tank units.—Reports and pictures of heavy tanks in Japan Proper and French Indo-China have been received but no details are available.

b. Medium and light tanks (nondivisional).—(1) These tanks are found in the tank regiments. The estimated organization follows:

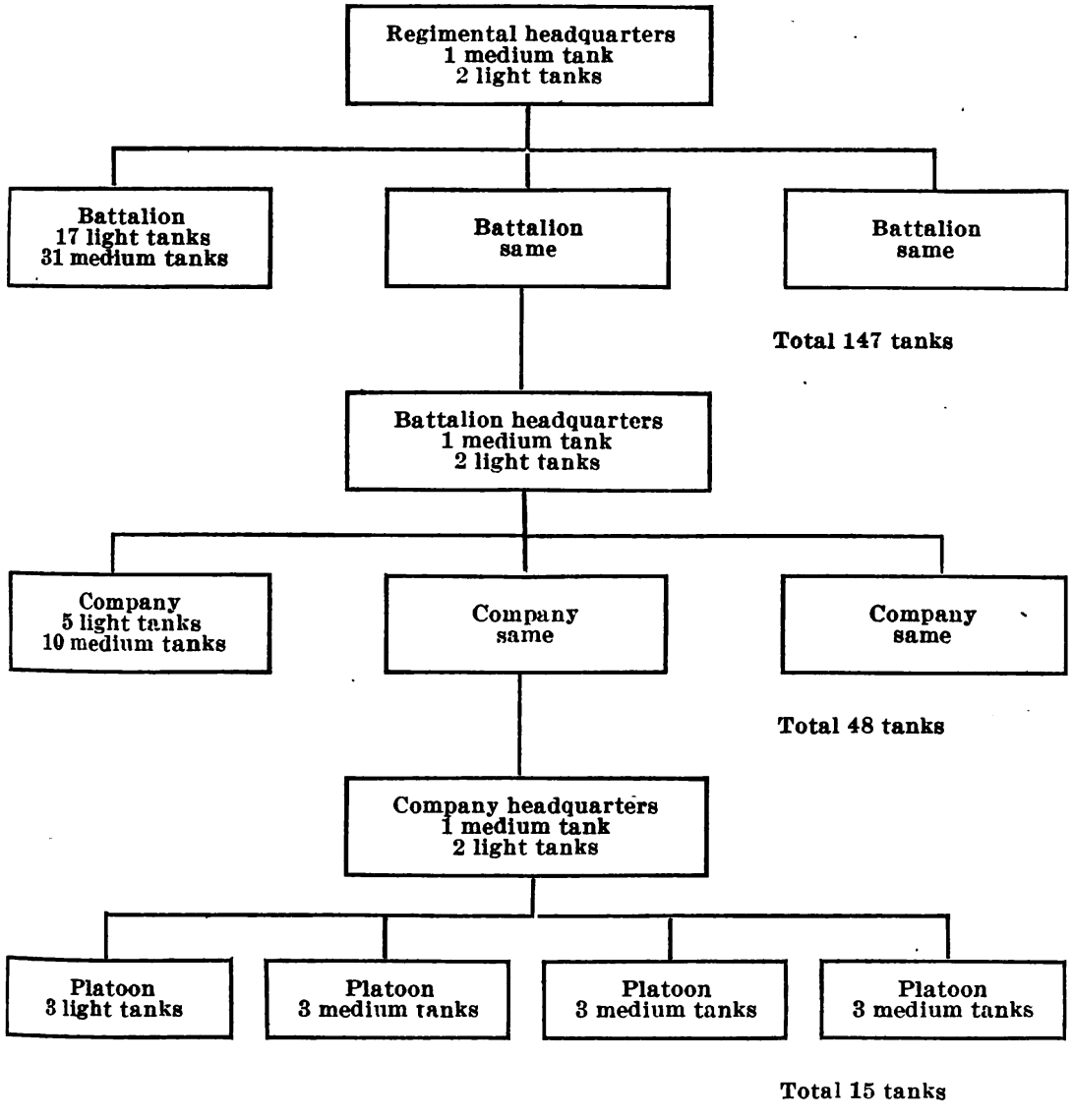


FIGURE 9.—Organization of a nondivisional tank regiment.

(2) Each unit to include the company has a rear echelon detachment which supplies ammunition, gasoline, oil, and limited maintenance. Light armored and half-track maintenance and supply vehicles are probably included in the rear echelon.

(3) The Japanese have not employed tanks in large numbers in their operations to July 1, 1942. Consequently information regarding the regimental organization and tactical employment is very indefinite. The battalion is considered the tank tactical unit.

c. Medium (nondivisional) tank company.—In 1941 the following organization of the medium (nondivisional) tank company was reported: The company has 4 platoons of 3 tanks each. Each tank carries 4 men; tank commander, machine gunner, tank cannon

gunner, and driver. The company also has tankettes, motorcycles, and light passenger cars or armored cars.

d. Light (divisional) tank company.—This unit is an integral part of the triangular division and consists of a company headquarters, rear echelon, and 4 platoons of 3 tanks each. Five additional tanks will be found in company headquarters and the rear echelon. Only light tanks and tankettes (called "armored vehicles" by the Japanese) have been used in the divisional units. Half-track vehicles, motorcycles, and tracked trailers are thought to be in the rear echelon. The trailers are utilized for the transportation of ammunition, rations, and fuel on the battlefield. In addition to fighting, the tanks are employed for reconnaissance and liaison.

e. Communication.—Radio communication is thought to exist to and from—

Regimental headquarters to battalion headquarters.
Battalion headquarters to company headquarters.
Company headquarters to the platoon.

Intercommunication within the platoon is thought to be by signal (flag).

f. Tank strength.—(1) Each triangular division except for those equipped with mountain guns is thought to contain a tank company. The active divisional tanks, including a reserve of 1 tank for each 12, are estimated to approximate 1,000.

(2) The nondivisional tank regiments (147 tanks) are estimated to total 15. The total number of nondivisional tanks including reserves in regiments is estimated to total 2,600.

g. Army mechanization headquarters.—A new agency of the War Department was created in 1941 as a directing organization for research in mechanization, training, maintenance, and inspections of tanks, armored cars, tractors, and automobiles.

h. Schools.—The Army Tank School is located near Chiba. In addition to instruction, the school carries out investigations and research in all subjects related to tanks and light armored car units and the arms and material used therein.

i. Armored cars.—The War Department has not received reports or pictures of new types of Japanese armored cars. Many types of armored cars are used in the larger cities and for railroad patrol in occupied territory. This limited use is due to lack of good roads and difficult terrain. The type most generally employed appears to be the Sumida six-wheeled armored car, which is armed with one machine gun and is provided with seven rifle slits. By changing from tires

to flanged wheel rims, an operation taking only 10 minutes, this vehicle may be enabled to run on railway tracks as well as on roads.

16. Transport service.—*a. General.*—The transport service is a separate combatant arm and normally is composed of one regiment to each division. It usually assumes the same serial number as the division. In peacetime, the transport regiment serves as a training center for transport troops. In wartime, the divisional transport regiment expands to furnish all the necessary road transportation for the division or larger unit. On certain occasions the divisional transport regiments from several divisions have been withdrawn and used as a transport pool.

b. Organization.—(1) *Division transport regiments.*—The organization of the division transport regiment is simple and elastic. Its estimated organization includes a regimental headquarters, a motor transport battalion, and a draft horse battalion. The total strength of the regiment is estimated at approximately 1,825. There is considerable uncertainty regarding the tonnage required by and the amount of transportation allotted to a division.

(*a*) The motor battalion probably consists of 250 2-ton motor trucks organized into 5 companies of 5 sections, each with 10 trucks and 3 motorcycles; a service company; and a supply platoon. The total carrying capacity of the motor battalion is about 500 tons.

(*b*) The draft horse battalion probably consists of 6 companies, each with 100 two-wheeled carts and 100 horses.

(*c*) It is thought that the motor battalion carries a day of fire for the division and the draft horse battalion, 2 days' rations.

(2) *Transport regiment, pack division.*—This organization differs from that of the normal infantry division in the following points:

(*a*) All companies consist of 3 platoons of 3 sections of 5 squads of 10 pack horses each, or a total of 450 pack horses.

(*b*) Estimated loading of artillery ammunition company, 450 horses carrying 2 boxes each of 4 rounds.

(*c*) Estimated loading of infantry ammunition company:

60 horses carrying 2 boxes each of 8 rounds 70-mm ammunition.
60 horses carrying 2 boxes each of 4 rounds 75-mm ammunition.
130 horses carrying 4 boxes each of 600 rounds heavy machine-gun ammunition.
150 horses carrying 2 boxes each of 1,440 rounds rifle and light machine-gun ammunition.
50 horses carrying 2 boxes each of 50 grenades.

(3) *Army units.*—Army transport units include motor transport companies, bridging columns, line-of-communication supply columns, and supplementary transport units.

17. Intendance.—*a. General.*—The Intendance Service is a separate organization combining the functions of the American Quartermaster Corps and Finance Department. It is under the direction and control of the Intendance Bureau of the War Ministry. This bureau, headed by a major general or lieutenant general, comprises four sections: accounts, audit, clothing and subsistence, and construction.

b. Personnel.—In July 1937 the Intendance Service comprised about 1,191 officers and 3,665 enlisted men. Some 35 to 40 officers serve in the Intendance Bureau in the War Ministry, 20 to 30 at each army headquarters, 15 to 20 at each division headquarters, 1 to 3 with each regiment. The others are on duty at depots, factories, on the General Staff, etc.

18. Ordnance Service (Gijutsubu).—*a. General.*—Prior to the organization of the Ordnance Service in 1941, the duties of that service were performed by personnel detailed from the various branches (usually Artillery and Engineers) and functioned under supervision of the Ordnance Bureau of the War Ministry.

b. Personnel.—Technical officers and enlisted specialists who were detailed with the Ordnance have been transferred, and the higher technical college graduates are given commissions in the Ordnance. Prior to the present emergency there were about 500 officers on duty with the Ordnance.

c. Functions.—The Ordnance is responsible for providing arms, ammunition, engineer stores, etc., which are not provided by the Intendance Service. The principal activities in which the personnel of the Ordnance Service are engaged are—

(1) Ordnance Bureau (Heikikyoku) consisting of—

(*a*) Technical Headquarters (Gijutsu Hombu) and its Army Scientific Research Institute (Rikugun Kagaku Kenkyūjo).

(*b*) The Ordnance Supply and Manufacturing Establishment (Heikisho), consisting of Ordnance headquarters (Heiki Hombu), Ordnance supply depots (Heiki Hokyūshō), and arsenals (Zōheishō).

(*c*) Ordnance sections of unit headquarters and attached Ordnance personnel.

(*d*) Fortification Bureau (Chikujōbu).

(*e*) Fuel depots (Nenryōshō).

(*f*) The Ordnance School (Heiki Gakkō), formerly called the Artificers' School (Kōka Gakkō).

(2) Air Corps Headquarters (Kōkū Hombu) and under its control—

(*a*) Air Technical Laboratory (Kōkū Gijutsu Kenkyūjo).
(*b*) Flight Test Department (Hikō Jikkenbu).
(*c*) Air depots (Kōkūshō).
(*d*) Air arsenal (Kōkū Kōshō).
(*e*) Ordnance section of air unit headquarters, and attached Ordnance personnel.
(*f*) Ordnance personnel attached to the Air Technical School and Air Maintenance School.

d. Divisional ordnance services.—Each division has its own mobilization store. These stores hold the equipment for divisional headquarters, for units formed on mobilization, and for reserve formations. Attached to each divisional headquarters is an ordnance section under a major or lieutenant colonel, who exercises general control of the ordnance services of the division. The ordnance section is also responsible for the collection and distribution of requisitioned motor vehicles on mobilization. All units hold sufficient ordnance stores to equip themselves on mobilization.

e. Depots.—In the field a base depot and other depots, if necessary, are opened on the main lines of communication. An army depot and a depot for each division are located on each army line of communication. These depots are controlled by ordnance personnel, the staff of the peacetime depots being responsible for the service as a whole. The depot for each division is mobilized by the division concerned from the ordnance section attached to divisional headquarters in peacetime. Ammunition columns for transport between the central army depot and the depot for the division are mobilized by the division transport regiment. The unskilled personnel employed are furnished by the supplementary transport units and local labor.

f. Base depots.—The base depot in the field is organized for general affairs, field artillery, heavy artillery, engineer stores, ammunition, transport equipment, transportation on the lines of communication, administration, accounts and requisition, and workshops. The base depots keep the Ordnance Directorate of the Ministry of War informed every 10 days of the state of stocks.

g. General system.—Chief artillery officers and chief Engineers attached to GHQ and Army headquarters exercise a general supervision over those ordnance services with which they are directly concerned, to insure that ordnance stores are distributed and held in those localities to which priority has to be given in conformity with the general and strategical plan. Commanders of lines of communication

draw direct on the base depots for their requirements which chiefly consist of transport and fuel supplies.

19. Medical Service.—*a. General.*—(1) The Medical Service is a separate organization functioning under the Medical Bureau of the War Ministry. It includes medical officers, apothecary officers, nurse officers, and enlisted men. It does *not* include veterinarians, dentists, or female nurses.

(2) The Veterinary Service is a separate organization functioning under the Horse Administration Section, Military Administration Bureau of the War Ministry.

(3) There are no dental surgeons in the Japanese Army. Certain officers and noncommissioned officers of the Medical Service receive some training in dentistry at the Army Medical School, but they attempt only the simplest emergency work. All other dentistry must be done by a civilian dentist at the expense of the patient.

(4) Normally there are no female nurses in the Medical Service. In time of war, however, the War Ministry has the power to order Red Cross nurses to duty with troops.

b. Personnel.—On July 1, 1937 there were about 2,350 officers and 3,894 enlisted men in the Medical Service.

c. Division hospital (peace).—In each division district there is a division hospital which maintains a sufficient number of branch hospitals to meet the medical requirements of the stations of the various units in the area. These hospitals and their branches are complete establishments, equipped not only to handle all the medical and surgical requirements of the active components of the division, but to afford the medical service to which certain groups, such as retired personnel, reserves, and others are entitled. Each division hospital, in addition to the above duties, is responsible for the organization and training of one or more reserve medical regiments which are made up of reserve members of the medical or pharmacist professions who are assembled once a year for a 3-week period of active duty military training. It is believed that these reserve units are the only peacetime medical regiments included in the organization of the Japanese Army, and that they are organized in the same manner as that of the war organization medical regiment.

d. Regimental medical detachment.—During peacetime, in each infantry regiment, and probably in regiments of other branches, there is a regimental medical detachment which in the Infantry, is composed as follows:

1 lieutenant colonel or major, in command.
1 to 2 officer surgeons.

1 to 2 candidate officer surgeons.
15 Medical Corps privates and noncommissioned officers.

This medical personnel maintains an examination room, operating room, prophylaxis room, pharmacy, dispensary, and a light-case ward of about six beds. They conduct regimental sick call, sanitary inspections, and other medical routine duties, performing the diagnosis as well as the light treatment required by the personnel of the regiment. This group takes a position in reference to the regiment similar to that of the family doctor in a community, in that they diagnose and treat some patients, but evacuate all cases of a serious nature to the division hospital or to one of its branches. Also, the group is an integral part of the organization to which it is assigned, and even in cases where regiments are stationed alongside one another and in the proximity of a division hospital, each regimental medical detachment maintains its own identity and restricts its activities to those duties pertaining to its own regiment.

e. Attached medical personnel.—In addition to the personnel of the regimental medical detachment, medical privates are assigned, one each to the companies of the regiment, who act as the first-aid men and sanitary supervisors of the organizations to which they are assigned.

f. Base and field hospitals (war).—(1) *Base hospital.*—During wartime, the division hospital becomes the base hospital for the troops dispatched by the division, and it establishes the field hospitals necessary to meet the medical needs of the war organization troops.

(2) *Medical regiment.*—In addition, the division hospital mobilizes and dispatches a medical regiment for each war organization division or group generally corresponding in strength. This medical regiment has a total strength of approximately 536 men and is composed as follows:

Regimental headquarters

1 colonel, commanding.
1 lieutenant colonel, second in command.
1 major, adjutant.
1 first lieutenant or captain, assistant adjutant.
Several warrant officers and staff sergeants, clerks.
Three advance field hospitals (dressing stations).
Three collecting companies.

(3) *Advance field hospital.*—The advance field hospital (dressing station) is estimated as having a total strength of about 9 medical officers and 67 men divided among—

1 headquarters.
1 hospital platoon, wound.
1 hospital platoon, gas.
1 ambulance platoon.

The advance field hospital includes a supply section, a disinfectant section, and the ambulance pool. The platoon for the treatment of wounded patients is divided into a section for diagnosis and classification, a section for minor treatments and the preparation of patients for treatment, a severe-wound, operation, and treatment section, a rest ward, and a section wherein patients await their turn for further evacuation. The platoon for the treatment of gas patients is divided into a section for preparing patients for treatment, a rest section wherein diagnosis is accomplished, a treatment section, and a section for gas patients awaiting evacuation. The ambulance platoon consists of 12 two-wheeled cart single-horse ambulances with the personnel necessary for their operation. The group forms a pool of ambulances to evacuate patients from the advance field hospital to the nearest collecting point where the motor ambulances of the division field hospital can pick them up. The ambulances of the advance field hospital are each capable of carrying three stretcher patients when the stretchers are hung one above the other, but as a rule, only two stretchers are carried at a time.

(4) *Collecting companies.*—The collecting companies are made up of a company headquarters and 3 collecting platoons, each of which is commanded by a medical lieutenant, and each of which contains 6 stretcher groups. The stretcher groups are comprised of a leader and 4 stretcher bearers who carry an ordinary roll-type canvas stretcher.

g. Medical troops, pack division.—The organization differs in that it has 4 litter companies for each field hospital and its field train is pack instead of cart.

20. Signal Corps.—*a. Functions.*—There is no Signal Corps in the Japanese Army. The functions of the Signal Corps are performed by communication units of the Corps of Engineers. In the spring of 1941 the increased importance of communication activities was recognized by the establishment of the Communications Inspectorate with a lieutenant general in charge.

b. Signal company, infantry division.—The strength, composition, and equipment of field signal units vary considerably. The signal company of the division is thought to consist of a headquarters and 3 platoons: a runner, panel, and dog platoon, a radio platoon, and a wire platoon. The total strength is thought to be about 160 officers and men. There are 5 radio trucks in the company.

c. Communication platoons.—There is a regimental signal company (or platoon), with a strength of about 75 in each infantry regiment.

21. Chemical Warfare Service.—*a. General.*—(1) The Japanese are good chemists and for some years past have been engaged in the development of the means of employing chemical warfare in their Army. They are known to have organized a Chemical Warfare Department with a technical research branch and to have established units of chemical warfare troops. Little information is available regarding the nature of the chemical munitions and weapons which might be used by the Japanese forces. They have established factories for the manufacture of poison gases, worked out a system of antigas defenses, and issued an efficient type of service respirator to the Army. They have also organized certain measures for the protection of the civil population against gas attacks from the air. Therefore, they appear to be quite capable of conducting chemical warfare should they decide that it would be in their interest to do so. It should be remembered that Japan did not ratify the Geneva Protocol of 1925 prohibiting the use of gases in war and is, therefore, under no obligation to refrain from their use.

(2) The Inspectorate General of Military Training announced at the end of April 1941, the creation of an Inspectorate of Chemical Warfare in order to meet "the rapidly increasing need." There have been signs of German cooperation in this form of Japanese military activity.

b. Organization.—(1) *General.*—Chemical warfare comes under the mechanization section of the Ordnance Bureau of the War Office. Japanese chemical warfare units are divided into those organized from personnel of the unit for a definite local operation, and into those organized on a nondivisional basis. Personnel from infantry regiments were formed into infantry regiment temporary smoke companies during the Sino-Japanese hostilities, 1937, for the offensive use of lachrymatory gases and toxic smokes. This personnel is also trained for decontamination and other antigas duties. Nondivisional

units are reported to include field gas companies and temporary smoke battalions.

(2) *Chemical warfare school.*—A chemical warfare school exists at Narashino and in addition it is believed that a limited number of officers and noncommissioned officers undergo a course lasting 1 year in meteorology with particular reference to its relation to chemical warfare.

(3) *Units used in 1937.*—During the Sino-Japanese hostilities, 1937, chemical warfare units were organized by the Japanese. These were known as "field gas companies," "temporary smoke battalions," and "infantry regiment temporary smoke companies." In addition, certain infantry regiments were reported to have a No. 13 Company identical with the infantry regimental temporary smoke company mentioned above. All the above units were equipped with the toxic smoke and lachrymatory gas candles.

(4) *Field gas companies.*—Field gas companies are nondivisional units which are allotted to divisions for specific operations. They are believed to supply personnel and equipment for temporary smoke battalions.

(5) *Temporary smoke battalions.*—Temporary smoke battalions are formed from field gas companies and consist of a headquarters and a number of companies, each about 220 strong. The headquarters is divided into executive, meteorological, signal, and first-aid sections. Companies consist of a headquarters and 3 platoons, each of 3 sections. Each section consists of a noncommissioned officer and 23 men, 7 of whom are drivers, with 6 one-horse carts. The section works in 4 groups of 3 men each, the remaining 4 men being used for intercommunication and protective duties. Four of the 6 carts each carry 6 boxes of "smoke" candles, while the remaining 2 carry rations and forage for 10 days. The total number of candles carried by the company is 3,240, but it is not certain whether this number applies only to the special smoke (arsenical toxic smoke) candles or to the ordinary smoke and green gas (chloracetaphenone nonpersistent lachrymator) candles as well.

(6) *Infantry regimental smoke companies.*—Temporary smoke companies of infantry regiments are formed from men in the regiment trained for these duties, and are employed for specific local operations only. The company is organized into a headquarters, similar to that of a rifle company, and 3 platoons, each of 4 sections. Sections con-

sist of 11 men organized into headquarters and 3 groups each of 3 men. Detailed organization is as follows:

	Personnel	Horses	Vehicles	Materials
Company headquarters	12	1		
3 platoons each	51 (includes platoon commander and 6 drivers).	6	6	36 boxes (540 candles).
Total	165	19	18	108 boxes (1,620 candles).

(7) *Training.*—All units have a certain number of personnel trained in antigas and decontamination duties. These men are reported to form part of the normal platoon organization, but can be withdrawn and formed into regimental or company antigas units when necessary. Decontamination equipment is believed to be carried by the regiment. It is probable that the units mentioned above are also trained in decontamination. Since 1926 gas training has formed a regular part in the training of all units. On maneuvers, tear and irritant gases are used and troops frequently wear respirators for long periods. Practical exercises in the clearing of supposedly contaminated areas are also carried out.

(8) *Gases used against Chinese.*—According to reliable reports the Japanese, during the course of the war in China, have used tear, sneeze, mustard, and lewisite gases against the Chinese.

(9) *Provision for aircraft.*—It is reported on good authority that smoke and gas bombs, smoke screen, and curtain apparatus are provided for Japanese aircraft.

(10) *Flame throwers.*—The Japanese use flame throwers in certain tactical situations. The equipment used is the light knapsack type, weighing 31 kilograms, carried on the back of one man; a heavy-type flame thrower, weighing 82 kilograms; and a two-man flame thrower in which the equipment is carried by one man and the hose carried and operated by another man. The organization of flame-thrower units and method of their attachment are not known. It is reported that the Japanese moved flame-throwing tanks to Saigon during the first month of the Malayan campaign. The only tank known to be

equipped with a flame thrower is the Ishi 108. This is said to weigh 38 tons and to be armed with a flame thrower, two machine guns, and two 37-mm guns.

22. Veterinary Service.—This is a separate service which functions under the Horse Administration Section, Military Administration Bureau of the War Ministry. In July 1937 there were about 300 regular veterinary officers and 1,381 reserve veterinary officers. Detachments operate with all units having animal elements.

23. Air Corps.—*a. Organization.*—(1) The air forces of Japan are not organized as a separate arm. There is an Army Air Service and a Naval Air Service. They are independent of each other but cooperate in coordinated operations. The Army Air Service is an integral part of the army and has equal status with the other arms such as Infantry, Artillery, and Cavalry. (See fig. 10 in back of manual.)

(2) The air division is the largest tactical unit of the Army Air Force. It is commanded by a major general or lieutenant general. It is composed of three air brigades. No air division has been identified in any of the Pacific theaters. Because the forces are so widely distributed, the air brigade is probably the largest tactical unit used so far.

(3) The air brigade consists of three to four air regiments. The air brigade is commanded by a major general.

(4) The air regiment is commanded by a colonel or a lieutenant colonel. It is not necessarily composed of all the same type of airplanes. It may include squadrons of fighters, fighter bombers, heavy bombers, and reconnaissance airplanes.

(5) Squadrons are usually commanded by a captain, but heavy bomber squadrons are commanded by majors.

b. Formations.—(1) *Squadron organization.*—Squadron organization is as follows:

Type	*Initial equipment, airplanes*	*Immediate reserve,*[3] *airplanes*
Fighter squadron	12	3
Fighter bomber squadron	12	3
Heavy bomber squadron	10	3
Reconnaissance squadron	9	3

[3] It is now considered that initial equipment and immediate reserves are completely merged.

(2) *Navy.*—The highest formations in naval aviation are the composite air wings (shore-based); under the commandants of the composite

air wings are the heads of the air groups. Squadron organization is as follows:

Type	*Initial equipment, airplanes*	*Immediate reserve,*[3] *airplanes*
Fighter squadron	12	6
Torpedo bomber squadron	12	6
Dive bomber squadron	12	6
Light bomber squadron	12	6
Heavy bomber squadron	12	6
Floatplane squadron	12	6
Flying boat squadron	8	4

[3] It is now considered that initial equipment and immediate reserves are completely merged.

The division between shore-based and ship-based units is flexible; aircraft units may be detached from composite air wings or from carrier divisions and assigned to any task force.

(3) *Army personnel.*—(*a*) The personnel component of the typical air regiment is—

Officers	39
Warrant officers and noncommissioned officers	35
Other ranks	600
	674

(*b*) The regiment comprises 4 combat squadrons and 1 service squadron of approximately 60 men. Thus the component of the regimental air squadron is about 150 men.

(*c*) The personnel organization of the light bomber squadron appears to be—

Officers	6
Warrant officers	5
Noncommissioned officers	22
Privates	99
	132

c. Administration.—The Japanese Army Air Force is under four divisional heads.

(1) The Minister for War, through the Director of Military Aviation, is responsible for supply and administration.

(2) The Chief of the General Staff directs all operations.

(3) The Inspector General of Aviation is responsible for all air training, except that in cooperation with other arms.

(4) The Inspector General of Military Training supervises all mutual support training with other armed forces.

24. Paratroops.—*a. General.*—Because of German successes in this field, the Japanese have undertaken the development of parachute troops, using Japanese instructors under the supervision of German experts. During the spring of 1941, selected men from the Infantry were sent to parachute training centers, which are reported to be located at—

Himeji—western Japan (not far west of Kobe).
Kasumigaura—eastern Japan (northeast of Tokyo).
Yōkaichi—western Japan (south of Lake Biwa between Kyoto and Ise Bay; not the same as Yokkaichi near Nagoya).
Shirahama—eastern Japan (western coast of Kii Peninsula south of Wakayama).
Akitsu—eastern Japan (near Tokyo).
Kanoya—southern Japan (in Kagoshima north of Sato Misaki).
Funabashi—eastern Japan (east of Tokyo, northeast of Chiba city).
Tsudanuma—eastern Japan (east of Tokyo, northeast of Chiba city).
Nio—eastern Japan (near Shizuoka).
Nakamita—central Japan.
Kōkō—northwestern Formosa.
Kai Ken Hang—near Canton, China.

The jumping towers, made with a crisscross steel frame, are about 400 feet high. The parachutes are made in Shizuoka, Japan, and are similar to the Irving type. The seat type weighs 19.9 pounds and the breast type, 18.7 pounds. The Japanese have sufficient numbers of transport airplanes to carry 3,300 paratroops with their equipment.

b. Tactical use.—At Palembang, Java, 700 paratroops were dropped. Two groups were directed at the oil refineries and another at the airport. The probable mission of these troops was to capture the airport and to prevent the destruction of the refineries. One group landed within the confines of one refinery. Another group landed just outside the confines of the other refinery. These two refineries are situated approximately 100 yards from each other and are separated by the Komering River. The paratroops outside the confines of the one refinery were held off and this refinery was destroyed as planned. The paratroops within the confines of the other refinery were able to hold the Dutch defenders at bay long enough to prevent its planned destruction, enabling the Japanese land forces to capture

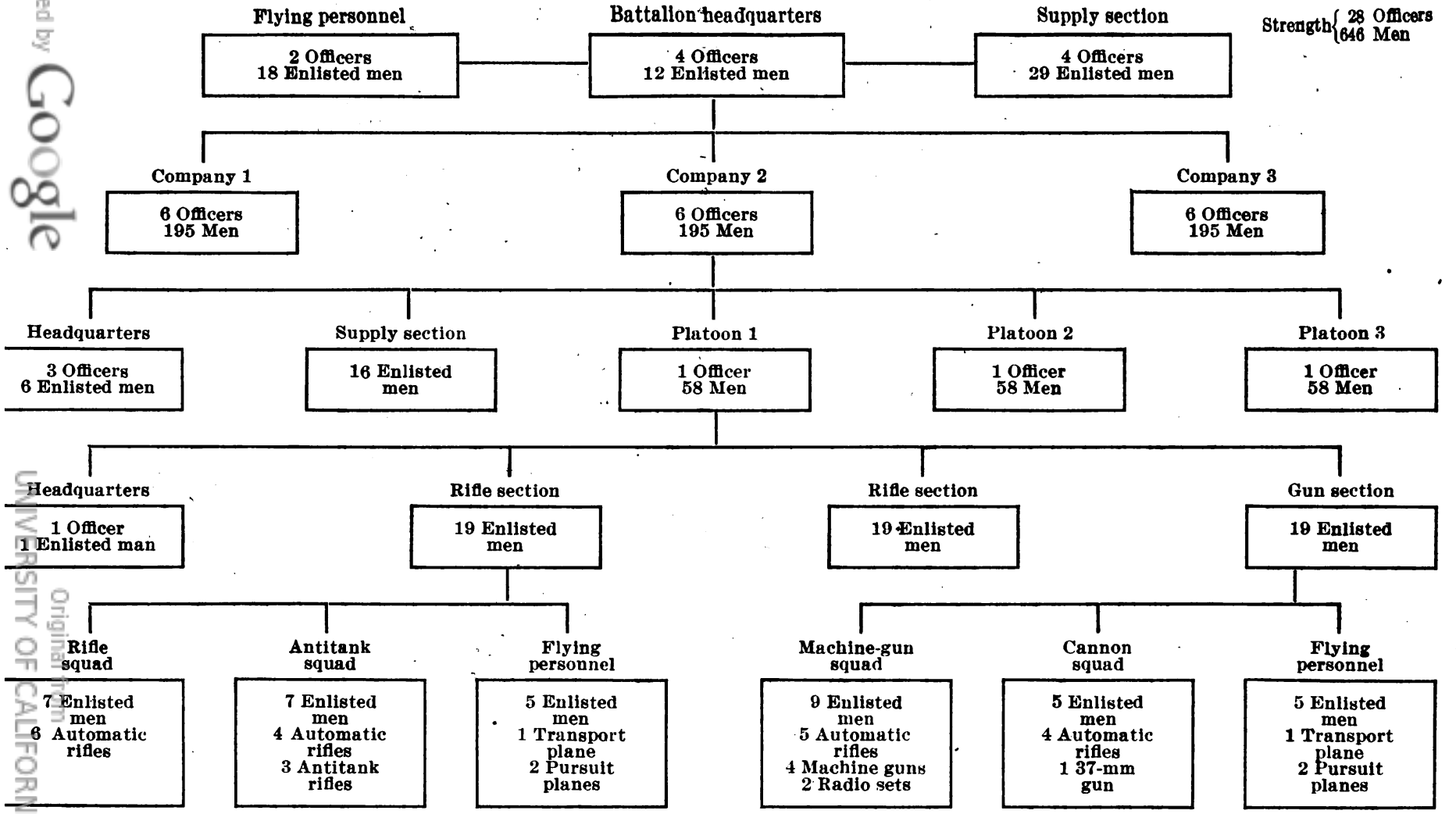


FIGURE 11.—Organization of a parachute battalion.

it practically intact the next morning. The alertness of the United Nations' defenders, who destroyed nearly all the paratroops, prevented the successful completion of the entire mission.

c. Personnel, organization, and armament.—(1) *Personnel.*—In September 1941 there were said to be in existence—

3 paratroop battalions.
2 paratroop companies.

Company officers for these units are drawn from the Air Corps and must not be over 28 years of age. Battalion commanders must not be over 35. Soldiers must not be older than 25, and are selected after a medical examination. All the personnel in the paratroop units receive high rates of pay and attend special courses in foreign languages and map reading.

(2) *Organization.*—Each battalion consists of headquarters and three companies. The total strength is reported to be 674. Figure 11 gives the estimated organization.

(3) *Equipment.*—(*a*) All personnel are provided with special clothing, including fur-lined jacket and trousers, and a hood with goggles.

(*b*) Officers have a flashlight and a dispatch case containing maps and writing material.

(*c*) Noncommissioned officers and men are equipped with a haversack containing a complete change of underclothing, spare pair of shoes, and rations for 3 days, including rice, canned fish, canned meat, and tea.

(4) *Armament.*—The armament of a battalion is said to be—

	Total per battalion (approximate)
Revolvers	360
Machine carbines 6.5-mm	300
Heavy machine guns	42
13-mm antitank rifles	55
Arisaka[4] "cannon"	9

[4] It is not definitely known what type of weapon this is.

25. Flying columns or raiding units (Teishintai).—*a. General.*—In recent engagements in China the Japanese have employed "flying columns" or "raiding units," composed primarily of cavalry, armored cars, and motorized units to penetrate enemy lines and to cooperate with their main body in harassing the enemy.

b. Organization.—The principal consideration in the organization of a "flying column" is rapidity of movement. The composition of such a unit is generally as follows:

(1) One squadron of cavalry (170 men) organized in 4 small troops, each including 1 light machine gun.

(2) One company of infantry (190 men) reinforced by a platoon of 2 heavy machine guns.

(3) One platoon of trucks to transport the infantry troops.

(4) One light armored car platoon consisting of 4 armored cars and 4 motorcycles with machine guns mounted in side cars.

(5) One tank platoon with 3 medium or light tanks, in which 1 motorcycle side car is usually included. Light or midget tanks are generally used because of their greater speed.

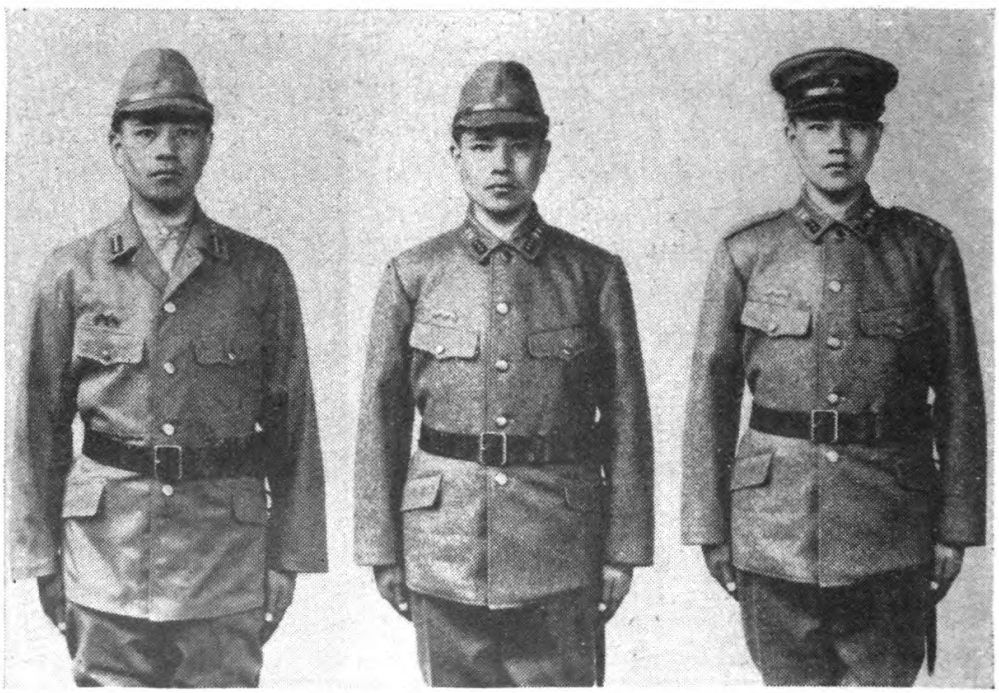
(6) The attachment of motorized field artillery or of antitank guns has not been reported. If the situation requires such additional fire power these weapons will probably be included.

CHAPTER 3

UNIFORMS, INSIGNIA, AND PERSONAL EQUIPMENT

26. Uniform.—The Japanese Army service uniform is olive drab in color and is made of cotton or woolen material, depending on the season. The enlisted man's uniform is usually ill-fitting but serviceable.

a. Coat.—(1) The sack coat is single-breasted with five buttons in front, a turn-down collar, and four outside pockets with flaps. The



① Superior private, field uniform, summer. ② Superior private, field uniform. ③ Superior private, with epaulets and cap used for ceremonies.

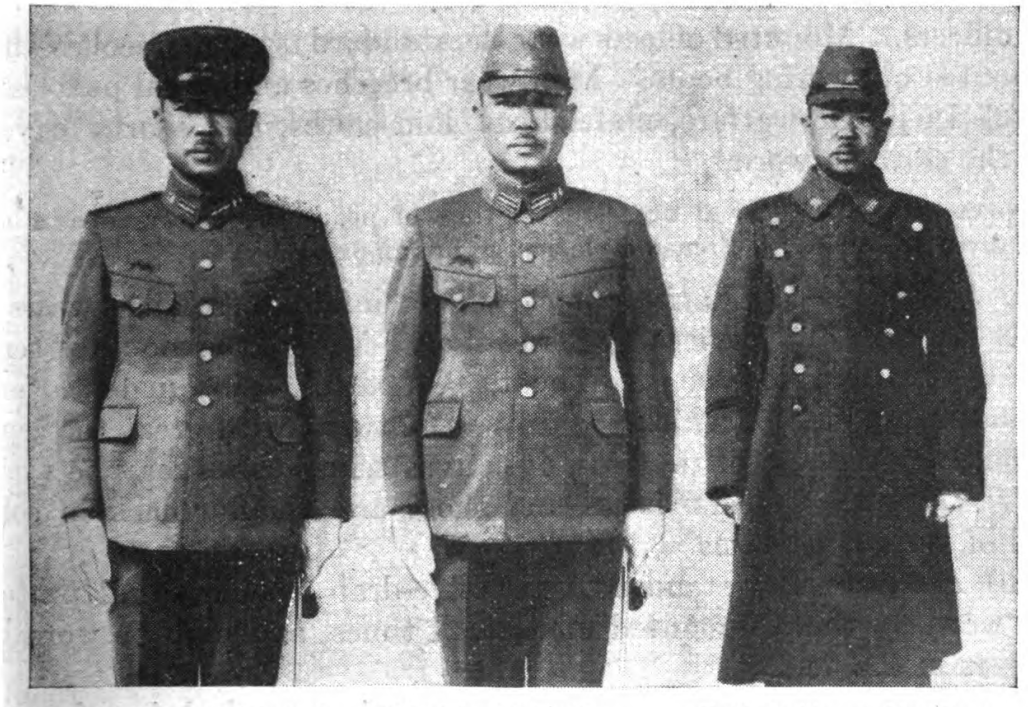
FIGURE 12.—Enlisted men's coats and caps.

breast pockets have buttons, but the lower pockets do not. The insignia of rank and organization numbers are placed on the front edges of the collar. The zigzag colored chevrons indicating the branch of service are worn just above the flap of the right pocket.

Organization numerals and chevrons indicating branch are not ordinarily worn in time of war. Occasionally the collar is worn opened to the second button.

(2) The officer's coat has a slightly higher collar than that of the enlisted man and has a stripe of dark brown braid on the cuff. It is shorter than the enlisted man's coat.

(3) The Preparatory Military Academy students and the cadets at the Signal School, Kumagaya Air School, Air Technical School, Engineer School, and Toyama Physical Training School wear coats of the same general appearance except that the pockets are all outside



① Captain, wearing epaulets and cap used at ceremonies. ② Captain, field uniform. ③ Field officer, field uniform.

FIGURE 13.—Officer's coat, overcoat, and caps.

patch pockets with buttons. The upper pockets have box pleats down the center. The pocket pleats in the case of the Preparatory Military School uniforms are not so wide as those of the other schools. The sleeve bands in the case of the Intendance School and other school uniforms are parallel to the cuff, but the sleeve band of the Preparatory Military School is slightly chevron-shaped.

b. Trousers and breeches.—(1) Officers and warrant officers wear trousers of standard pattern usually cut very high at the waist and without cuffs. Spiral puttees are often worn in the field with trousers

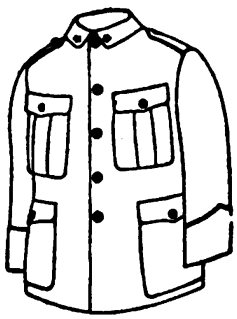


FIGURE 14.—Student's coat, Preparatory Military Academy.

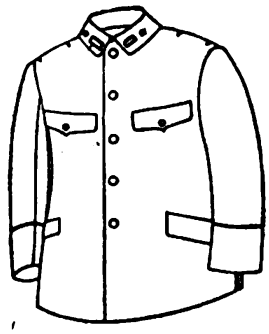


FIGURE 15.—Student's coat, Intendance School and Junior Military Academy.

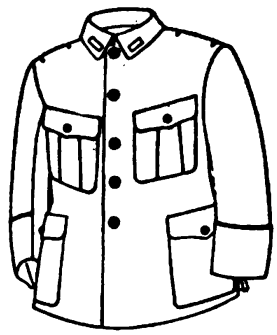


FIGURE 16.—Student's coat, air and special schools.

by officers. Mounted officers wear the standard type of breeches when mounted or wearing boots. Men wear breeches and spiral puttees.

(2) In jungle warfare, undershirts, loin cloths, and shorts may be all the clothing worn.

NOTE.—On very formal occasions in time of peace the officers wear a blue full dress uniform with French style cap and pompon.

c. Footwear.—(1) *Enlisted men.*—The infantry soldier wears a heavy, rough, but serviceable russet shoe. Men of the mounted services wear a German type russet boot. On patrol, or in jungle warfare, rubber-soled "tabi," which are canvas footwear with great toe separated from the rest of the toes, or canvas tennis shoes may be worn.

(2) *Officers.*—Officers' boots and shoes are usually black in color and of various patterns.

(3) *Puttees.*—The standard type olive-drab woolen spiral puttees are worn by the dismounted men at all times, and may be worn by officers in the field.

d. Caps.—(1) *Dress cap.*—The dress cap is olive drab in color and similar in shape to that of the United States Army, except that the crown is smaller and the visor is shorter. A red piping is inserted at the outer edge of the crown and the headband is encircled with a strip of red felt about 1½ inches wide. At the front of the headband is a star, silver for officers and gold for enlisted men. For officers and men of the Guards Division, a semicircular wreath of leaves is fastened just below the star. The visor and chin strap are of black leather in standard military design.

(2) *Field cap.*—This is made of olive-drab cloth and is generally the shape of the head with a narrow visor of the same material and a leather chin strap. It has three ventilating holes on each side near the top of the crown and a slit in the rear for adjusting the size. It

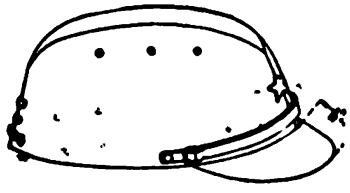


FIGURE 17.—Field cap.

has a star along the vertical front seam. This cap may be worn under the helmet.

(3) *Pith helmet.*—Pith helmets may be worn by some soldiers in tropical countries.

(4) *Steel helmet.*—Steel helmets are standard issue. They are more bell-shaped than United States helmets of the first World War, and have a less pronounced brim.

e. Overcoat.—The overcoat is of olive-drab woolen material, double-breasted, with turn-down collar and two rows of six metal buttons on each side in front. The sleeve insignia consist of one, two, or three bars of brown braid to indicate company, field, and general officers' ranks, respectively. It has a detachable hood.

f. Cape.—The cape is of olive-drab woolen cloth of the usual design. One, two, and three bars of brown braid on the throat piece of the hood indicate the rank, as on the overcoat sleeve.

27. Insignia.—Insignia of the Japanese forces may be divided as follows:

Insignia of grade.
Marking of arm or service.
Insignia designating unit.
Special devices.
Flags and guidons.

a. Insignia of grade.—(1) Grades in the Japanese Army are divided into five classes: privates, noncommissioned officers, company officers, field officers, and general officers. These classes and various grades within each are designated by a cloth patch 1.8 by 0.72 inches in size which is worn on both collar flaps of the coat, overcoat, and cape as follows:

Class	Stars	Grade	Collar patch
Privates	1	Second-class private	Plain red cloth with stars of yellow cloth sewed on center line.
	2	First-class private.	
	3	Superior private.	
Noncommissioned officers.	1	Corporal	Plain red cloth with one gold band lengthwise through center. Stars sewed on this gold band.
	2	Sergeant.	
	3	Sergeant major or first sergeant.	
Company officers	1	Second lieutenant	Red cloth with gold braid border and gold band lengthwise through center. Yellow metal stars on band.
	2	First lieutenant.	
	3	Captain.	
Field officers	1	Major	Red cloth with gold braid border and two gold bands lengthwise of strap. Yellow metal stars between bands.
	2	Lieutenant colonel.	
	3	Colonel.	
General officers	1	Major general	All gold metallic cloth with gold braid borders. Yellow metal stars on center line.
	2	Lieutenant general.	
	3	General.	

Officer candidates have second lieutenant straps with buttons instead of stars. Chevrons of various designs are worn by noncommissioned officers.

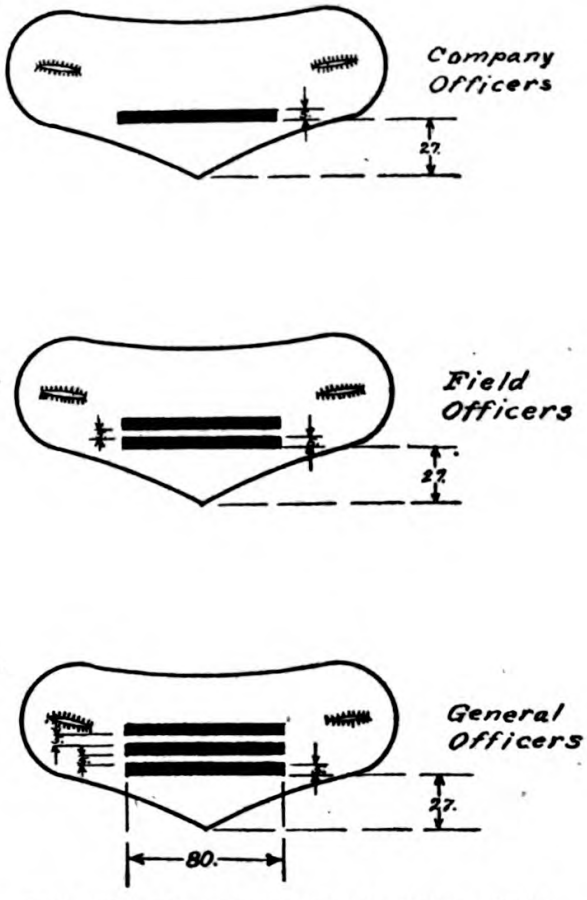
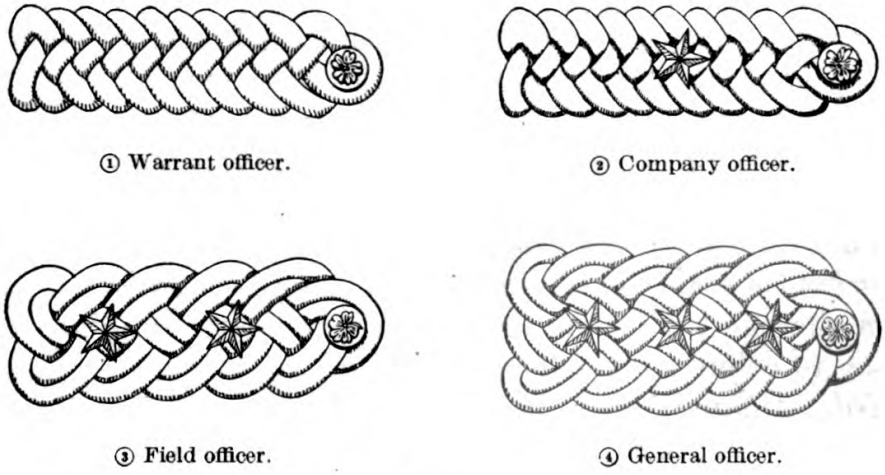


FIGURE 18.—Grade insignia on throat piece of cape.

(2) An epaulet has been adopted for use by individuals when out of barracks or for units taking part in ceremonies. This is made of twisted gold cords, in the case of officers and warrant officers and is



① Warrant officer. ② Company officer.

③ Field officer. ④ General officer.

FIGURE 19.—Officers' dress epaulets.

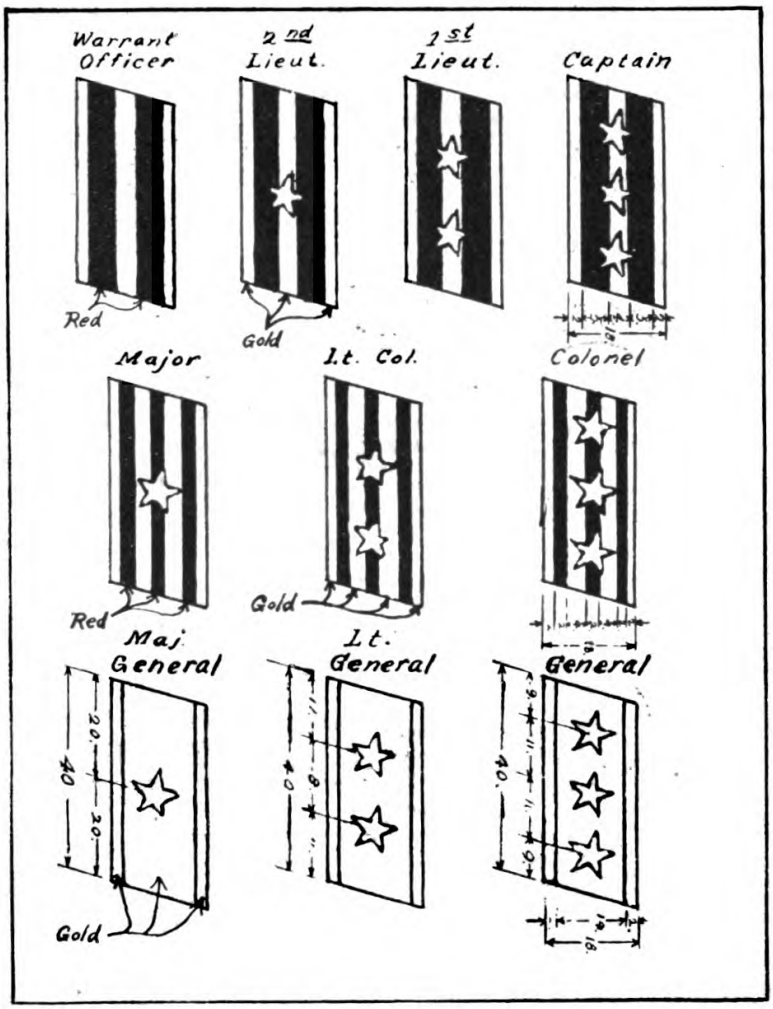


FIGURE 20.—Officers' and warrant officers' grade insignia.

of varying widths, depending upon the grade. The company officer has one star, field officer two stars, and the general officer three stars on the epaulet. The warrant officer's epaulet has no star. Noncommissioned officers have a red epaulet with a yellow stripe across the outer end, while that of privates is plain. The epaulets of second-class, first-class, and superior privates have one, two, and three stars, respectively. Those of corporals have one, sergeants two, and sergeants major three stars in addition to the yellow band.

b. Marking of branch of service.—(1) In time of peace zigzag chevrons worn on the chest over the right pocket indicate the arm or service according to colors as stated below:

(*a*) *Red.*—Infantry, including tanks.
(*b*) *Yellow.*—Artillery of all types.
(*c*) *Green.*—Cavalry.
(*d*) *Maroon.*—Engineers, including railroad and telegraph troops.

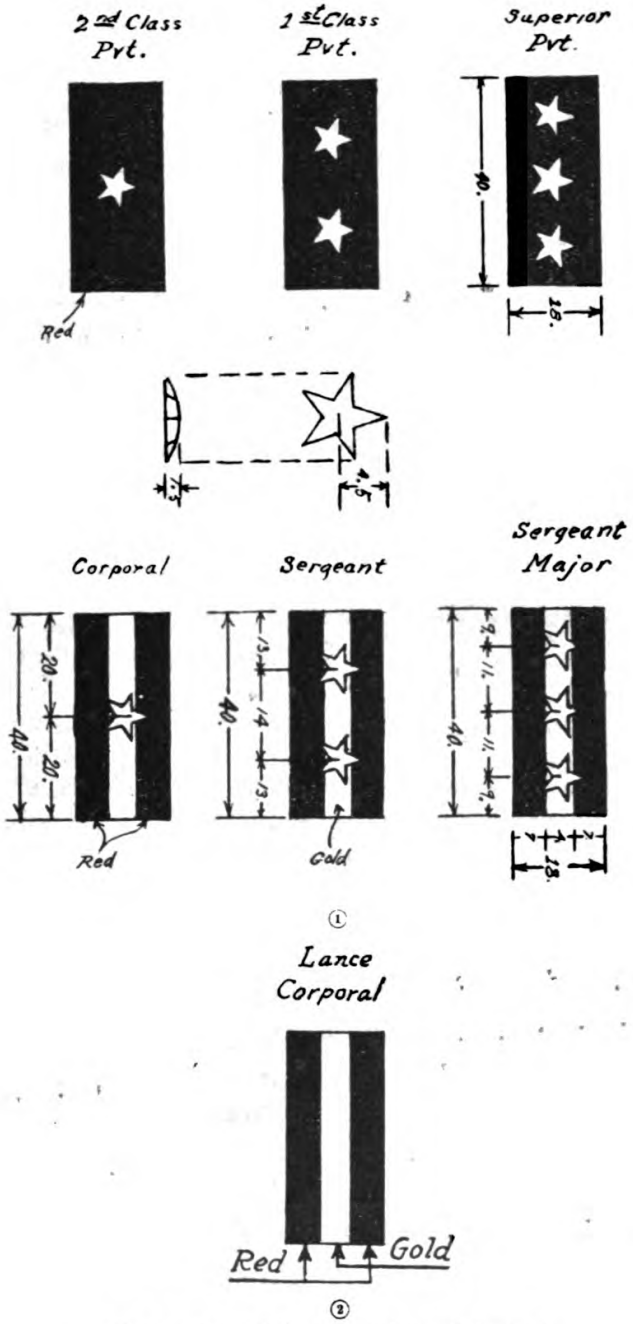


FIGURE 21.—Enlisted men's grade insignia.

(*e*) *Sky blue.*—Aviation.
(*f*) *Navy blue.*—Band.
(*g*) *Blue-black.*—Transport.
(*h*) *Warm gray* (*slightly rose-tinted*).—Intendance.
(*i*) *Dark green.*—Medical.
(*j*) *Purple.*—Veterinary.
(*k*) *Black.*—Military police.
(*l*) *White.*—Judge Advocate General's Department.

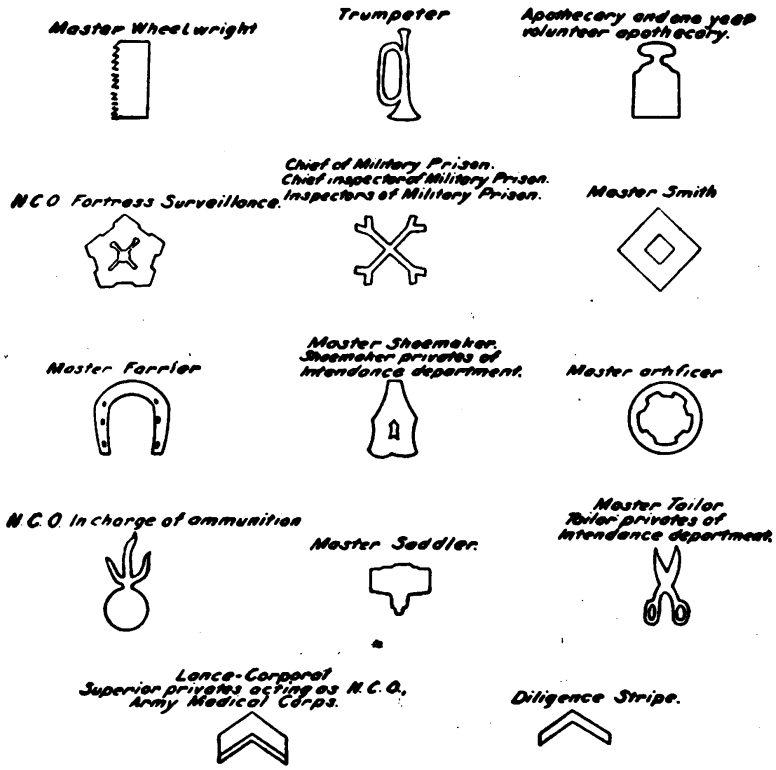


FIGURE 22.—Chevrons.

NOTE.—Recent Army regulations abolished the insignia of arm or service. This is thought to be experimental; consequently, the information concerning insignia of arm or service is retained in this manual.

(2) In addition to the colored chevron indicating the branch of service, in many instances the branch is designated by an ornament which is worn on the right collar back of the patch in case the unit numeral is worn. Following is a list of ornaments as described above:

Tank troops	Tank conventionalized
Formosan (Taiwan Infantry)	Cherry flower
Independent infantry battalion	Crossed rifles over section of rail

Heavy artillery	Mortar
Mountain artillery	Crossed guns
Formosan mountain artillery	Cherry flower above crossed guns
Railway troops	Crossed axes, over rail section
Telegraph troops	Conventionalized telegraph key
Aviation troops	Air propeller blades
Antiaircraft	Gun and propeller blades
Automobile Corps	Conventionalized automobile
Imperial Guards (cap insignia)	Star with wreath
Band	Harp
Officer candidates	Star
Ordinary Infantry	None
Ordinary Field Artillery	None
Ordinary Cavalry	None
Ordinary Engineers	None
Ordinary transport troops	None

NOTE.—See note on page 86 in regard to temporary abolition of insignia of arms or services and insignia of number designating units.

c. Uniform insignia designating unit.—(1) In time of peace, with a few exceptions, all Japanese field and company officers and enlisted men wear arabic numerals on their collar flaps to designate their regiment (see *b*(2) above). The exceptions are instances where but one detachment exists of a particular branch of the service, such as the automobile corps. Officers and men of such a unit wear the branch of service ornament on both collar flaps with no numeral. Ordinary infantry, field artillery, cavalry, etc., wear the regimental number on both sides of the collar. In the case of the other branches of artillery, the regimental number is worn on the left and the special ornament, such as a mortar, is worn on the right side of the collar. In some instances roman numerals are worn on the left collar patch to indicate the battalion number, but these instances occur only in special services or independent regiments.

(2) In the aviation uniform regulations it is provided that the aviation badge or ornament will be worn on the left collar flap of the roll collar coat and the regimental numerals on the right.

(3) All numerals and usually all branch of service ornaments are removed when troops go on field service.

d. Special devices.—The special field marshal's medal consists of crossed Japanese and Imperial flags on an oval disk worn on the right

FIGURE 23.—Collar ornaments.

breast. In time of peace General Staff officers wear aiguillettes of gold or yellow braid on the right shoulder. Military decorations are given high importance. The principal orders are the Order of the Chrysanthemum, limited to persons of very high rank, Order of the Golden Kite, in seven classes, Order of the Rising Sun, in eight classes, and Order of the Sacred Treasure in eight classes.

e. Flags and guidons.—While the ordinary Japanese flag is a red ball on a white field, the military and naval flag is represented by a white field, red sun, and red rays from the center. In army units this latter flag has a purple border. Members of the Imperial family have small flags with a conventionalized chrysanthemum. Each infantry battalion has a guidon. The guidon has a white field and jagged lines running at right angles to the pike, as follows:

1 red line	1st battalion, active Army.
1 black line	1st battalion, Reserves.
1 purple line	1st battalion, National Army.
2 lines, the upper red and lower black.	2d battalion, active Army.
2 lines, black over red	2d battalion, Reserves.
2 lines, purple	2d battalion, National Army.
3 lines, red, black and red	3d battalion, active Army.
3 lines, black, red and black	3d battalion, Reserves.

Guidon with crossed rifles is borne by the company of the infantry regiment most proficient in rifle target practice.

f. Identification tags, pay books, and other means of identification.—(1) Weapons are marked with model and serial number. Company equipment is marked with company and regimental numbers and some of the individual equipment by name, company, and regiment. Overcoats, coats, trousers, caps, underclothes, and knapsacks bear two stenciled marks on the lining. One stencil shows the place and date of manufacture, the date of first issue, and the dates of repairs. The other stencil shows the organization in which used and the names of wearers. A small wooden disk bearing the man's name is attached by a string to these otherwise unmarked articles when in the field. (In time of war, all regimental numbers are generally omitted for equipment and weapons.)

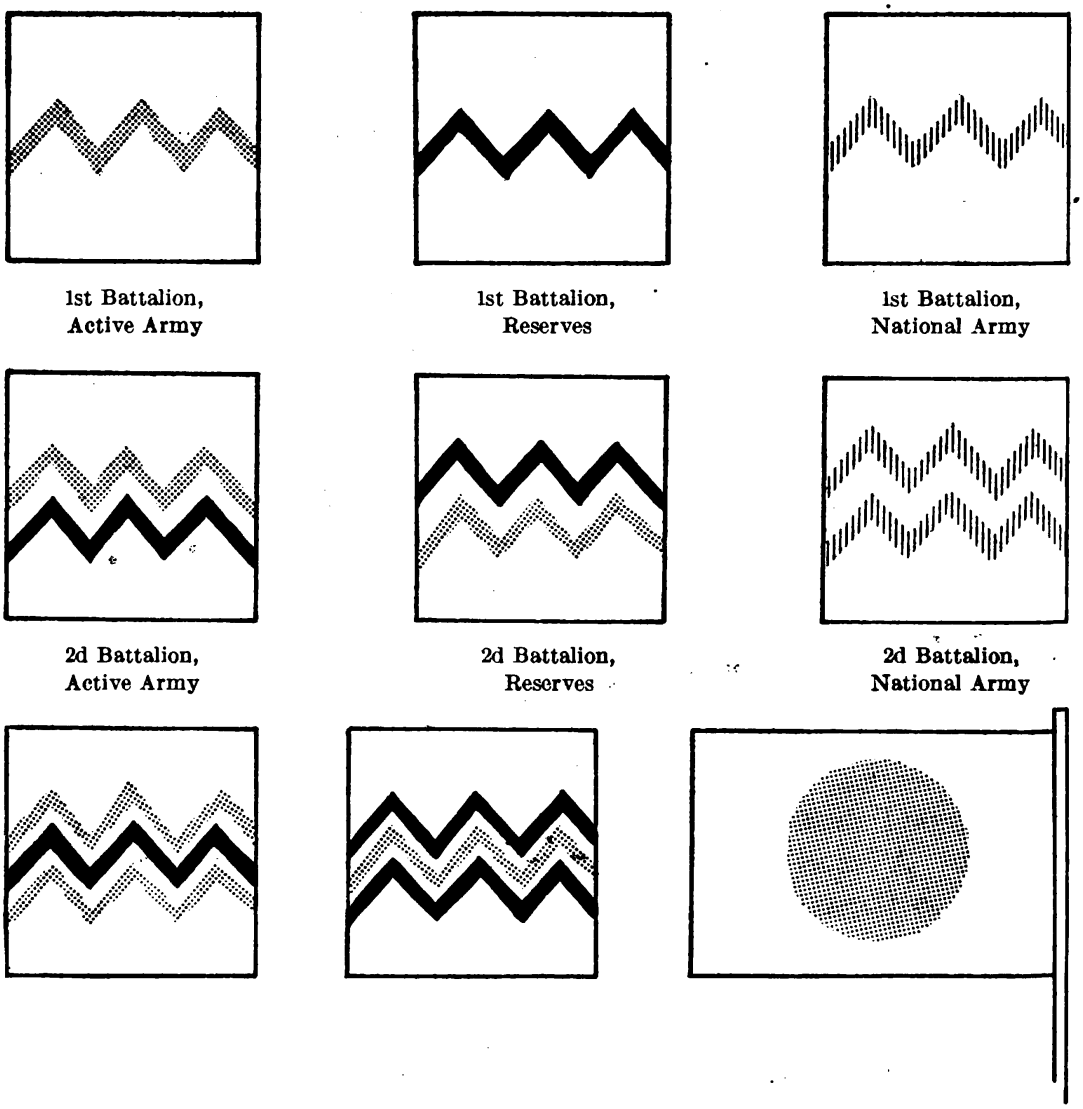
(2) Noncommissioned officers and privates generally carry a "military notebook" containing the Imperial Rescripts, the man's name, home address, and military record to date, including all organizations to which he has belonged. (In war these books are generally not taken into the field.)

(3) Metal identification tags (ninshikihyo) are worn in the field

by Japanese soldiers. These tags, in the case of an enlisted man, give his regiment and his serial number in his company. Both these numbers are usually in code. Officers wear similar tags which give only the name and rank without designation of the unit. Japanese soldiers are accustomed to carry personal seals of bone, but these do not mention the man's unit.

28. Reserve clothing.—A war set of clothing and personal equipment for each man is provided in his company. Reserve uniforms and shoes for each man are provided in the regimental storehouse.

29. Personal equipment.—The ordinary Japanese field equipment weighs about 70 pounds in winter and 56 pounds in summer, exclusive of arms and ammunition, and includes the following:



1st Battalion, Active Army | 1st Battalion, Reserves | 1st Battalion, National Army

2d Battalion, Active Army | 2d Battalion, Reserves | 2d Battalion, National Army

3d Battalion, Active Army | 3d Battalion, Reserves | Small national flag carried by each soldier in war to indicate his position.

FIGURE 24.—Infantry battalion guidons and soldier's flag. (Dotted areas represent red; lined areas, purple.)

a. Knapsack (*haino*).—Cowhide with hair outside, about 14 inches square and 5 inches deep.

b. Haversack (*zatsuno*).—Khaki canvas.

c. Canteen (*suito*).—Aluminum, oval, covered with khaki, capacity 1 pint.

d. Hold-all (*zatsugu-bukuro*).—Canvas sack or roll, used for carrying surplus ammunition and provisions.

e. Shelter tent (*half*) (*hansetsu temmaku*).—Khaki, adapted to button to others and make tent of desired size. Tent pins and pole are carried by some men.

f. Mess tin (*hango*).—Aluminum, much like American canteen cup.

g. Entrenching tool (*dokō kigu*).—Small shovels and picks are carried, the ratio being two shovels to one pick.

h. Wire cutters (*tessen-basami*).—About 30 wire cutters are carried by each company.

i. Clothing, etc. (*hifuku*).—Extra underwear, socks, boots, shirt, one housewife, one overcoat, one blanket, one first-aid dressing, leather grease, and emergency ration for 2 days.

j. Trench helmet (*tetsu kabuto*).—Trench helmets have been adopted, the design having a narrower brim than the American helmet in the first World War.

k. Fur-lined cap.—In Manchuria and north China fur-lined headgear is issued for use during the winter. It consists of a close-fitting helmet type cloth cap with fur-lined ear flaps which fasten under the chin or tie on the top of the crown. It has a short fur-lined visor also. Fur-lined overcoats are issued for wear in the more severe climates.

l. Camouflage net—infantry.—(1) *Individual.*—The individual camouflage equipment as used by personnel in the Japanese Infantry consists of a body net and a head net. The former consists of a net of approximately 1 by 1.5 yards in size, made of a greenish-colored straw-fiber cord or ordinary twine, with a square mesh something under 2 inches in size. The head net is of a size which will allow it to fit snugly over a helmet or cap, and is of the same material, mesh, and color as the body net.

(2) *Other nets.*—In addition to these pieces of individual equipment for personnel, there is a net for horses as well as one for use in camouflaging machine-gun positions. The horse net is large enough to hang over the back of the animal, from the head to the tail, to a point slightly below the girth. The machine-gun net is something over 2 yards square, of the same color as the nets already described, and of slightly larger mesh and heavier material. Artillery nets of sufficient dimensions to camouflage each gun position are widely used.

CHAPTER 4

ARMAMENT AND EQUIPMENT

SECTION I

INFANTRY

30. Rifle.—The Infantry carries the Arisaka rifle, pattern 38, M1905. It has been repeatedly announced that this model will be displaced by a 1919 model (7.7-mm). The 1919 model was reported used by mechanized units in Suiyuan in 1939–40.

a. Arisaka rifle, M1905.—This is a Mauser type, 5-shot military rifle with characteristic Mauser bolt action. Caliber is 6.5-mm, cartridge case of brass, pointed lead bullet with nickel-steel jacket. The projectile weighs 0.019 pound and the charge is 0.0047 pound of smokeless rifle powder, giving a velocity of 2,510 foot-seconds. The piece itself weighs 8.69 pounds and is 50 inches in length. The rifle is fitted with a sling, but this is not used in firing. The rear sight is a knock-down leaf sight, graduated from 500 to 2,000 meters (550 to 2,600 yards). Extreme range of 4,375 yards is claimed. There is no windage scale or allowance for drift, and it is only fairly accurate beyond 500 yards.

b. 7.7-mm M1919.—In this the bolt is modified and the stock shortened in order better to meet the requirements of the Japanese

physique. The trigger guard is changed in order to permit firing with a gloved finger. The muzzle velocity is 875 yards per second; weight of bullet, 0.003 pound.

FIGURE 25.—7.7-mm M1919.

c. Bayonet.—A dagger-bayonet is provided with the rifle, about 16 inches in length and weighing 0.8 pound. Due to certain national historical considerations, the use of the bayonet is given exceptional prominence in training and in the field.

d. Ammunition.—Rifle ammunition is carried and used in clips of 5 rounds. Three leather ammunition boxes, holding in all 120 rounds, are attached to the belt. A further 60 rounds per man are carried in the battalion reserve and 150 rounds per man in the divisional ammunition train.

31. Revolver and automatic pistol.—Most officers and noncommissioned officers carry either a revolver or an automatic pistol. The revolver is the pattern 26 (1893) (Smith and Wesson type). It is a double-action weapon, 9-mm caliber, having a six-round cylinder. The cartridge case is of brass and the projectile is a slightly rounded

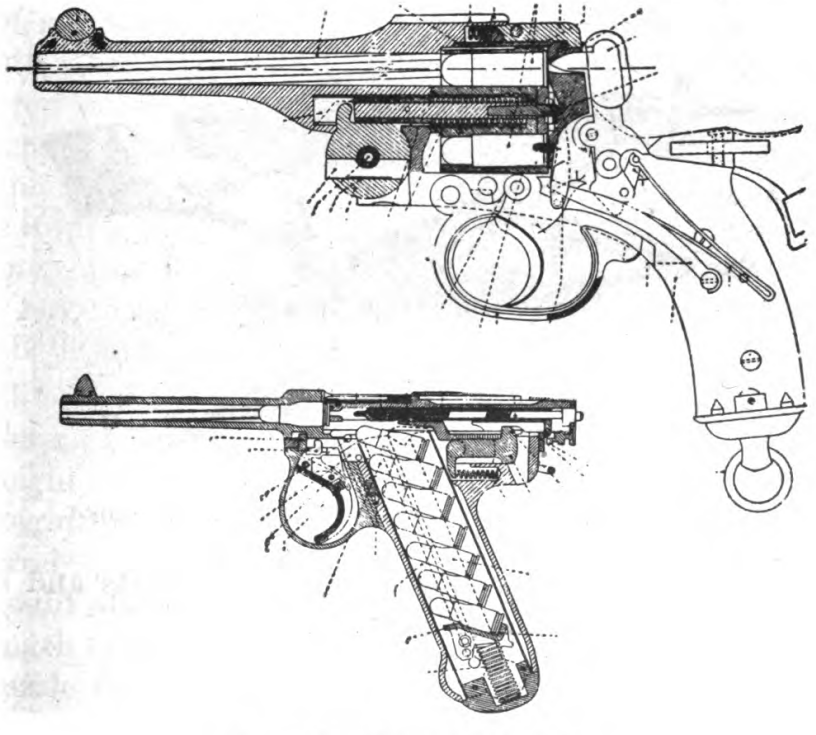


FIGURE 26.—Revolver and pistol.

bullet of lead, weighing 0.002 pound. Muzzle velocity is 1,050 feet per second. The pistol is a Luger-type automatic, 8-mm caliber, 8.9 inches overall with a 4.4-inch barrel. The projectile is a round-nosed lead bullet. Muzzle velocity is 2,100 feet per second.

32. Automatic rifle and machine guns.—*a. Automatic rifle.*— In the Philippines the Japanese were reported to have used an automatic rifle made in Belgium which is basically of the same design and mechanism as the Browning automatic rifle. The captured weapon examined was a 7.7-mm caliber rifle with a 21-inch barrel. It weighed 20½ pounds. The sight was graduated to 1,600 yards. It is equipped with a hinged butt plate and a bipod mount. It is not known to what extent this weapon has been distributed to troops. It bears the following identifying markings:

"Fabrique National d'Armes de Guerre
Herstal, Belgique
Browning Patented 1932."

b. Light machine gun.—(1) *Nambu, M1922 (Juichinen Shiki Kei Kikanju).*—(*a*) This is a gas-operated, air-cooled, hopper-fed gun with a bipod support permanently fixed to the piece near the muzzle. It is normally fired from the prone position at ground targets. The hopper has a capacity of 30 rounds, which are loaded by placing in the hopper, one on top of the other, six 5-round clips of rifle ammunition. These are forced into the feed mechanism by a follower press-

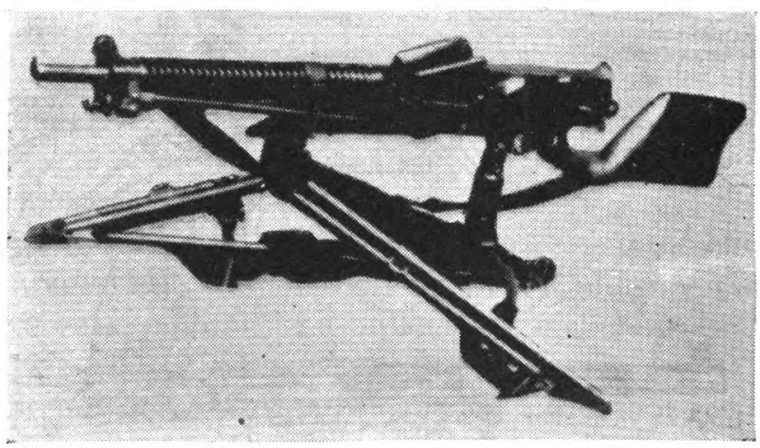


FIGURE 27.—Nambu light machine gun, M1922, with new tripod.

ing down from above. The principal measurements and characteristics of this gun are as follows:

Weight	22.44 pounds
Length, over-all	43.5 inches
Caliber	0.256 inches (6.5-mm)

Rifling	4 grooves, right twist
Rear sight	Graduated from 328 to 1,640 yards. No windage or drift corrector
Muzzle velocity	2,375 feet per second
Maximum range	4,374.4 yards
Cyclic rate of fire	500 rounds per minute
Effective rate of fire	150 rounds per minute in bursts of five

(*b*) Although the light machine gun is usually fired from the prone position supported by its bipod mount, a tripod mount, M1922, is carried by the gun squad for use as desired. When the legs are fully extended and the tripod is raised to its maximum serviceable elevation, the gun is about 4 feet from the ground. The tripod contains both traversing and elevating devices, but when the piece is to be used against aircraft the elevating device is unfastened so that the weapon may be moved freely, both vertically and horizontally. When the piece is mounted on this tripod the legs of the bipod are folded back along the barrel. The weapon is essentially a machine rifle when the bipod is used and a light machine gun when mounted on the new tripod.

(2) *6.5-mm, type 96 (1936).*—The type 96 light machine gun is a gas-operated, magazine-fed, air-cooled weapon patterned after the French Hotchkiss and British Bren guns. Its cartridges have a rim instead of a cannelure as in United States small-arms ammunition. It has both a telescopic sight and an open sight. A bayonet can be attached for hand-to-hand fighting. It is fitted with a handle on top of the barrel for holding while firing it from the hip. It may be fired from a bipod which is permanently attached about 6 inches from the muzzle or from a position which is generally used in firing a Thompson submachine gun. Reports that the Japanese have used "Tommy" guns may have originated from the fact that the type 96 light machine gun may be fired from the hip. Its chief characteristics are—

Caliber—6.5-mm (0.256 inch).
Over-all length—42 inches.
Weight of gun, complete—19.18 pounds.
Weight of magazine, empty—1.25 pounds.
Barrel—removable.
Weight of barrel—5.83 pounds.
Length of barrel—21.9 inches.
Muzzle velocity—2,400 feet per second (approximately).
Mechanism, how operated—gas.
Operation—single shot or automatic.

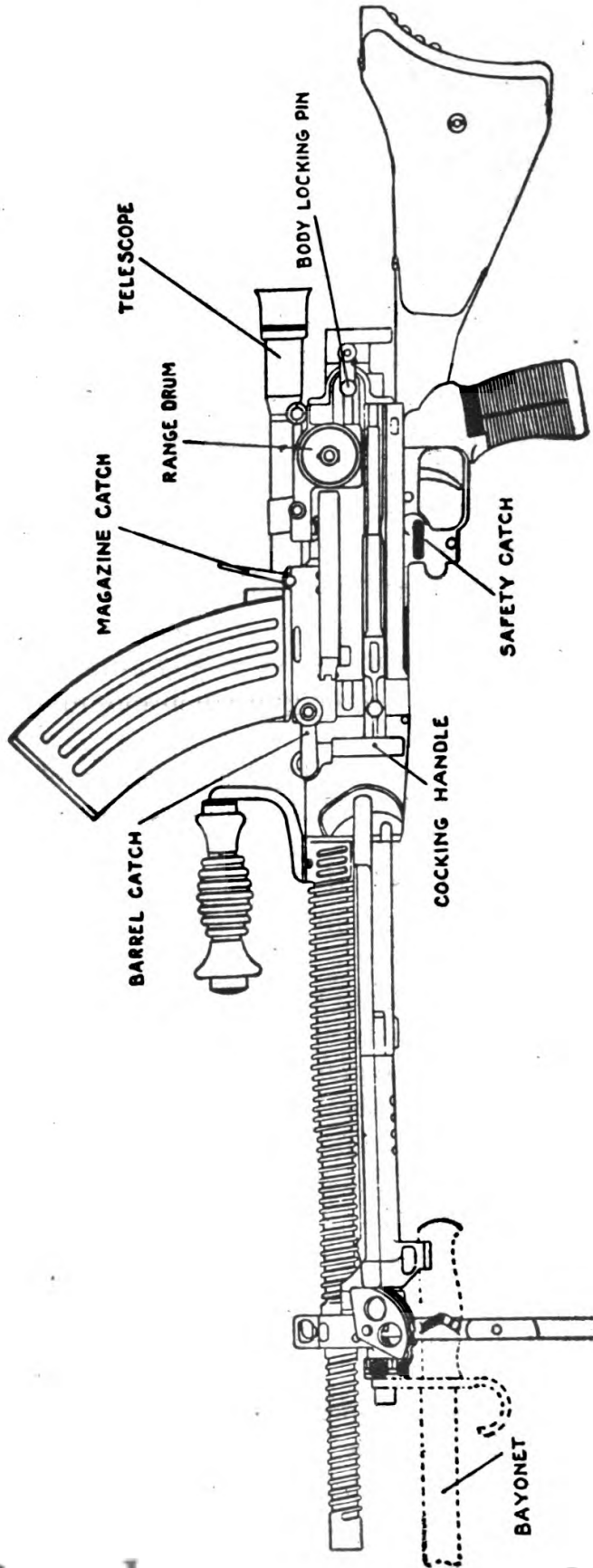


FIGURE 28.—Light machine gun, type 96 (1936).

Rate of fire, cyclic—550 rounds per minute (approximately)
Cooling system—air
Feed—magazine
Number of rounds in magazine—30
Rifling, twist—right
Number of grooves—4

c. Heavy machine gun.—(1) *Model 3 (1914) (sannen shiki kikanju).*—Japanese Infantry is now equipped with this heavy machine gun, a modified Hotchkiss, gas-operated, air-cooled, and strip-fed, fired from a tripod mount. Pasteboard strips are loaded at the factory with 30 rounds each of regular rifle ammunition (caliber 0.256 inch). The principal measurements and characteristics of the gun are as follows:

Weight, gun	58.7 pounds
Weight, tripod	60.3 pounds
Length of gun	47.6 inches
Length of bore	26.5 inches
Caliber	0.256 inch (6.5-mm)
Rifling	4 grooves, right twist, 1 turn in 7.8 inches
Life of barrel	40,000 rounds
Traversing angle	33.3°
Maximum angle of elevation	9°
Maximum angle of depression	15°
Ground clearance of barrel:	
Low firing position	15.8 inches
High firing position	23.7 inches
Rear sight	Graduated from 300 to 2,200 meters (328 to 2,405.9 yards). No correction for windage or drift
Cyclic rate of fire	500 rounds per minute
Maximum effective rate of fire	About 200 rounds per minute
Muzzle velocity	2,437 feet per second
Maximum range	4,374.4 yards
Transportation	Pack; gun and tripod on 1 horse. Ammunition horses carry 4 boxes of 600 rounds

Remarks ..... No heavy machine guns of this caliber were observed in the Malaya or the Burma operations.

(2) *7.7-mm (1932) heavy machine gun.*—A modified Hotchkiss, gas-operated, air-cooled, and strip-fed machine gun, fired from a fixed mount. Characteristics are as follows:

Weight, gun—61.6 pounds.
Weight, tripod—60.5 pounds.
Length of gun—43 inches.
Length of bore—25 inches.
Caliber—7.7-mm (0.303 inch).
Rifling—4 grooves, right twist, 1 turn in 20 centimeters.
Life of barrel—100,000 to 150,000 rounds; 3,000 to 3,500 rounds can be fired without overheating.
Traversing angle—360°, of which approximately 35° on arc graduated in mils.
Maximum angle of elevation—11°.
Maximum angle of depression—15°.
Ground clearance of barrel:
Low firing position—14.4 inches.
High firing position—21.4 inches.
Rear sight—graduated from 300 to 2,700 meters (328 to 2,947 yards). No correction for windage or drift.
Cyclic rate of fire—450 rounds per minute.
Maximum effective rate of fire—about 200 to 250 rounds per minute.
Muzzle velocity—2,700 feet per second (estimated).
Maximum range—4,300 meters (4,587 yards).
Transportation—pack. Gun and tripod on 1 horse. Ammunition horses carry 4 boxes of which there are 2 sizes in use, 1 holding 450 rounds, and 1 holding 600 rounds. In addition to pack transport, a two-wheeled machine-gun cart is used.

(3) *7.7-mm aircraft machine gun.*—A captured 7.7-mm aircraft machine gun was fired at Aberdeen Proving Ground using British 0.303 Mk, VII ball ammunition. The gun functioned perfectly. Its internal parts were interchangeable with the British Vickers machine gun.

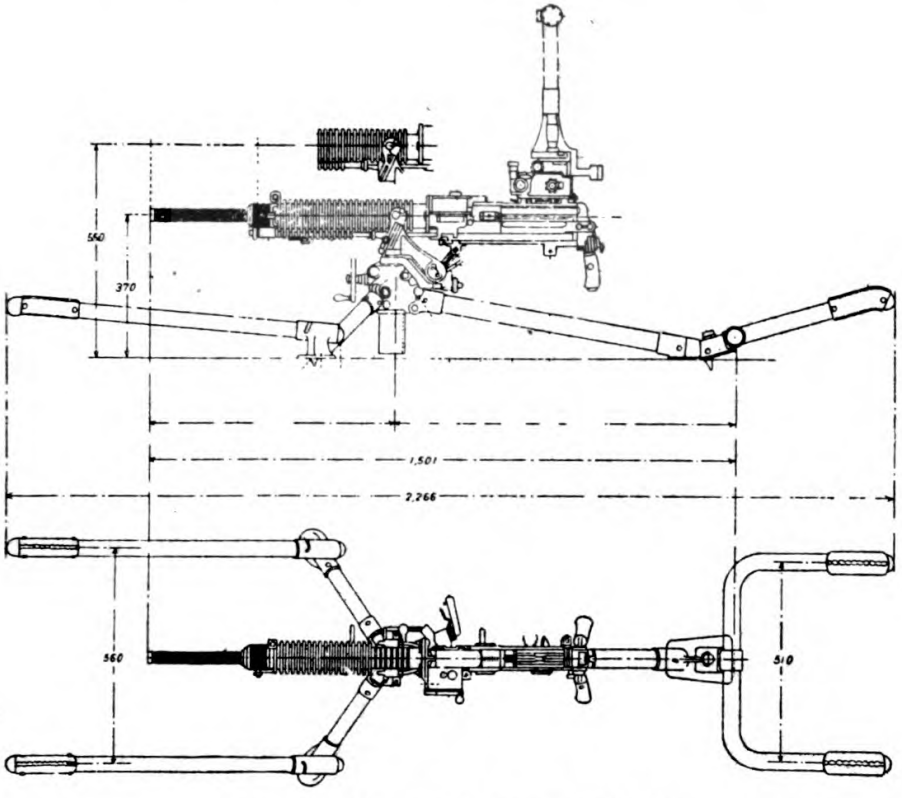


FIGURE 29.—Heavy machine gun, model 92.

(4) *Machine-gun antiaircraft adapter.*—Some machine-gun companies are equipped with an antiaircraft adapter giving a maximum angle of elevation of 80° and a vertical range of 3,300 feet.

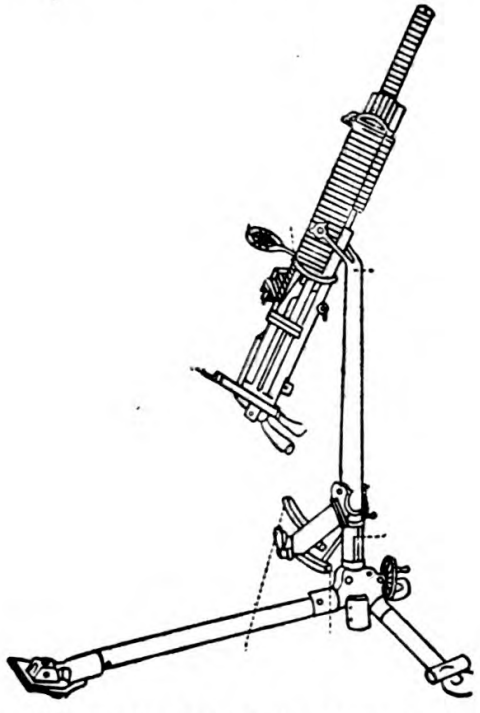


FIGURE 30.—Heavy machine gun, antiaircraft adapter.

d. 13-mm (0.512 inch) Arisaka antitank rifle.

(1) Characteristics are as follows:

Weight—50 pounds.
Type—Arisaka—M1939.
Caliber—13-mm (0.512 inch).
Type of feed—vertical box magazine fitted on top.
Magazine capacity—25 rounds.
Rate of fire—25 rounds per minute.
Maximum range—3,280 yards.
Weight of projectile—680 grains.
Weight of complete round—2,894 grains.
Type of mounting—bipod.

(2) The ammunition is stated to be capable of piercing 1-inch armor plate, but neither the range, angle of incidence, nor quality of armor is known.

(3) A drawing of the breech mechanism of this weapon shows that it closely resembles that of the caliber .30 Browning machine gun M1917, the only apparent modifications being the omission of the belt-feed mechanism and provision for the fitting of a 25-round box magazine.

e. Antitank weapons.—(1) The Japanese Army dislikes single-purpose weapons but circumstances have forced it to produce a specific antitank gun. Extreme precautions have been taken to prevent details and characteristics of this gun from being known. It is believed to be caliber .80, air-cooled, long-barrel weapon, with automatic breech mechanism and mounted on a low bipod or tripod. The gun is carried by four men in combat and transported on a truck or packed on one horse. This gun is the only exclusive antitank weapon known in Japanese organizations. Other weapons regarded as suitable for use against tanks are the 37-mm gun, model 94; regimental mountain gun, model 41; and the battalion howitzer, model 92, in the Infantry; and in the Field Artillery, the mountain gun, model 94; and the 1906, 1908, and 1930 models of the 75-mm gun.

(2) The Japanese were reported using antitank guns of 47-mm caliber in the Philippines. Antitank rifles of about 20-mm caliber have been reported by the British in Malaya. Also 57-mm antitank cannon have been mentioned in reports.

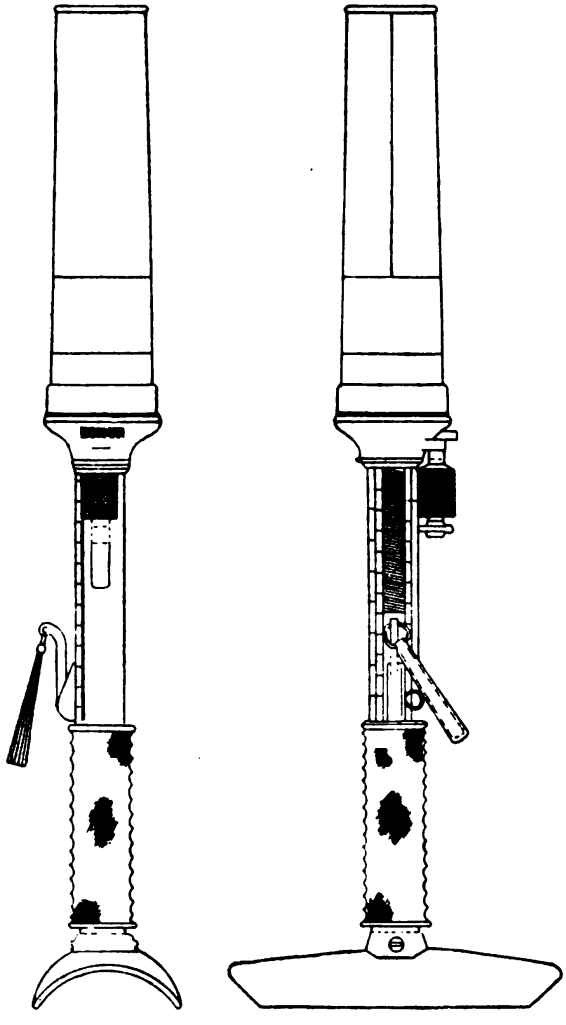


FIGURE 31.—Heavy grenade thrower, model 89.

33. Heavy grenade thrower, model 89.—Characteristics are as follows:

Weight (total)	10.5 pounds
Length	20 inches
Length of tube	10 inches
Caliber	50-mm (about 2 inches)
Ammunition used	Model 89 shell
	Time fuze hand grenade
	Signal pyrotechnics
	Smoke grenade
	Practice grenade
Range for model 89 shell	140 to 700 yards
Range for other ammunition	40 to 200 yards
Signal, vertical	100 yards

Time of fuze	7.5 seconds after discharge or on impact
Rate of fire	One man—10 shots per minute; two men—20 shots per minute
Effective area of burst, model 89 shell	5-yard radius

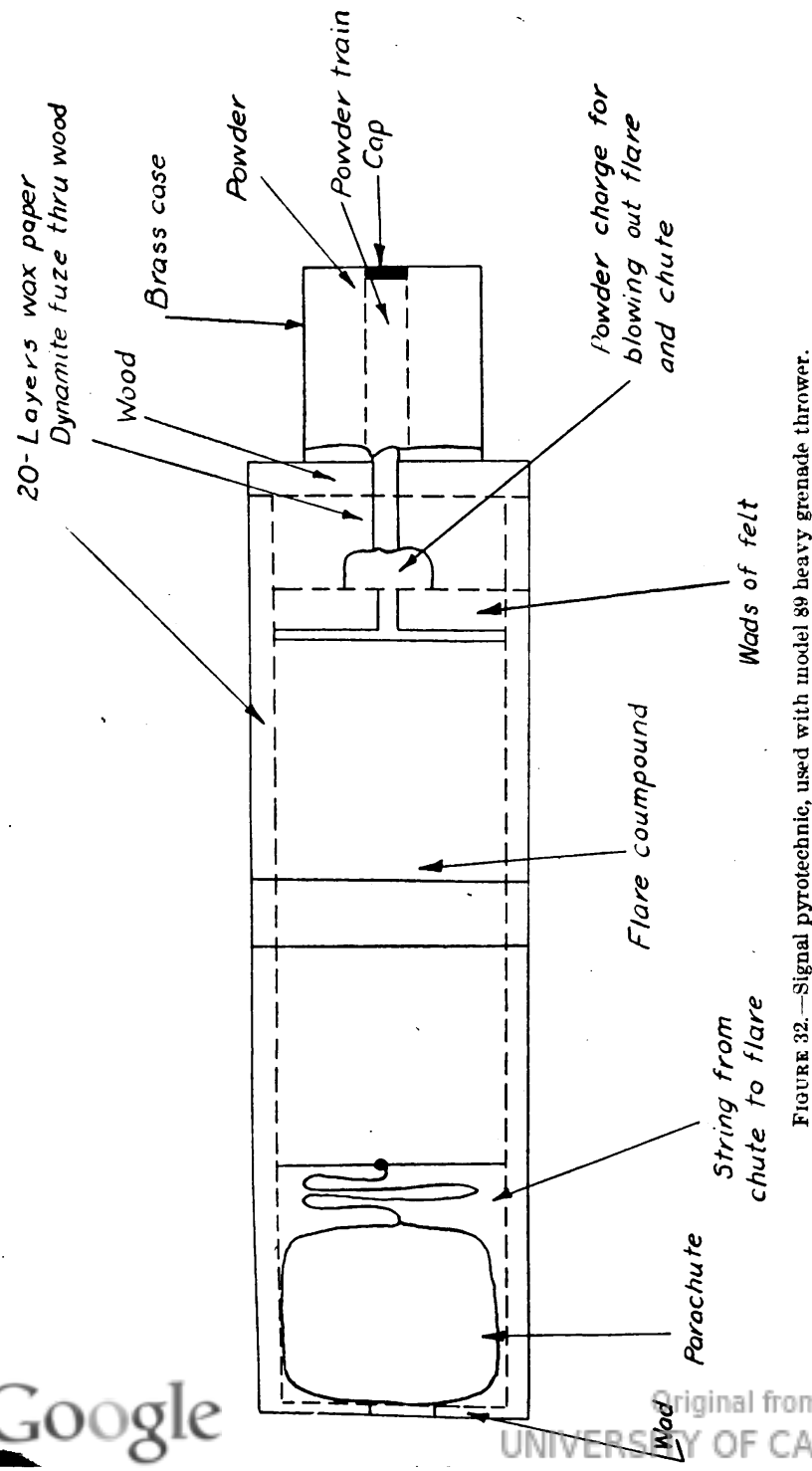


FIGURE 32.—Signal pyrotechnic, used with model 89 heavy grenade thrower.

34. Hand grenades and mines.—*a. Hand grenades.*—(1) The Japanese use several types of hand grenades. Type 91 is cylindrical in shape with a serrated barrel. It is nearly 2 inches in diameter, with an over-all height of about 4 inches. It weighs, assembled, slightly

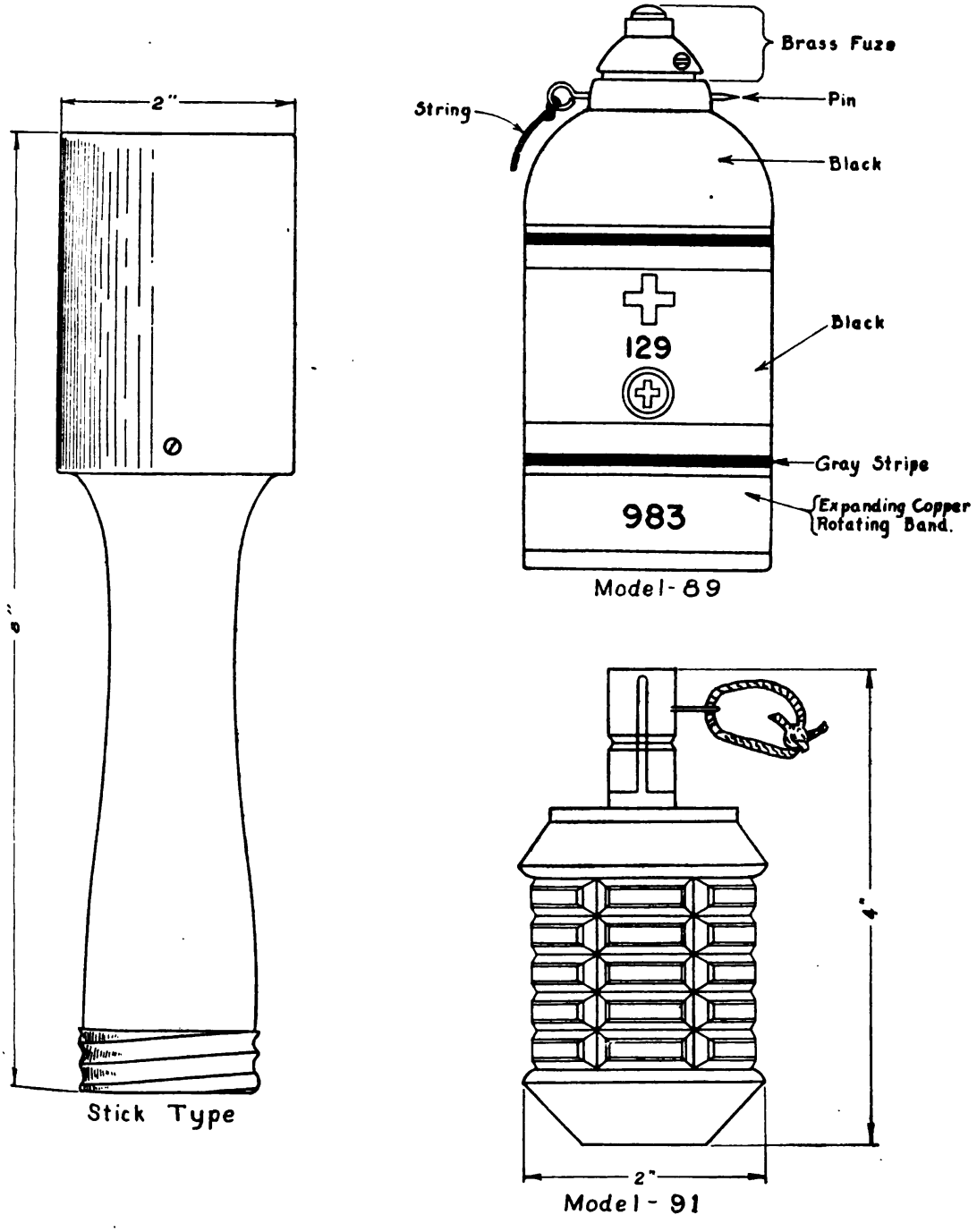


FIGURE 33.—Hand grenades and model 89 mortar grenade.

over 1 pound. The bursting charge is 2 ounces of TNT. The detonating fuze and plug weigh 3¼ ounces and the body weighs 11 ounces. When the safety pin is withdrawn, the head of the ignition tube is

given a sharp blow which drives the striking pin into the percussion cap. The fuze, with a delayed action of 4 to 5 seconds, is then ignited and the grenade is ready to be thrown.

(2) The stick type grenade is also used. The diameter of the grenade body is 2 inches and its over-all length is 8 inches. The length of the grenade body is 2¾ inches. The bursting charge is 2¾ ounces of lyddite. The total weight is about 1 pound, 3½ ounces. The body is cylindrical, nonserrated, and the wooden handle is inserted in the top. To use this grenade, a pressed metal cap is removed from the end of the handle and the ring is passed over the middle finger of the right hand. The handle is then grasped by the same hand and the grenade thrown. As the grenade leaves the hand, the ring and string are retained, and the striker on the other end of the string comes into action and lights the igniter. This lights the fuze which has a delayed action of 4 to 5 seconds and detonates the charge.

(3) Chemical hand grenades are described in paragraph 60.

b. Tank mines.—The Japanese use tank mines which have the appearance of two 6½-inch pie tins placed with their concave sides together. Four rings are attached to the edge for use in carrying or for anchoring them in place. The mine is buried in the road or tank approach flush with the ground. The fuze cap, which must be depressed to fire, is screwed into the top of the mine. It is 1½ inches in diameter and projects about ⅜ inch above the body of the mine. The sheer pin which acts as a safety device when the mine is handled is so strong that a light sedan can be driven over the mine field without detonating any mine. The power of its explosion is not great as only tracks were broken on the tanks which detonated the mines. These mines, if handled with reasonable caution, can be dug up and used by Allied forces.

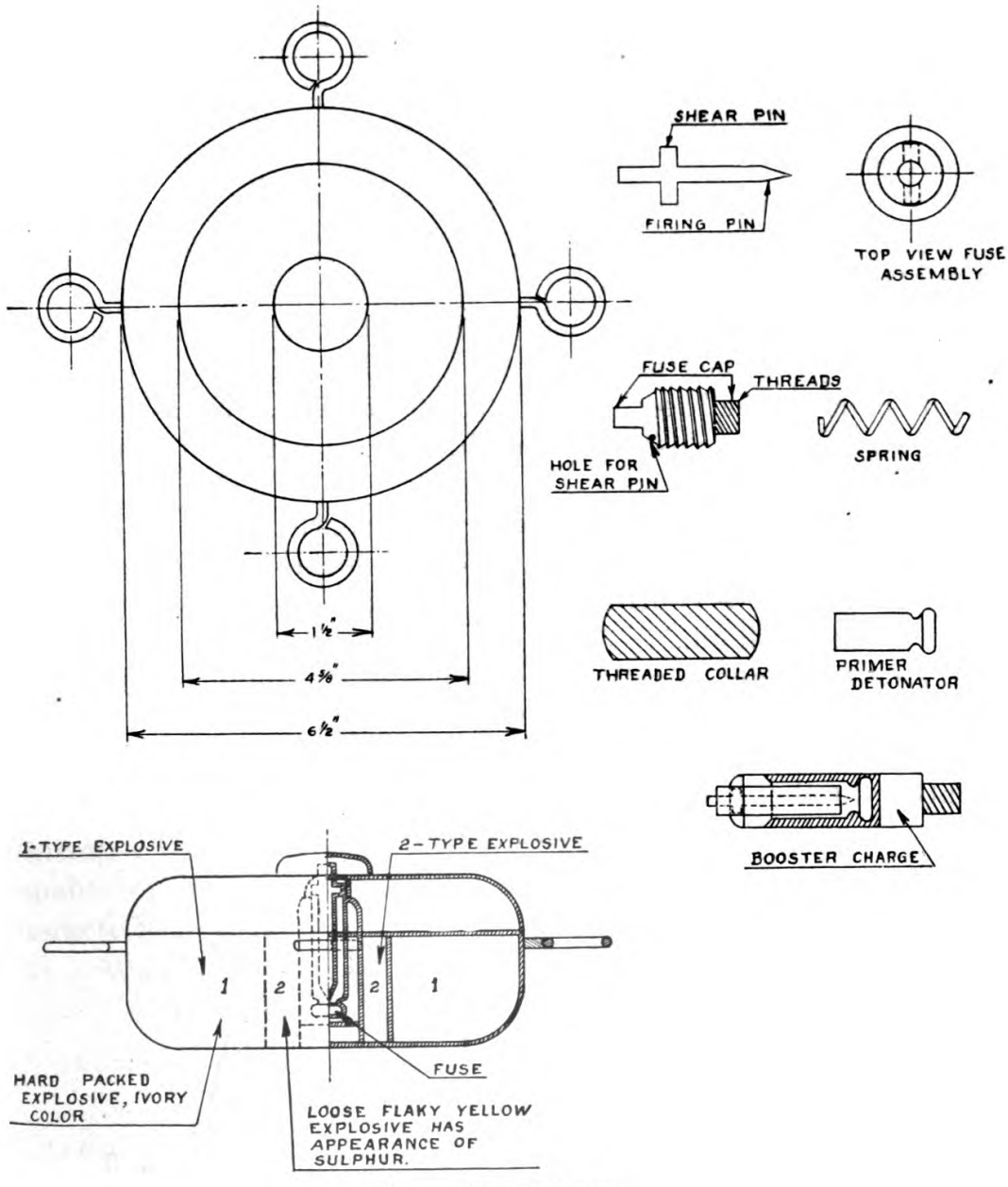


FIGURE 34.—Tank mine.

35. Infantry guns.—*a. Infantry rapid-fire gun, model 94.*—(1) *General.*—The infantry rapid-fire gun, model 94, is a small-caliber (37-mm) long rifle. Its characteristics are as follows:

Weight in action	800 pounds (approximate)
Over-all length	14 feet (approximate)
Length of barrel, including breech	6 feet
Length of trail and extension	5 feet each
Height	3 feet
Height of cradle	8 inches
Tread	3 feet
Width of trail opened for action	8 feet
Muzzle velocity	2, 300 feet per second
Maximum effective range	2,500 yards

(2) *Breechblock.*—The gun has a full automatic rotating breechblock. When the shell is loaded, the rear of the cartridge case, as it takes its place in the breech, trips a small catch that releases a spring which automatically closes the breech. Recoil action of firing opens the breech.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Length of recoil cylinder, 3 feet; caliber of recoil cylinder, about 3 inches. Short recoil for about 6 or 8 inches is controlled by a recoil cylinder under the barrel, probably filled with oil.

(*b*) *Traversing and elevating mechanism.*—The gunner, while aiming through the sight, operates the traversing handwheel with his left hand, the elevating handwheel with his right, and fires by pulling the latter to the rear as the gun is properly laid. The assistant gunner prepares the ammunition and loads.

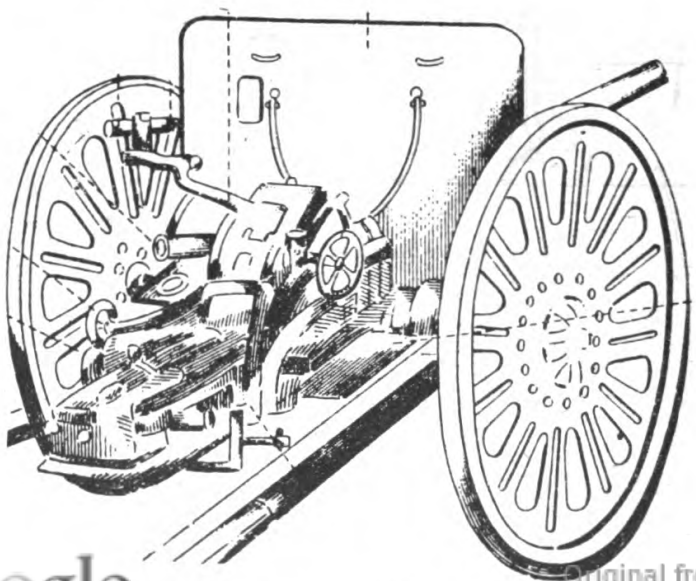


FIGURE 35.—Infantry rapid-fire gun, model 94.

(*c*) *Shield.*—The shield is of about 1-centimeter steel plate; its top is 1.09 yards above the ground. There is an aperture in the upper left-hand corner for sighting.

(*d*) *Trail.*—It has a split trail which, when opened, forms a V with a base of 5 yards. To the end of the trail is attached a pointed 8-inch spade. To the left side of the gun is attached a small 8-power telescopic sight. Upon the horizontal hair on each side of the vertical hair there are five 10-mil graduations.

(*e*) *Ammunition.*—The shell fired is a small-caliber 37-mm shell, weighing less than 1 pound and fixed to a rather unproportionately large cartridge case. It leaves the gun with an extremely high muzzle velocity, which is estimated to be about 2,300 feet per second. The shell is provided with a small, short-delay nose fuze. The burst is very small and not estimated as dangerous except at the actual point of strike or in a small enclosure directly penetrated. The gun has an exceptionally loud sharp report, a strong muzzle blast, and little smoke during fire. The gun horse is capable of carrying three boxes of ammunition.

(*f*) *Caisson.*—The ammunition caisson normally accompanying the gun is a simple box drawn by one horse and carrying 6 to 8 boxes of 12 rounds each. The gun is transported on its wheels with trails in the closed position. To the trails are attached extensions which are connected to the pack saddle of the animal drawing the gun.

NOTE.—The main purpose of the rapid-fire gun is to provide the first line infantry troops, both in attack and defense, with direct, close protection from attack by hostile tanks and armored cars.

b. Infantry battalion howitzer, model 92 (kyunishiki hoheihō).—(1) *General.*—The infantry battalion howitzer is a 70-mm rifled howitzer capable of delivering fire from range of 200 to 2,800 yards. Its characteristics are—

Weight:	
Howitzer	101 pounds
Mount	77 pounds
Mounted howitzer and caisson.	420 pounds
Length of bore	30 inches (approximate)
Over-all length	76 inches (approximate)
Mounted over-all length	5 feet (approximate)
Width of wheel tread	27 inches (approximate)
Effective range	300 to 1,500 yards
Traverse	45°
Elevation	−10° to +50°
Danger area of burst	40 yards (approximate)

(2) *Breechblock.*—Two threaded segments, rotating and opening downward.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Length of recoil, about 4 inches.

(*b*) *Traversing and elevating mechanism.*—Traversing handwheel on the left of the barrel and elevating handwheel on the right. Both handwheels are operated by the gunner, who lays first for direction, then for elevation. Elevating mechanism is similar to that of United States old pack howitzer. Traverse is about a heavy pintle mounted on the axle.

(*c*) *Shield.*—Armor plate about ⅛ inch thick.

(*d*) *Trail.*—Split 5 feet long, welded except where riveted to spade.

(*e*) *Panoramic sight* (*same as field artillery*).—Mounted on the sight bracket on the left side of the piece. The sight bracket includes a range drum with four divisions marked in mils, an elevating bubble, and a cross bubble for correcting for difference in level of wheels.

(4) *Ammunition.*—Semifixed with brass case. High-explosive shrapnel and smoke shells are used. The range is extended by

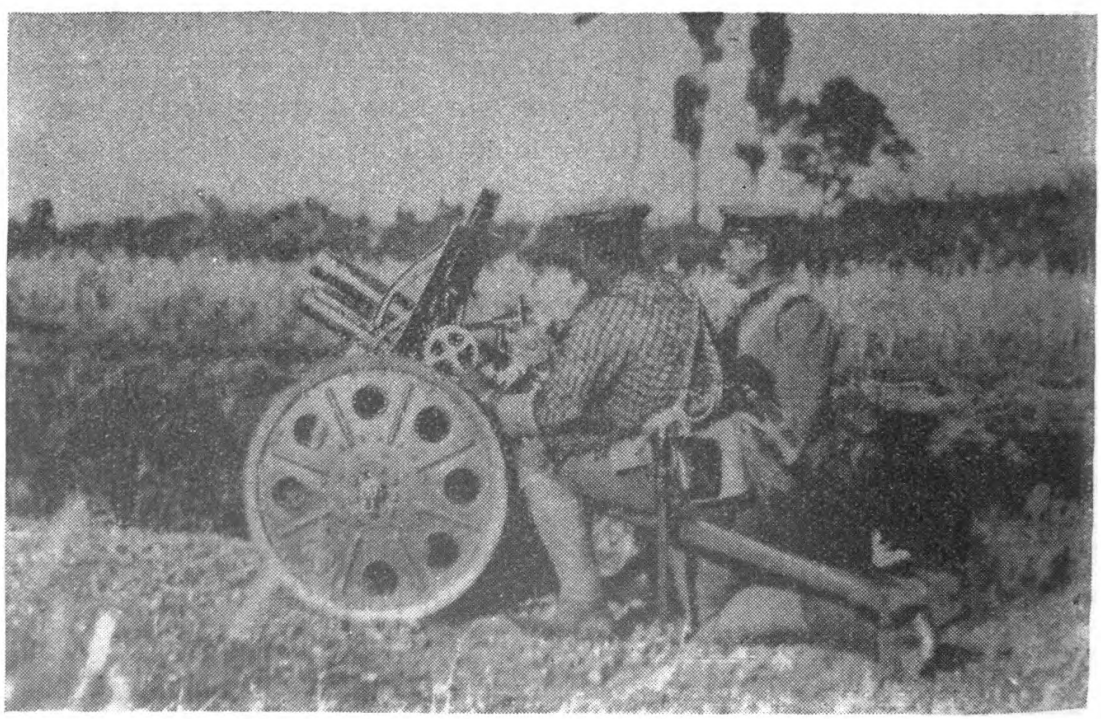


FIGURE 36.—Infantry battalion howitzer, model 92.

increasing the powder charge. At maximum range the time of flight for the different powder charges is—

Charge No. 1	30 seconds (3,075 yards)
Charge No. 2	25 seconds (1,975 yards)
Charge No. 3	20 seconds (1,300 yards)
Charge No. 4	15 seconds (985 yards)

Minimum permissible ranges with instantaneous fuzes employing low-angle fire vary with the powder charge, elevation of howitzer and target. With ground level ranges are—

	Yards
Charge No. 1	1,100
Charge No. 2	660
Charge No. 3	225
Charge No. 4	110

Minimum ranges with delayed action fuzes ground level are—

	Yards
Charge No. 1	660
Charge No. 2	330
Charge No. 3	330
Charge No. 4	330

Rate of fire: 10 rounds per minute, 5 rounds per box.

(5) *Other vehicles.*—(*a*) *Limber.*—This is a simple box mounted on an axle. Shafts are solidly attached to limber chest and to breast collar of the draft horse. Two boxes of ammunition, sights, and accessories are carried in the limber chest.

(*b*) *Caisson.*—Similar in construction to the limber and contains three boxes of ammunition.

(6) *Transport.*—The howitzer and ammunition caisson in tandem are pulled by a single horse.

c. 75-mm mountain gun, model 41 (1908) (regimental gun).—(1) *General.*—The infantry regimental gun is a mountain artillery piece of the breech-loading, oil-cylinder, recoil type, manufactured at the Osaka Arsenal. Its characteristics are—

Weight	1,200 pounds
Length of bore	50 inches (approximate)
Over-all length	13½ feet (approximate)
Width of wheel tread	3 feet
Maximum range:	
With long pointed shell	7,675 yards (approximate)
Otherwise	6,575 yards
Effective range	2,100 yards
Rate of fire	10 shots per minute

(2) *Breechblock.*—Interrupted thread swinging block.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Length of recoil, about 17 inches.

(*b*) *Traversing and elevating mechanism.*—Carriage type, 3° each side from center.

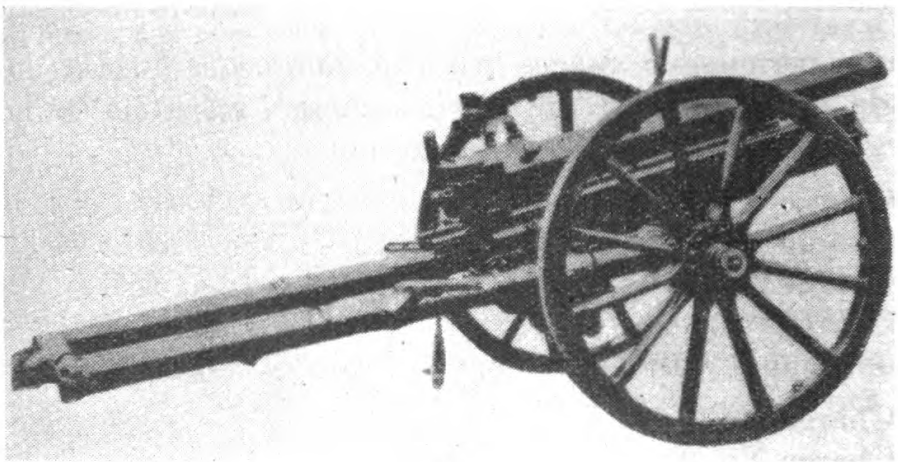


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FIGURE 37.—75-mm mountain gun, model 41 (1908) (regimental gun).

(c) *Shield.*—It has a rather large shield the thickness of which is unknown.

(d) *Trail.*—It is provided with a box trail fitted to a single tailpiece to which is attached the trail shoe.

(e) *Sighting equipment.*—Panoramic sight.

(4) *Ammunition.*—The projectiles are the same as in the field artillery ammunition except that the powder charge is smaller and the cartridge case shorter.

(5) *Other vehicles.*—There are two ammunition carts, each containing six boxes of ammunition and one box of spare parts.

(6) *Transport.*—Normally drawn by two horses in tandem with rear half of trail removed and replaced by shafts. It can be maneuvered by six men or taken down and carried by hand.

d. 37-mm gun, model 11 (1922) (obsolete).—This gun is similar in appearance to United States obsolete 1-pounder. Even though it has been replaced, it may be used again in the present large-scale operations.

SECTION II

FIELD ARTILLERY

36. Light artillery.—The gun used is a 75-mm gun, M1905 (Meiji 38), improved. It is being replaced by a 75-mm field gun, model 90 (1930).

a. General.—Krupp type, rapid-fire gun, manufactured and modified at the Osaka Arsenal. Weight of gun and loaded limber, about 4,500 pounds.

b. Tube and breechblock.—Horizontal sliding breechblock.

c. Carriage.—(1) *Recoil system.*—Hydro-spring.

(2) *Traversing and elevating mechanism.*—Top carriage traverse, 60 mils each side of center. The modifications of the original 1906 carriage consisted of trunnioning the tube farther back, replacing the old box trail by a longer open-box type through which the tube can recoil at high elevations, and adding two spring and cable equilibrator cylinders to compensate for the muzzle overhang. The modifications increased the range from 7,200 yards to 9,000 yards for shrapnel, to 9,300 yards for common shell, and to 11,800 yards for long pointed shell.

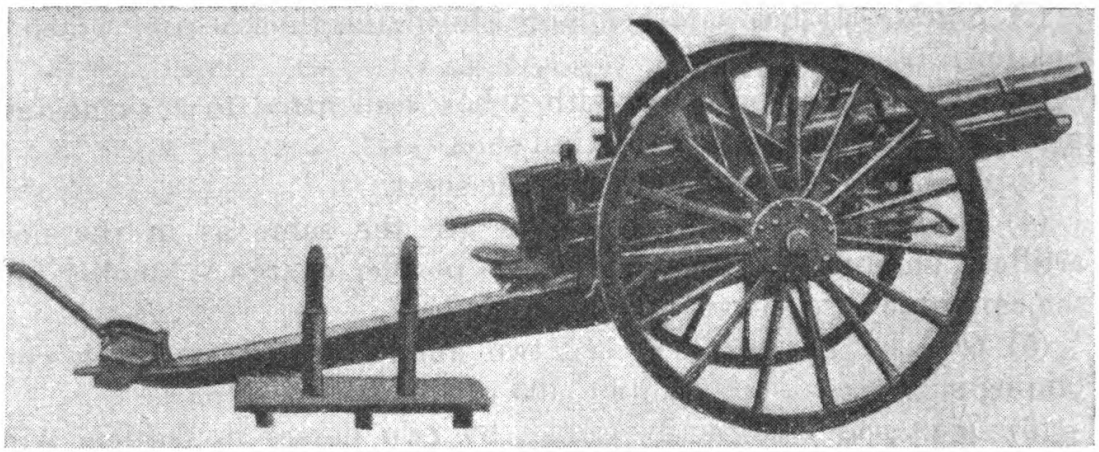


FIGURE 38.—75-mm gun, M1905 (Meiji 38) improved.

(3) *Shield.*—Armor plate, about 1/16 inch.

(4) *Trail.*—Open box.

(5) *Sighting equipment.*—Excellent panoramic sight of Japanese manufacture.

d. Ammunition.—Shrapnel, ordinary shell, long pointed shell.

e. Other vehicles.—(1) *Battery wagon.*—This is a two-wheeled, open-top steel wagon used with six-horse limber and employed to carry tools, spare parts, and accessories not carried on guns or limbers.

(2) *Communication wagon.*—This is a large, two-wheeled, closed-top steel wagon similar in appearance to United States battery wagon and designed to carry the observation and communication equipment not carried by personnel. There is one communication wagon in each regiment.

(3) *Caisson.*—The caisson is similar in appearance to that of the United States and has a rear, dropping, chest door and no apron. The interior is divided by steel straps into five tiers of three receptacles each for removable ammunition trays. Each tray holds four rounds of fixed ammunition, giving a capacity of 60 rounds. Each battery has six caissons.

(4) *Limbers.*—All limbers are the same and are similar to those of the United States in general appearance. The chest is similar to the caisson chest as regards doors and ammunition tray receptacles, except that there are only four tiers and the center recesses of the two top tiers have been made into one large recess for a combination sight and accessory box. The remaining 10 ammunition tray recesses hold 40 rounds of fixed ammunition. Each battery has 15 limbers.

f. Transport.—Horse-drawn, six horses.

g. Improved model of 75-mm field gun.—A Model 90 (1930) 75-mm field gun, which is an improved model of the M1905 (Meiji 38), has

been adopted and issued to some divisions. At least some of the new model 75-mm guns have pneumatic tires and are tractor-drawn. Some of the characteristics follow:

Length of bore	44 calibers
Muzzle velocity	2,230 feet per second
Shell	High-explosive
Weight of shell	14.3 or 13.85 pounds
Maximum range	15,000 yards
Elevation	43°
Depression	8°
Traverse	43°
Weight in action	3,000 pounds

FIGURE 39.—Improved model of 75-mm field gun.

37. Pack artillery.—The gun used is a 75-mm mountain gun, model 94 (1934).

a. General.—During 1936 and the early part of 1937, mountain artillery units were issued the new mountain gun, M1934, in lieu of the M1908 gun. The former are manufactured at the Osaka Arsenal.

b. Tube and breechblock.—Total length of tube, 5½ feet; breech and rifled portion jointed by interrupted screw with 3 threaded and slotted segments. Rifling, 24 grooves, 7° uniform pitch. Horizontal sliding breechblock.

c. Carriage.—(1) *Recoil.*—Hydro-spring, fixed, necessitating digging of breech pit at higher elevations.

(2) *Traversing and elevating mechanism.*—Total traverse of 700 mils; maximum elevation between 40° and 45°; range scales graduated to 7,675 yards (7,000 meters) for shrapnel and common shell and to 8,750 yards (8,000 meters) for long pointed shell. Maximum range, using quadrant, is probably 11,000 yards.

(3) *Shield.*—Armor plate, about ⅛ inch.

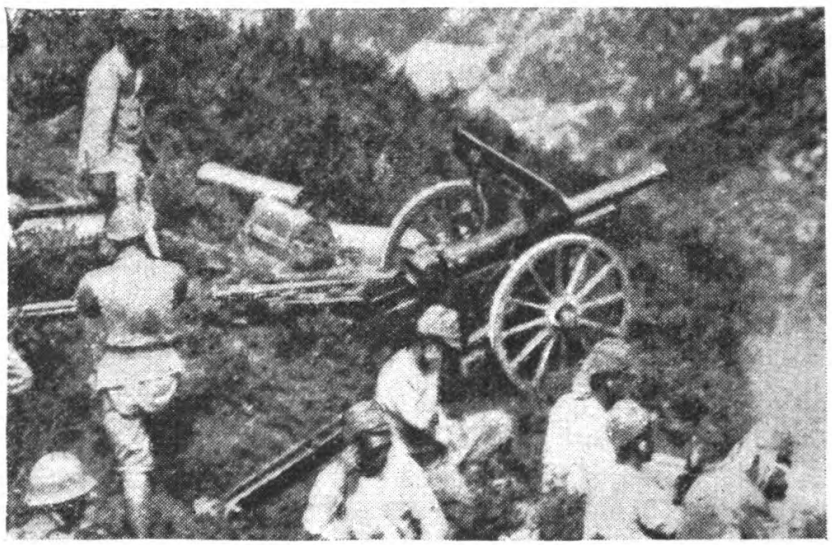


FIGURE 40.—75-mm mountain gun, model 94 (1934).

(4) *Trail.*—Split. Vertical spades.

(5) *Sighting equipment.*—Excellent 6,400-mil panoramic sight. Adjustment for difference in level of wheels.

d. Ammunition.—Fixed. Shrapnel, ordinary shell, long pointed shell.

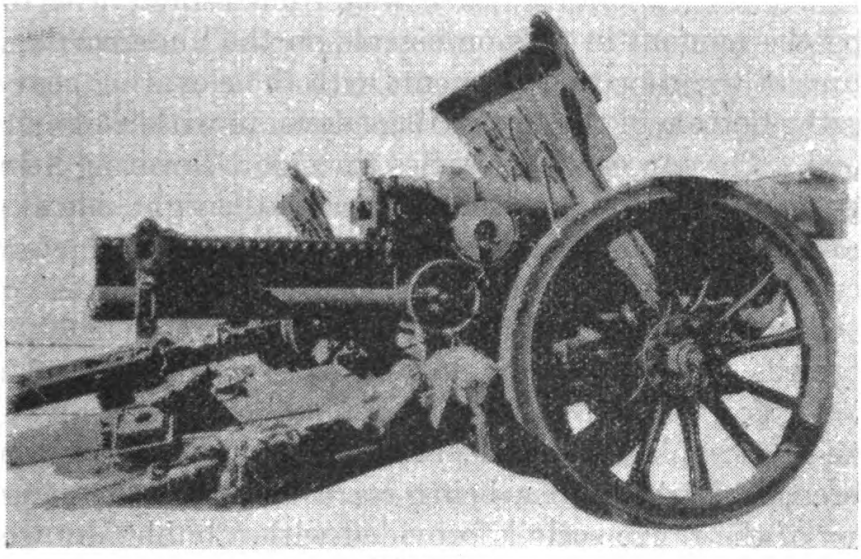
e. Transport.—For pack transport the gun, which weighs 1,200 pounds, and its equipment are divided into the following loads, the heaviest of which weighs 340 pounds, including the pack saddle: rifled portion of tube; breech, breechblock, and wheels; cradle, including recoil mechanism; axle assembly and elevating and traversing mechanism; trail legs and shield (latter in two parts); two equipment boxes for sights, fuze setters, and tools. Horses are used as pack animals.

38. Medium artillery.—*a. 105-mm gun, M1932 (tractor-drawn).*—(1) *General.*—Production probably began at the Osaka Arsenal in 1932.

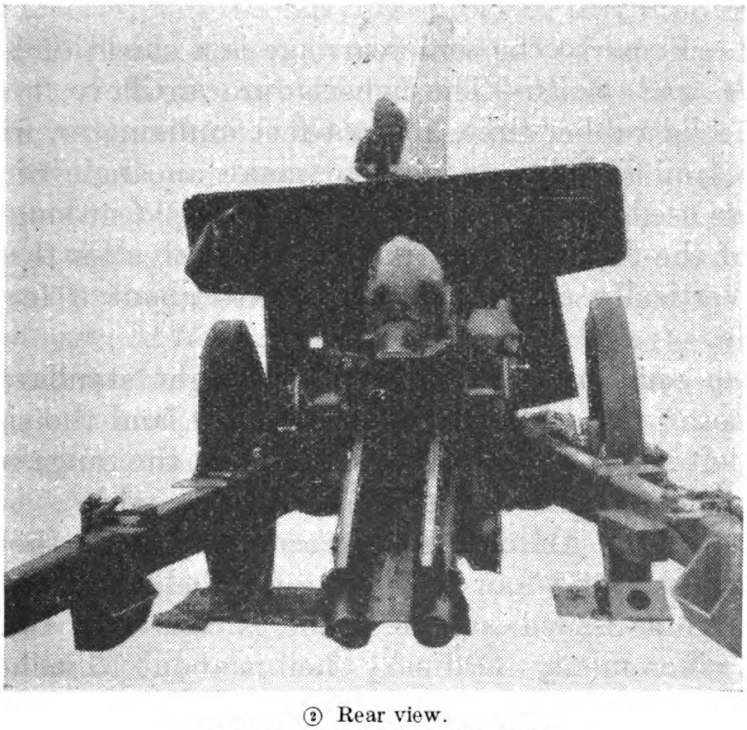
(2) *Tube and breechblock.*—The gun is about 45 calibers, with a long, slender tube and a single heavy jacket. It is pivoted well to the rear but has no equilibrator. Rifling consists of 32 grooves about $\frac{1}{10}$-inch deep, with lands of equal width. The breechblock is a

truncated cone, swinging horizontally and closing with a single motion, by a three-step interrupted thread.

(3) *Carriage.*—(*a*) *Recoil system.*—Hydro-pneumatic. The gun recoils in a cradle which is trunnioned to a top carriage and is elevated



① Side view.



② Rear view.

FIGURE 41.—105-mm gun, M1932.

by a single elevating segment cut with substantial teeth of herring-bone pattern on the outside of the arc. The recoil mechanism comprises two cylinders about 4 inches in diameter running the length of

the cradle, with a third cylinder through which the gun pulls a piston; it is said to be hydro-pneumatic and presumably the two long cylinders are recuperator and the third is recoil.

(*b*) *Traversing and elevating mechanism.*—The top carriage traverses on a pintle, about 15° each way from center, with a pointer indicating the amount in mils on a scale on the undercarriage. The large radius of the elevating segment, with the elevating gear beneath it, brings the bottom of the top carriage down to within 14 or 15 inches of the road. The top carriage carries the sight, elevating mechanism, and range drum. The range drum is fixed to the right side and geared to the cradle trunnion. It is a disk about 8 inches in diameter and has four circular scales, the outer one in mils of elevation, the others in meters, with maximum ranges of 20,122.6 yards (18,700 meters) 13,939.1 yards (12,740 meters) and 11,701.5 yards (10,700 meters), respectively, for pointed shell with zone I, and shell and shrapnel with zone II. Smoke shell and probably gas shell are also provided, the difference of trajectories being corrected from the range table. The index of the range scale is provided with a bubble by which it is zeroed at horizontal, and also permits the application of angle-of-site corrections.

(*c*) *Shield.*—Fixed to the undercarriage is a shield of ¼-inch steel.

(*d*) *Wheels and trails.*—The wheels are artillery type wooden wheels with solid rubber tires, about 4 feet in diameter, with a 5-inch tread. The trail is split, opening to make an angle of about 30°. No spades are used; instead, a base beam about 2 feet long is attached to the end of the trail like the cross of a T, with slots through which are driven vertically three flat steel stakes about 3 feet long and 5 inches wide.

(*e*) *Sighting equipment.*—The sight and sight standard are identical with those used on the 155-mm howitzer, and the sight mount, fixed to the left side, apparently differs only in the range scales of the mechanism which corrects for inclination of the axle.

(4) *Ammunition.*—Ammunition is semifixed with the propelling charge contained in a 2-foot brass case and held in place by a fiber cap; the charge as issued is zone I, and is converted to zone II by removing the increment. Ordinary shell is about 15 inches high and shrapnel 12 inches, without fuzes. Fuzes are identical with those of the 155-mm howitzer; namely, instantaneous, short-delay, and combination (time and percussion); the last cannot be fixed to shell.

(5) *Other vehicles.*—(*a*) *Limber.*—The limber is a small steel chest with a door opening forward under the seat and the back stepped down to a compartment barely 10 inches high, on top of

which are carried the wheel mats, stakes, and camouflage net. It carries no ammunition. The wheels are similar to those of the guns.

(*b*) *Caisson.*—A new caisson is provided, holding 24 projectiles in 3 tiers of built-in receptacles; each is secured by clamps tightened against the base, pressing the nose against a spring seat at the back of the receptacle. The compartment opens to the rear, and the whole arrangement is a great improvement over the old model. Cartridge cases are secured in pairs in metal carrying frames; these are thrust lengthwise as drawers into the forward compartment, which has a door opening forward under the seat, and accommodates 12 frames in 3 tiers. On top of the chest behind the seat is a compartment for fuzes. The wheels are steel disks with hard rubber tires, about 4 feet in diameter. Apparently only 1 of these caissons per battery has been supplied as yet.

(6) *Transport.*—Tractor-drawn. The tractor is type 92 (1932) Ishikawajima, recently adopted in place of the American Holt tractors formerly used. The weight is probably a little more than that of the 5-ton Holt. The motor is said to be approximately 50 horsepower. The drive and truck arrangement is quite similar to the old Holt 5-ton tractor, with the driving sprocket, three top rollers, a large end idler, eight lower rollers in two groups of four, and a ninth pilot roller in front of the two groups; all-metal track about 9 inches wide. The control arrangement consists of a central gear-shift lever with three forward and one reverse speeds, and two clutch control levers. There is no armor plate of any kind. Ordinary march speed is stated to be about 7 miles per hour, with a maximum speed around 10 miles. There are two transverse seats accommodating three men each.

b. 105-mm gun, M 1925 (Taisho 14) (tractor-drawn).—(1) *General.*—Manufactured at the Osaka Arsenal. Rate of fire: one round per minute for sustained fire; two rounds per minute for short periods; three rounds per minute maximum.

(2) *Tube and breechblock.*—Single motion, swinging type, interrupted thread, truncated conical breechblock.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Hydropneumatic, using glycerin. Recoil variable, from a maximum of 5 feet to a minimum which permits fire at maximum elevation without digging trail pit.

(*b*) *Traversing and elevating mechanism.*—Traverse 15° each way from center. Maximum elevation 35°. Range drum has four scales: elevation in degrees (5 to 35); long pointed shell, to 13,950 yards; ordinary shell with charge 1, to 10,900 yards; ordinary shell with charge 2, to 12,000 yards.

(*c*) *Shield.*—Armor plate, about ⅛ inch thick.

(*d*) *Trail.*—Split. Hinged trail spades are said to be inadequate in soft ground.

(*e*) *Sighting equipment.*—Panoramic sight of excellent quality.

(4) *Ammunition.*—(*a*) *Projectiles.*—There are three types: shell, long pointed shell, and shrapnel.

(*b*) *Fuzes.*—For shell, instantaneous and short-delay fuzes are provided; for shrapnel, 36-second combination fuze.

(*c*) *Propelling charges.*—There are two charges: charge 1 for shell and shrapnel; charge 2 for shell. The propelling charge as issued is charge 1, and is converted into charge 2 by withdrawing a bag containing part of the charge. Propelling charge is contained in a brass case with fixed primer, accommodating the full length of the charge.

(5) *Transport.*—Tractor-drawn, by type 92 (1932) tractor. (For details see *a*(6) above.)

(6) *Other vehicles.*—(*a*) *Limber.*—The limber is a small steel chest fitted with a compartment for sight and spare part, but no capacity for ammunition. Underneath the chest is an open compartment carrying two heavy rattan wheel mats to be placed under the gun wheels in firing position. The limber has two wooden artillery type wheels with hard rubber tires of about 3½-inch width.

(*b*) *Caisson.*—The caisson is a steel chest divided into two parts. The front part opens forward and has eight ammunition drawers each carrying three brass cartridge cases with propelling charges, and a similar drawer for fuze setters and spare parts; the rear compartment opens from the top and has space for 24 projectiles, simply piled in and protected from damage by individual rope nets, which are slung over the shoulder for carrying. The caisson has two artillery type wooden wheels with hard rubber tires; three caissons are coupled to a tractor.

(7) *Fire control and communication equipment.*—All fire control equipment is the same as that used by the light artillery with the exception of a high-powered monocular telescope set on a transit body, which is said to be used for long-range observation and location of distant targets by the same intersection methods employed by the light field artillery.

c. 105-mm light howitzer, model 91 (1931).—(1) *General.*—This weapon has, after lengthy tests, apparently been adopted for the 105-mm howitzer battalion of the divisional artillery regiment. It is a compact, efficient-looking weapon, and is probably not much heavier than the 75-mm gun.

(2) *Tube and breechblock.*—Tube is about 25 calibers in length, thick at the breech, with a pronounced taper toward the muzzle. Swinging interrupted thread breechblock.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Hydro-spring, using a mixture of glycerin and water.

(*b*) *Traversing and elevating mechanism.*—Elevating mechanism is of the spur gear type, yielding a reported maximum range of about 11,500 yards. Sleigh extends about 2 feet to the rear of the breech, which would seem to indicate that a trail pit will be necessary at higher elevations. Traverse reported to be 400 mils each side of center.

(*c*) *Shield.*—Armor plate, about ⅛ inch.

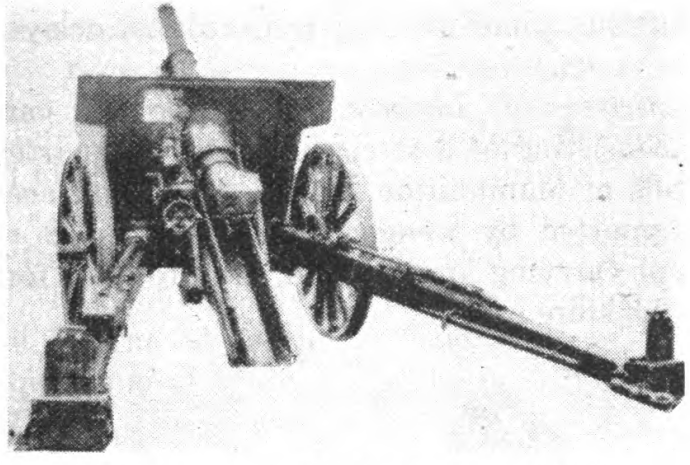


FIGURE 42.—105-mm light howitzer, model 91 (1931).

(*d*) *Trail.*—Split. Not equipped with spades, but anchored by driving flat metal stakes through slots near the ends of the trail legs.

(*e*) *Sighting equipment.*—Panoramic sight.

(4) *Ammunition.*—Probably includes shrapnel, ordinary shell, and long pointed shell.

(5) *Transport.*—Horse-drawn. Six horses.

d. 155-mm howitzer, M1915.—(1) *General.*—This model is a modification of the M1905 gun to secure greater mobility. In redesigning, the trail was lengthened about 4½ feet, and the load was split into two loads, each with its own limber. Sustained rate of fire, one round per minute; maximum rate, six to eight rounds per minute.

(2) *Tube and breechblock.*—The rifled portion of the tube is 15 calibers in length. The breechblock is of the vertical sliding type, with a coiled spring compensator.

(3) *Carriage.*—(*a*) *Recoil mechanism.*—Hydropneumatic, with recoil varying from a minimum of about 2½ feet to a maximum of 5½ feet.

(*b*) *Traversing and elevating mechanism.*—Axle traverse, with 3° each side of center. Elevation from minus 5° to plus 65°, through a double spur segment gear. Spring and cable equilibrators.

(*c*) *Shield.*—Armor plate about ⅛ inch.

(*d*) *Trail.*—Jointed, with forward section of the open-box type, and the rear sections of the box girder type. The rear section has a platform for carrying the trail when in traveling position.

(*e*) *Sighting equipment.*—All-round panoramic sight.

(4) *Ammunition.*—Separate loading, with a shallow brass case, having a fiber cover for the powder charge, which is variable from zone I through zone V. Includes shrapnel, common shell, armor-piercing shell, fragmentation shell, smoke shell, and gas shell. Fuzes include combination (for shrapnel and smoke), instantaneous, short-delay, and (for the armor-piercing projectile) a delayed-action base fuze.

(5) *Other vehicles.*—(*a*) *Limbers.*—The tube and carriage limbers are identical, consisting of a steel chest with compartments for four complete rounds of ammunition, sights, tools, and accessories. Set on an axle supported by wooden wheels with steel rims. Similar limbers, but not carrying ammunition, are provided for the observation cart and the store cart.

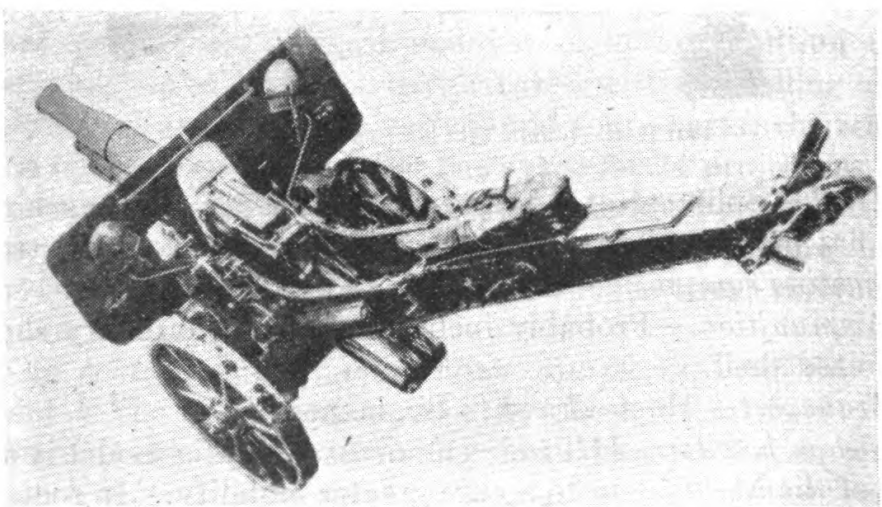


FIGURE 43.—155-mm howitzer, M1915 (side rear view).

(*b*) *Caissons.*—Steel chest type, carrying 12 complete rounds each. Caissons are coupled in pairs, the forward caisson acting as a limber.

(*c*) *Light observation cart.*—Two-wheeled steel wagon, with a large unpartitioned compartment for instruments and smaller compartments for the small stock of wire used. Coupled to a two-wheeled limber.

(*d*) *Store cart.*—Steel cart with open cargo body. Coupled to a two-wheeled limber.

(6) *Transport.*—For travel a pair of wheels is run under the rear section of the trail onto which the tube is then retracted and the rear section of the trail uncoupled from the front section. Each section is then linked to a two-wheeled limber, making two six-horse teams instead of the one eight-horse team formerly used with the old 1905 model.

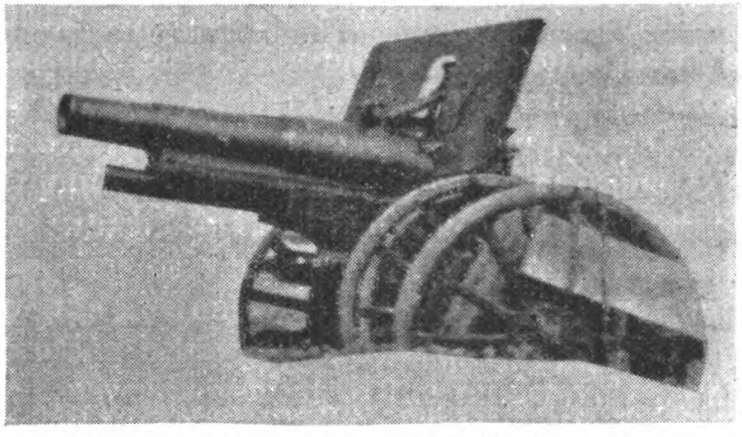


FIGURE 44.—155-mm howitzer, M1915 (side front view).

39. Heavy field artillery.—The gun used is a 150-mm gun, M1929.

a. General.—The 150-mm gun, M1929, is supplied to mobile artillery units and designated as "heavy field artillery" in the Japanese Army. Although manufacture was begun in 1929, issue was not completed until 1937. The arsenal of manufacture is unknown, but is probably either Kokura or Osaka.

b. Tube and breechblock.—Continuous, horizontal, swinging, interrupted-thread breechblock.

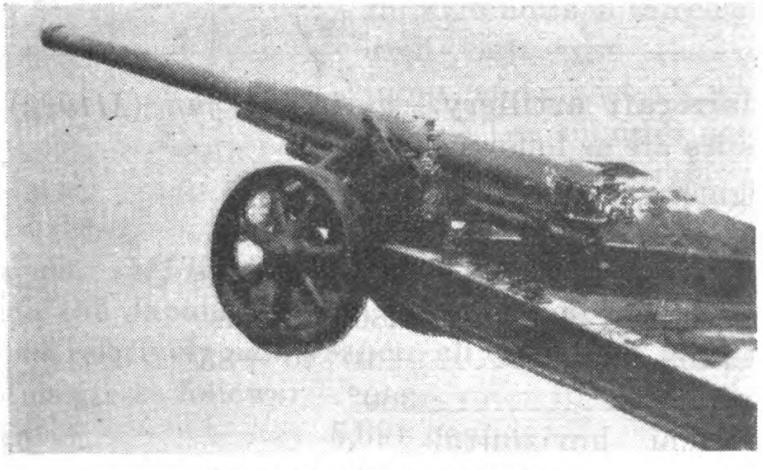


FIGURE 45.—150-mm gun, M1929.

c. Carriage.—(1) *Recoil mechanism.*—Probably hydropneumatic.

(2) *Traversing and elevating mechanism.*—Circular rack elevating mechanism. Top carriage traverse, probably about 400 mils each side

of center. Spring equilibrators. Maximum range probably about 27,340 yards.

d. Shield.—None.

e. Trail.—Split type.

f. Transport.—Tractor-drawn. The barrel retracts onto a separate four-wheeled carriage.

SECTION III

RAILROAD ARTILLERY, ANTIAIRCRAFT ARTILLERY, AND MACHINE GUNS

40. Railroad artillery.—The following is an estimate of the railroad artillery in the hands of troops and in storage in Japan and Manchuria:

Type	Caliber	In hands of troops		In storage, Japan and Manchuria	Total
		Japan	Manchuria		
(?)	20-cm	8	4	4	16
Schneider railroad 9-inch Japanese Army, M1928.	24-cm	12	12	6	30
Naval guns mounted on railroad trucks	30-cm	4	8	4	16
Naval guns mounted on railroad trucks	35-cm	4	4	2	10
Totals		28	28	16	72

41. Antiaircraft artillery.—*a. 75-mm gun (M1922) (mobile).*—Characteristics are as follows:

Weight:	
Gun and prime mover	12,800 pounds
Gun and mount	4,800 pounds
Elevation	+10° to +85°
Traverse	360°
Maximum horizontal range	11,000 yards
Maximum vertical range	19,725 feet

Rate of fire	15 to 20 rounds per minute claimed. Estimated, 12 rounds per minute.
Breechblock	Lateral sliding plug. Closes by hand but opens automatically upon firing, ejecting cartridge case.
Fuze setter	Continuous, automatic, by means of linkage between fuze setter and fuze range disk pointer. Fuze setter scale correction graduated in seconds and fifths. Correction of 15 seconds plus or minus permissible on correcter scale which must be set by hand.
Lighting equipment	Small shaded lights attached to sight and sighting equipment. Current supplied by 4-volt flashlight batteries good for 2 hours.
Emplacing	The outriggers are opened out, two on each side of the gun. Large jacks are placed under these and the gun lifted. Wheels are then removed and the gun lowered to the ground by means of the jacks. Coupling removed and placed in a slot 180° from original position, forming fifth outrigger. Iron-ringed wooden stakes are driven into the ground through holes in the cleats at end of each outrigger, thus preventing jump and twisting when gun is fired. Ten minutes are ample for emplacing. Removal requires about 6 minutes.

b. *75-mm gun (M1928) (mobile).*—This is an improved type of M1922 which the Japanese based on a French 1914–18 antiaircraft gun. As it is a relatively new weapon, all the details are not available. Characteristics are as follows:

Weight	5,391 pounds
Elevation	0° to 85°
Traverse	360°
Maximum horizontal range	15,200 yards

Maximum vertical range	33,000 feet
Claimed rate of fire	15 rounds per minute
Muzzle velocity	2,450 feet per second
Length of barrel	44.5 calibers

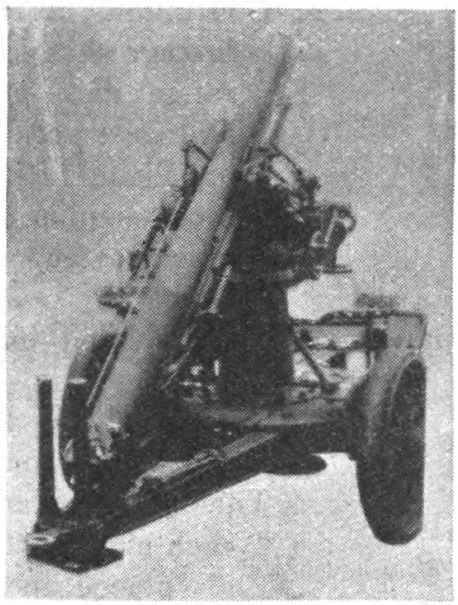


FIGURE 46.—75-mm gun M88 (1928) (mobile).

c. 105-mm antiaircraft gun M1925 (mobile).—Characteristics are as follows:

Weight:	
Gun and prime mover	13 tons
Gun and mount	7 tons
Elevation	0° to +85°
Traverse	360°
Maximum horizontal range	19,400 yards
Maximum vertical range	36,000 feet
Rate of fire	12 rounds per minute claimed; 10 rounds more nearly correct.
Breechblock	Lateral sliding plug. Closed by hand, opens automatically after firing, ejecting empty cartridge case. Reported as not working satisfactorily and subject to jams.

Fuze setter	Continuous, automatic by means of linkage between fuze setter and fuze range disk pointer. Fuze setter scale and correction graduated in seconds and fifths. Correction of 15 seconds plus or minus permissible on corrector scale which must be set by hand.
Lighting equipment	Small shaded lights attached to sight and sighting equipment. Current supplied by 4-volt flashlight batteries good for 2 hours.
Emplacing	Detachable from pedestal, six legs. Each leg has two sections. One end of the inner section is inserted in the base of the pedestal and the other end is fitted with a recess to receive the outer section. The outer section has two jacks with base plates through which stakes are driven. About 1 hour required for emplacing. Ground must be leveled as jacks are short. To withdraw the gun from position, 30 to 45 minutes are required. Difficult to move by hand.

d. Antiaircraft fire control equipment.—(1) *Position finding.*—The Japanese system of antiaircraft position finding is an application of the linear speed method. Only altitude, real speed, and angle of the path of the target are supplied to the guns for firing data. The range section instruments include a self-contained base height finder, B' and B'' altimeters, a speed and angle-of-path instrument, and an altimeter deviation instrument. These instruments are all of conventional type, being copies or adaptations of existing models.

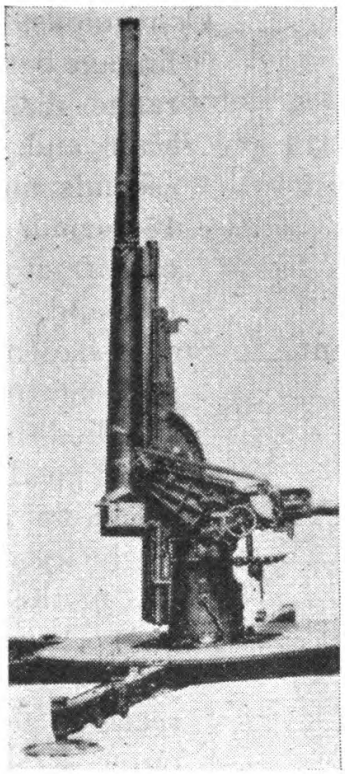


FIGURE 47.—105-mm antiaircraft gun, M1925.

(2) *Three-meter height finder.*—This is a stereoscopic instrument of foreign manufacture. A stereoscopic trainer of conventional type is used for selecting and training observers.

(3) *Data computor, M 1930.*—This computor has two sights which are kept trained on the target. The elevation and azimuth computed are transmitted by electric cables through two distribution

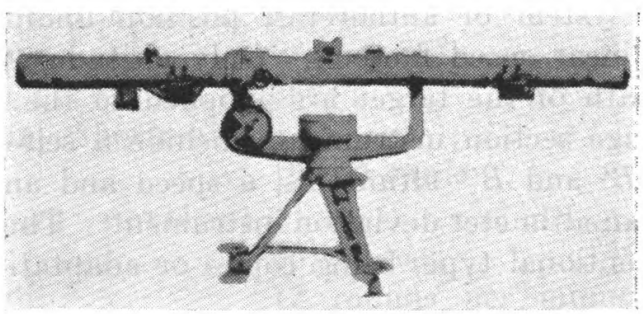


FIGURE 48.—Three-meter height finder (M1930?).

boxes to receivers on the guns. The data which are sent in to the instrument are the same as would otherwise go to each gun—namely, altitude, speed, and angle of path. The computor has nothing to do with fuze range, which is still worked out on the computing sight of the gun, using the altitude announced by the battery commander. Such an instrument is not a director in the sense made familiar by

the Vickers and other directors, and accordingly the term "computor" is used to translate the Japanese designation "shojun santeigu." Lacking further information on this instrument it is impossible to guess its details, but it is obviously based on the linear speed principle, apparently has no speedometer or rate-measuring element, and the inference is strong that it is little more than a collection within a box of those elements of the gun computing sight which have to do with elevation and azimuth. Use of this computor would save eight cannoneers in a four-gun battery, and should give a closer sheaf of fire by substituting a single computing crew remote from the gun for

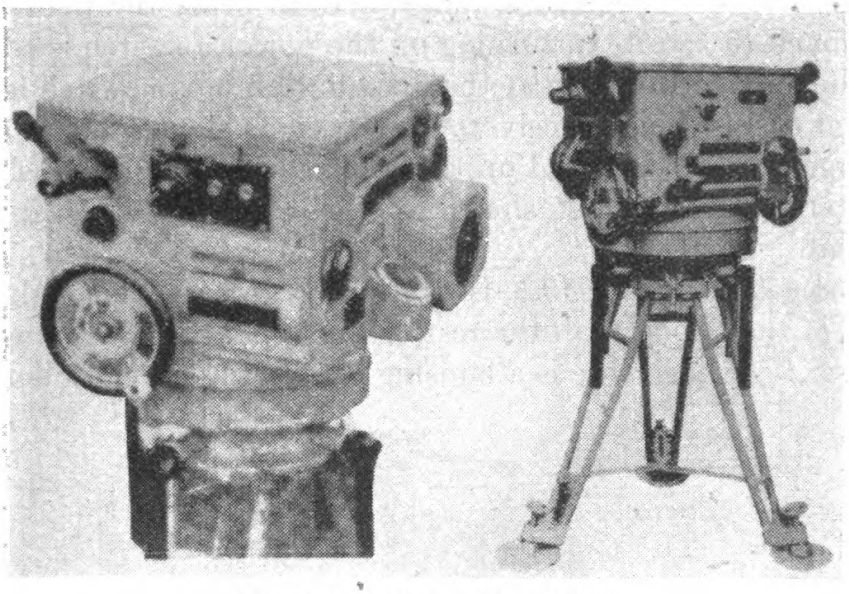


FIGURE 49.—Data computor, M1930.

four crews setting sights on the jolting gun carriage itself; but it is a very limited application of the idea of mechanical computation and electrical transmission, and the accuracy of the basic data supplied by the other instruments is still open to question.

(4) *Fire control equipment installed on gun.*—The general arrangement of the computing apparatus on the M1928 75-mm gun is unchanged except that at the interior left front of the new carriage, beside the vertical deflection cylinder, and set at an angle to it, there has been added a small circular disk crossed by a vertical scale. It is called simply a "correction disk," and from the brief mention of it in the 1933 Japanese Antiaircraft Manual "C" it seems to have two functions: first, to indicate a correction to be applied to the angle-of-path pointer on the movable azimuth circle; second, to indicate a supplementary vertical correction which is set back into the apparatus by setting a pointer to the curves on the disk. Both of these corrections appear to be connected with the future angular height, and probably the disk is

shafted in some way to the vertical deflection cylinder. This refinement calls for an extra cannoneer, making 12 in all. Graduations on the movable azimuth circle have been made easier to read, and have been freed from interference by a cross shaft as on the old gun. The gun has installed a junction box to receive the data transmission cable from the computor via the distribution box. This is the oblong box at the top front of the pedestal. The end of the cable is inserted in a receptacle at the bottom; the cover swings back and reveals plug receptacles for the short cables to the two data receivers. The receivers suggest an electric meter rather than a dial graduated in degrees, and the gun is laid by turning the handwheel to bring the pointer of the receiver back to zero. In turning on the power a switch is set first to ⅕ and then to 1; similarly at the distribution box a switch is set first to 1/10 then to 1. These receivers concern only elevation and azimuth. Fuze range is still computed on the sight and set continuously on the fuze setter by a chain of shafting. The fuze setter is apparently unchanged.

(5) *Sound locator, M1930.*—In the center is a circular disk fixed to the head of the tripod with the rest of the apparatus revolving around in azimuth. At each side is a housing containing a long roller rotated

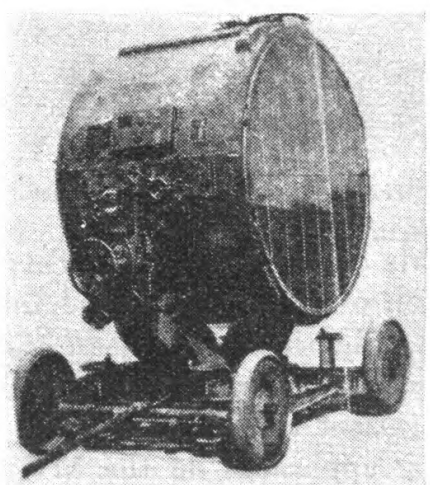


FIGURE 50.—150-cm searchlight, M1933.

by the elevating handwheel and intergeared with the roller on the opposite side so that both have the same motion. Thus they impart a parallel motion, perpendicular to its edge, to a ruler which lies flat on the circular disk and has a lug at each end engaging a spiral groove in

the roller. At the center of one edge of the ruler is a small ink reservoir with a pen which traces a broad line on the surface of the disk. Thus, if the horns are elevated without traversing, a radial line is traced on the disk; while, if they be traversed without elevating, there results a circle with its center at the center of the disk and its radius corresponding to the vertical setting. Such radial lines and circles are

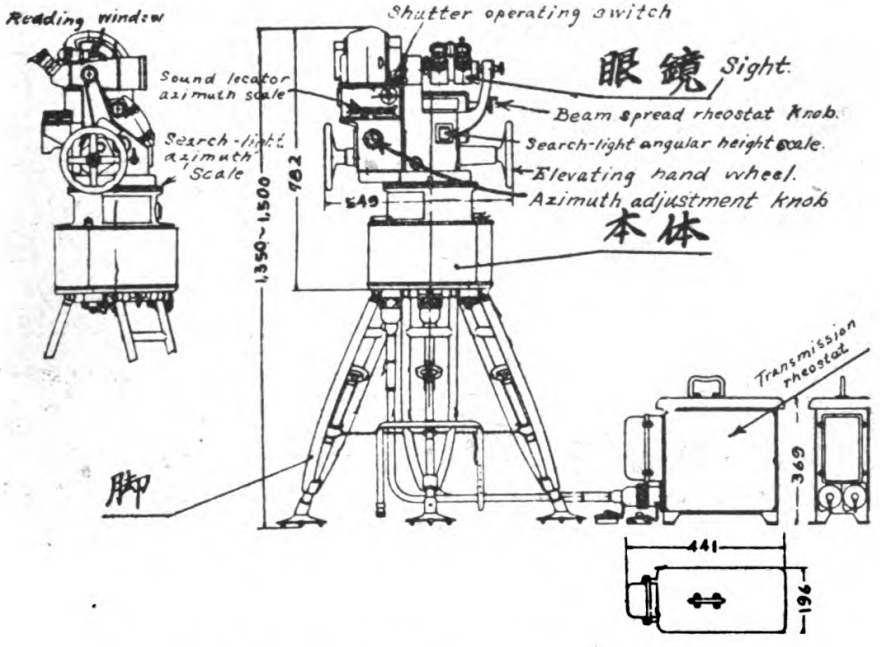


FIGURE 51.—150-cm searchlight comparator, M1933.

engraved on the disk and are assumed to be graduations of azimuth and angular height or some function thereof.

(6) *Searchlights.*—There are several models in use: the Sperry, copies of the Sperry, and later modifications. The 150-cm M1933 is provided with a telescope which evidently has a large objective for night use. It is not apparent whether it functions also as a comparator, although the number of cables led into it would so indicate.

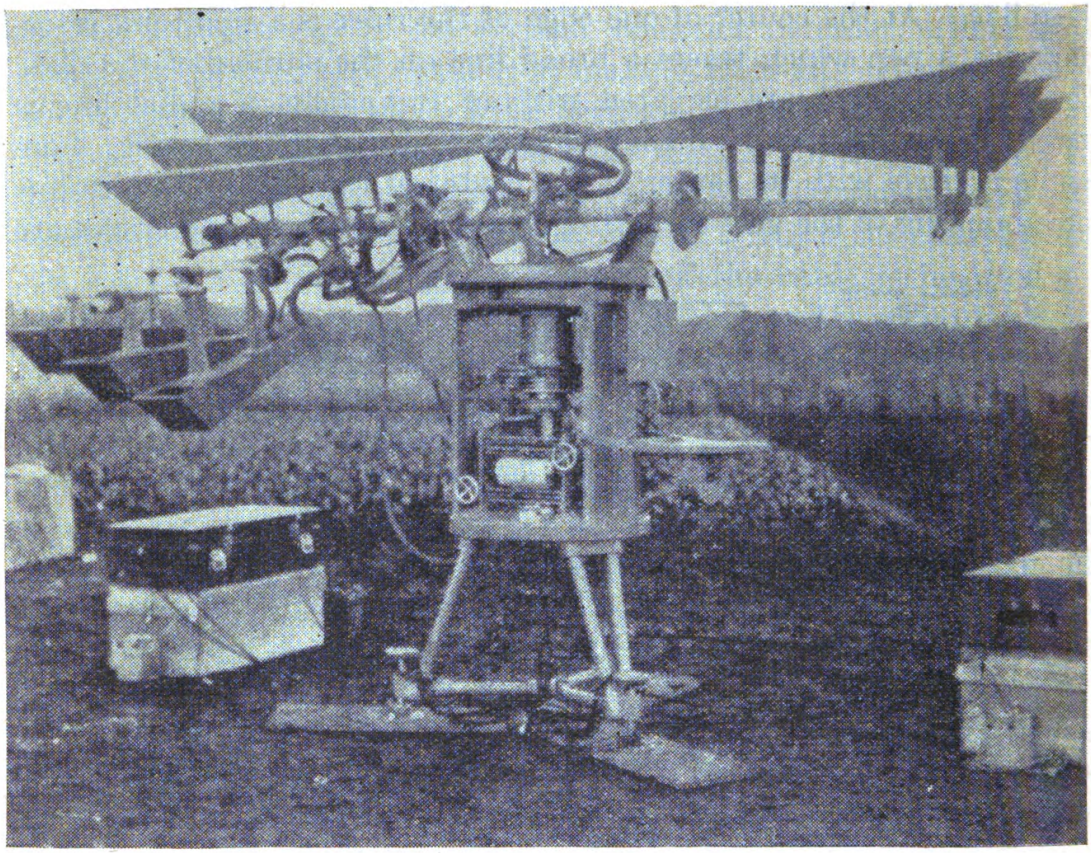


FIGURE 52.—Sound locator.

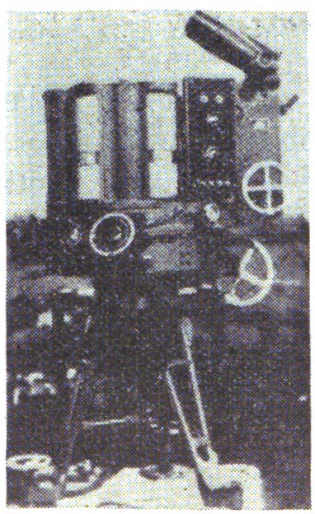


FIGURE 53.—Central command instrument.

(7) *Miscellaneous.*—Figures 48 to 53 show various other types of antiaircraft equipment in use in the Japanese Army in 1936.

FIGURE 54.—10-cm antiaircraft binocular, M1929.

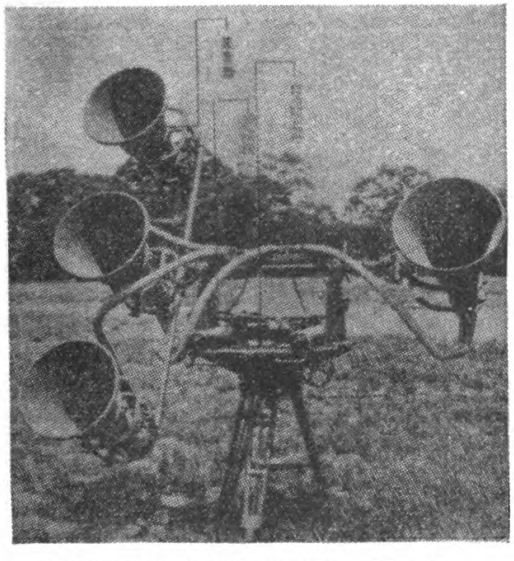


FIGURE 55.—M1930 small sound locator.

e. 20-mm antiaircraft and antitank gun.—The Japanese are reported to be using a 20-mm rapid-fire gun manufactured by Oerlikon (Swiss). The characteristics are as follows:

Weight	836 pounds
Elevation	−10° to −85°
Traverse	360°
Maximum horizontal range	5,450 yards
Maximum vertical range	12,000 feet
Rate of fire	120 rounds per minute
Muzzle velocity	2,720 feet per second
Length of barrel	70 calibers

The Japanese are now reported to be manufacturing this gun under license at a factory just south of Yokosuka.

FIGURE 56.—20-mm Oerlikon antiaircraft and antitank gun.

f. Machine guns.—(1) *13-mm Vickers type machine gun.*—The 1933 Japanese Antiaircraft Manual "C" mentions a two-gun antiaircraft mount with two 13-mm machine guns. This gun is believed to be a modification of the Vickers machine gun.

(*a*) *Antiaircraft adapter 7.7-mm heavy machine gun.*—See paragraph 46*a*(2).

(*b*) *Antiaircraft sights.*—See paragraph 46*a*(3).

(*c*) *Caliber .50 machine gun.*—It is reported that the Japanese Navy (and probably Army) is replacing the 6.5-mm and 7.7-mm machine guns in their aircraft with a caliber .50 Czechoslovakian "Bren" machine gun purchased from the Germans. This has been used as an aircraft weapon and for antiaircraft defense.

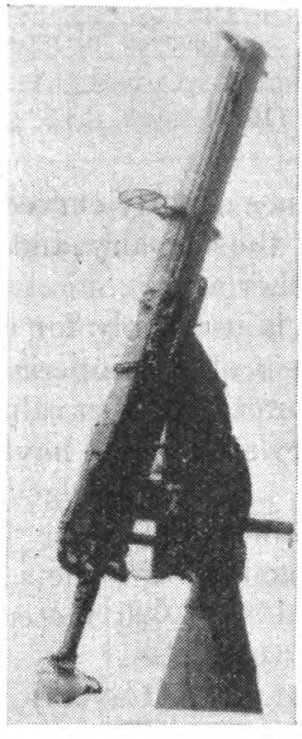


FIGURE 57.—13-mm Vickers type machine gun.

(2) *Standard machine gun for antiaircraft units.*—The standard machine gun for antiaircraft units is a 13.2-mm (caliber .50) Hotchkiss. Some of its characteristics are as follows:

Muzzle velocity	2,722 feet per second
Maximum horizontal range	7,085 yards
Maximum vertical range	13,120 feet
Weight of projectile	.114 pound
Weight of gun in action	213 pounds
Elevation	0° to 90°
Traverse	360°

This gun is also reported as being used in the newer airplanes.

g. Transportation.—Both the 75-mm and the 105-mm guns are drawn by tractors or by cargo body trucks known as "4-ton trucks" of Japanese make.

SECTION IV

CAVALRY

42. Saber.—The saber is a slightly curved weapon about 36 inches overall. It is carried by the Cavalry and officers and most noncommissioned officers of other arms.

43. Lance.—The lance is used only for ceremonies and is carried only by the cavalry regiment of the Imperial Guards.

44. Carbine and bayonet.—The cavalry carbine is model 1911 and differs from the infantry rifle only in having a shorter barrel. The weight is about 8 pounds. A double-edged bayonet is permanently attached to the rifle, folding under the barrel when not in use. M1905 carbines have detachable bayonets. The over-all length is 39.4 inches. It is sighted to 2,000 meters (2,187.2 yards). Side arms are carried by the Cavalry also.

45. Light machine gun.—The Cavalry uses the same model light machine gun that the Infantry uses. In pack, the gun is slung horizontally with the butt toward the croup well up on the near side of the pack. The tool and spare parts box is slung below the gun. Two ammunition boxes, each containing 400 rounds, are loaded one above the other on the off-side of the packsaddle. The encased, folded tripod is either packed on top of the packsaddle or suspended from the shoulder of one of the ammunition carriers. About 45 seconds are required to go into action from pack and about the same length of time is necessary to repack.

46. Heavy machine gun, model 92 (1932) (also used by Infantry).—*a. Methods of transport—pack.*—(1) The gun and certain accessories are carried on the pack in the following manner: the gun is slung horizontally, muzzle to the rear on the near side; two boxes of

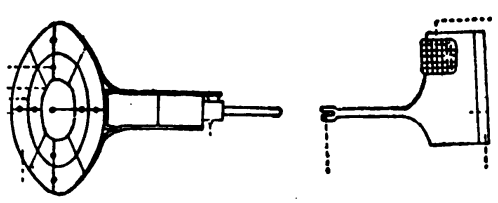


FIGURE 58.—Heavy machine-gun antiaircraft sight.

ammunition, each containing 15 clips of 30 rounds each (450 rounds), are loaded on each side of the packsaddle of the ammunition pack horse; spare parts and the tool box are carried below the tripod on the off side of the gun pack.

(2) An antiaircraft adapter, about 24 inches long and weighing less than 10 pounds is inserted between the gun and bipod when the gun is to be used against hostile aircraft. At other times one of the ammunition carriers slings it from his shoulder in a case.

(3) Antiaircraft sights are carried in a box by the squad and attached to the gun.

b. Other transport methods.—(1) The periscopic sight is carried by the squad leader. It can be attached to the gun for direct aiming, used attached to the panoramic sight, or used as a periscopic field glass when detached. It is a 6-power glass and has a 100-mil horizontal scale and a 70-mil vertical scale, both graduated into 5-mil units.

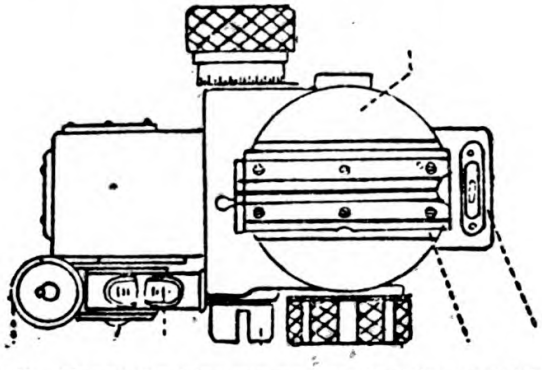


FIGURE 59.—Heavy machine-gun panoramic sight, model 94 (1934).

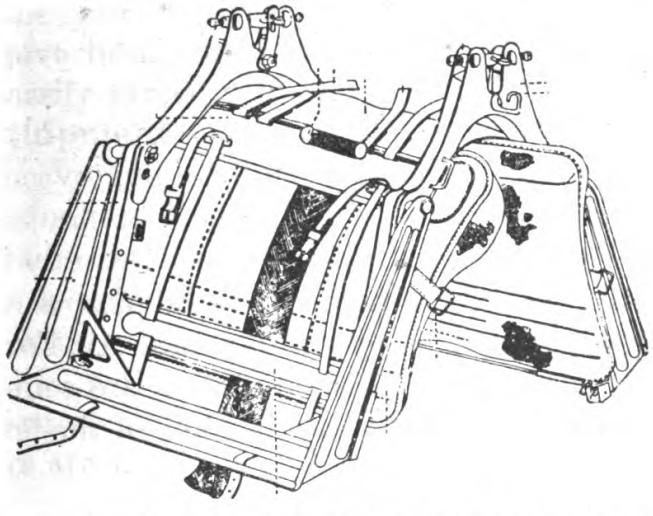


FIGURE 60.—Cavalry packsaddle (heavy machine-gun ammunition pack).

(2) The panoramic sight is carried by one of the ammunition carriers. It is equipped with range, traversing, and site scales, and leveling bubbles.

(3) The flash hider is carried in the spare parts box.

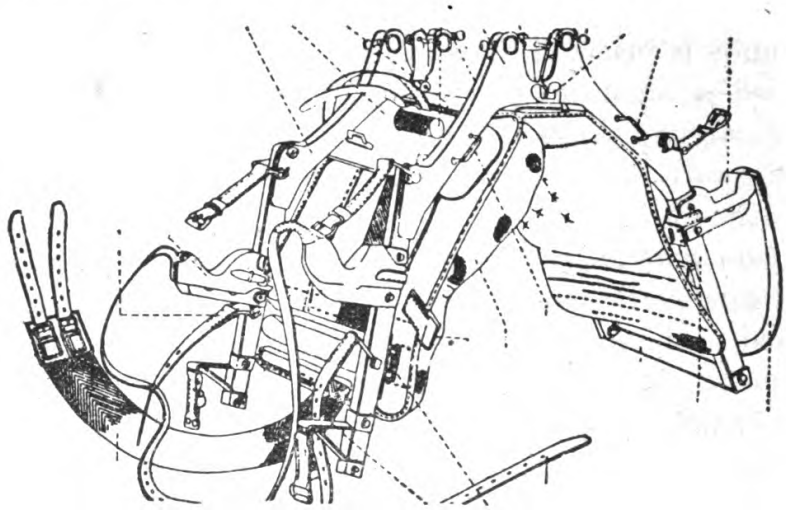


FIGURE 61.—Cavalry packsaddle (heavy machine-gun pack).

47. Cavalry packsaddle.—The packsaddle used by the Japanese Cavalry is similar in basic design to the Phillips packsaddle used in the United States service, and consists of a steel frame to which the necessary pads and hangers are attached. Hangers are adapted to the load intended to be packed.

SECTION V

AIR CORPS

48. Equipment (types of aircraft).—*a. General.*—The various types of aircraft currently used by the Japanese Air Forces are shown in paragraph 52. Included in this tabulation are some of the obsolescent types which may be still in use in some of the less active theaters or for operational training purposes.

b. System of designating types.—Considerable confusion has arisen in identifying the new types recently reported. Under the Japanese system of designating types (computation dating from the year 660 B. C.), "type 98" would refer to an airplane brought out in 1938,

"type 99" would cover the 1939 aircraft, and the types brought out in 1940 would be given the designation "Zeros." The term "new type Zeros" applied to reported new types of Japanese aircraft in recent months is a misnomer, as any *new basic* types used by the Japanese in this stage would undoubtedly be the result of 1941 and 1942 developments, and therefore should bear the type designation "01" or "02." On the other hand, various improvements or modifications are undoubtedly being made by the Japanese to the original Mitsubishi "0" fighter which was first brought out in 1940. Such changes, however, would not affect the basic type designated any more than changes being made in American P–39 and P–40 aircraft affect the basic type designations of these aircraft.

c. New types.—New types of Japanese aircraft reported but not yet definitely recognized as operational equipment include a Mitsubishi twin-engine fighter equipped with three 12.7-mm (caliber .50) machine guns and one 20-mm cannon, with a speed of over 300 miles per hour; a Nakajima Navy 01 fighter with a liquid-cooled engine, reported to have a speed of 380 miles per hour at 16,000 feet, equipped with two or four 7.7-mm machine guns and two 20-mm cannon, and fitted to carry a 550-pound bomb; and a Mitsubishi medium bomber (reported as a Zero medium bomber) with two radial engines and a speed of 270 miles per hour, fitted with four 7.7-mm machine guns and one 20-mm cannon in a tail turret, capable of carrying one 1,500-pound torpedo or the equivalent thereof in bombs. The last appears to be a new version of the older type 96 bomber, and resembles the American Martin B–26. Numerous reports of other new Japanese aircraft have been received from time to time, but these reports have been rather nebulous and without sufficient information to classify properly the aircraft reported.

49. Other equipment.—*a. Radio.*—Direction finders are standard equipment for heavy and medium bombers. Present standard equipment is the Telefunken direction finder and earth induction compass. The standard radio set for all bombers is the type 94 radio, which may be used as a radiotelephone, but is almost invariably used for radiotelegraph only. The equipment is manufactured by the Shibaura Denki K. K. and operates in the 140- to 3,950-kc band.

b. Oxygen apparatus.—The material is of Japanese manufacture; oxygen cylinders are 18 inches in length and 4 inches in diameter.

c. Aircraft instruments.—All instruments are made in Japan, and copied efficiently from foreign designs. Twin-engine bombers are equipped with magnetic compass, speed indicator, altimeter, and turn-and-bank indicator in addition to radio direction finder.

d. Parachutes.—These are made in Japan and are similar to the Irving type; the seat type weighs 19.9 pounds and the breast type, 18.7 pounds.

e. Cameras.—Cameras are generally of Japanese manufacture, copied from German Goertz and American Fairchild models.

f. Flotation gear.—This equipment consists of rubber bags which, when inflated, measure 5 feet in length and 2 feet 6 inches in diameter.

g. Self-sealing gas tanks.—The majority of military aircraft now have self-sealing gasoline tanks.

h. Bombs and torpedoes.—The following bombs and torpedoes are in use: antipersonnel, of 12.5, 25, and 30 kilograms; high-explosive, general-purpose types of 12 to 1,000 kilograms; armor-piercing in weights of 200, 300, 500, and 1,000 kilograms; incendiary of 4 and 50 kilograms; gas and gas spray; torpedoes of the standard 18 inches, and 21 inches, and miscellaneous smoke and flare bombs.

i. Bomb sights.—In general use there are: a simple drift sight; a course-setting bomb sight as used in the R. A. F., but without the fourth vector; a course-setting sight with the fourth vector; and an automatic sight, probably a copy of the German Goertz.

j. Gliders.—It is reported that the Fukudakei Factory is producing troop-carrying gliders equipped with 25-horsepower air-cooled motors.

k. Detachable gas tanks.—The extra, detachable gas tanks used in fighter airplanes, add 350 to 450 miles to their range. Reported capacity ranges from 66 to 80 gallons.

l. Automatic steering device.—The Japanese have recently negotiated successfully with the German manufacturers of the Siemens automatic steering device for airplanes, and plan to install a factory capable of a monthly production of 3,000 to 4,500 devices.

m. Night-flying equipment.—(1) *On airplanes.*—All regiments and stations have some airplanes equipped with running light and wing-tip flares. Light and heavy bombing planes have landing lights.

(2) *On ground.*—All airdromes are equipped with two searchlights of French or Sperry type and a revolving beacon of Japanese design and manufacture. No border lights or other regular night lighting had been seen up to October 1938.

50. Marking of aircraft.—A red sun is located at both ends of the upper surface of upper wing and lower surface of lower wing of biplanes or on both the upper and lower surfaces of the wing of monoplanes; also, in or near the center of each side of the fuselage or diametrically opposite in case of a balloon. The sun is followed by the ordinal number. The name of the airplane is written sideways on each side of the rudder and above the center of airplanes and on the lower

surface of the envelope of a balloon. The name of the engine and its ordinal number are stamped on the crankcase. The name and ordinal number of a propeller are stamped on the drum surface of the hub.

51. Overhaul and maintenance.—Overhaul and maintenance are characterized by efforts to make airplanes last much longer than is considered advisable or practicable in the United States. Japanese air arms effect minor repairs and overhauls within squadrons or regiments; naval major overhauls are accomplished at Sasebo, Hiro, and Yokosuka or at the factory which produced the airplane; military major overhauls are effected either at the commercial factory or at one of the repair depots at Kagamigahara, Tachikawa, Heijo, Heito, Mukden, Tientsin, Shanghai, Hankow, and Hainan Island, branch bases under the supervision of the Chief of the Air Depot System at Tokyo.

52. Specifications of aircraft in use (first line aircraft).

a. Fighters, single-engine.

Manufacturer and arm of service	Type	Engine and horsepower	Wing type and landing gear	Weight with normal load	Speed cruising	Maximum mph
Mitsubishi. Army and Navy.	Zero	1 850- to 1,050-horsepower Nakajima or Mitsubishi twin-row radial.	37-foot stubby oval, low-wing, monoplane. Retractable landing gear or carrier hook.	3,568	240	298
Mitsubishi-Nagoya. Army and Navy.	Zero	1 1,450-horsepower Nakajima twin-row radial.	Thin tapered, low-wing monoplane, retractable landing gear, with single float or carrier hook.	5,140	267	344
Kawasaki. Army	98	1 800-horsepower Mitsubishi A 14 (radial).	39-foot low-wing, monoplane, both fixed and retractable landing gear.	5,200	225	300
Kawasaki; Mitsubishi; Nakajima. Army and Navy.	97	1 850-horsepower Kawasaki or 1 750-horsepower Hikari or 1 750-horsepower Nakajima.	36-foot low-wing monoplane. Fixed landing gear.	4,600	250	290
Nakajima. Navy	97	Radial	36-foot mid-wing monoplane. Fixed twin floats.	4.300	200	270
Nakajima; Mitsubishi. Army and Navy.	96	1 730-horsepower Kinsei radial.	36-foot low-wing monoplane. Fixed landing gear.	4,500	217	250
Messerschmitt. Army.	Me–109	1 1,175-horsepower liquid-cooled.	33-foot low-wing monoplane. Retractable landing gear.	5,520	------	354

b. Light bombers.

Showa. Army	98	1 850-horsepower Showa radial.	50-foot low-wing, fixed landing gear. Later models with retractable landing gear.	9,700	190	225
Mitsubishi Army	98	1 900-horsepower Hikari radial twin-row.	46-foot low-wing monoplane. Fixed landing gear.	7,800	200	250
Kawasaki. Army	97	1 900-horsepower liquid-cooled Kawa (BMW).	48-foot low-wing monoplane. Fixed landing gear.	7,000	206	236
Mitsubishi. Army	97	1 900-horsepower Mitsubishi or Kotobuki radial.	40-foot low-wing monoplane. Fixed landing gear.	5,750	200	260

Rate of climb and maximum ceiling	Range				Armament and bomb load	Remarks
	Normal		With extra tanks			
	Hours	Miles	Hours	Miles		
33,000-foot ceiling	2	500	4½	1,080 (231 gallons).	2 MG's; 2 20-mm cannon.	Heretofore erroneously referred to as "01 modification." Can also operate from carrier or as a floatplane.
20,000 feet in 7 minutes; 33,000-foot ceiling.	2	575	6 to 8	1,150	2 20-mm cannon; 2 MG's.	Sometimes referred to as "Zero Zero." Equipped with Hamilton propeller. Reported crashed in Alaska. Also built by Nakajima.
32,000-foot ceiling	-------	------	4	1,000	2 7.7-mm MG's; 2 20-mm cannon. 500 pounds.	Crew of two. Resembles Seversky 2-PA-L fighter.
15,000 feet in 5½ minutes; 32,000-foot ceiling.	1½	375	4½	1,150	3 7.7-mm fixed MG's; 1 7.7-mm movable MG.	Has range of 663 miles, cruising for 2.6 hours at 255 mph. Uses 51 gallons gas per hour.
27,000-foot ceiling	-------	460	-------	950	4 7.7-mm MG's	
15,000 feet in 6 minutes; 31,000-foot ceiling.	1½	404	4	980	4 7.7-mm MG's	Resembles Boeing P 26 A.
13,120 feet in 3.8 minutes; 36,080-foot ceiling.	-------	620	-------	----------	4 7.7-mm MG's; 2 20-mm cannon.	Sometimes referred to as Hayabusa. German plane production in Japan doubtful.
----------	-------	500	-------	----------	2 7.7-mm MG's.; 2 20-mm cannon. 1,000 pounds.	
31,000-foot ceiling	-------	490	-------	----------	3 MG's. 790 pounds.	Crew of 2.
25,000-foot ceiling	-------	490	-------	----------	3 MG's. 800 pounds.	Crew of 2.
26,000-foot ceiling	-------	500	-------	----------	3 MG's. 1,000 pounds.	Successor to Kamikaze. This may also use 350-horsepower Diesel. Crew of 2.

c. Dive bombers.

Manufacturer and arm of service	Type	Engine and horsepower	Wing type and landing gear	Weight with normal load	Speed cruising	Maximum mph
Aichi. Army and Navy.	99	1 990-horsepower Kinsei twin-row radial.	47-foot low-wing monoplane. Fixed landing gear.	7,200	204	256
Aichi. Navy	97	1 900-horsepower Kinsei radial.	45-foot low-wing monoplane. Semiretractable landing gear.	8,500	155	200
Aichi. Army and Navy.	96	1 700 to 730-horsepower 9-cylinder Nakajima radial.	30-foot biplane. Fixed landing gear.		174	241

d. Torpedo bombers.

Mitsubishi; Nakajima. Navy.	97	1 900-horsepower Kinsei radial.	52-foot low-wing monoplane. Retractable landing gear.	8,500	162	219
Nakajima. Navy.	96	600-horsepower Kotobuki radial.	49-foot biplane. Fixed landing gear.	7,300	145	168

e. Heavy bombers.

Mitsubishi. Army.	98	2 750-horsepower Mitsubishi radial.	75-foot low-wing. Retractable landing gear. Twin rudder.	21,000	235	281
Kawasaki; Mitsubishi. Army.	97	2 870- to 1,000-horsepower Kinsei radial, or BMW liquid-cooled.	72-foot mid-wing. Retractable landing gear. Twin rudder.	22,000	185	230
Mitsubishi. Navy and Army.	96	2 900-horsepower 14-cylinder Kinsei radials.	Cantilever mid-wing monoplane. Retractable landing gear. Twin rudder.	22,000	200	230

f. Flying boats.

Kawanishi. Navy.	97	4 800-horsepower Kinsei radial.	131-foot high-wing flying boat. Twin rudder.	44,092	160	220

Rate of climb and maximum ceiling	Range				Armament and bomb load	Remarks
	Normal		With extra tanks			
	Hours	Miles	Hours	Miles		
30,000-foot ceiling	2	450	6	1,300	2 (fixed) 7.7-mm MG's.; 1 movable MG. 1,100 pounds.	Flotation gear for carrier. Crew of 2. Also built by Mitsubishi. Also reported with range of 875 miles, carrying 1500-pound bomb.
23,000-foot ceiling	2	470	-------	----------	3 7.7-mm MG's. 850 pounds	Crew of 2. Also copy of Douglas 7 BD-1.
23,000-foot ceiling	-------	625	-------	----------	2 (fixed) 7.7-mm MG's.; 1 movable MG. 1,100 pounds.	Crew of 2. Also built by Mitsubishi. Flotation gear for carrier operation.
23,000-foot ceiling	3	470	6½	1,100	3 7.7-mm MG's. 1,500 pounds, torpedo or bombs.	Resembles Northrop A-17.
20,000-foot ceiling	4	425	-------	-------	5 MG's. 1,500 pounds, torpedo or bombs.	Developed from Fokker C-M W.
29,000-foot ceiling	-------	2,400	-------	-------	4 7.7-mm MG's; 1 20-mm cannon. 2,200 pounds.	
3,281 feet in 2.11 minutes. 24,500-foot ceiling.	6½	1,180	-------	-------	4 7.7-mm MG's; 2 20-mm cannon. 3,000 pounds.	Self-sealing tanks; oxygen.
22,600-foot ceiling	5	1,000	-------	-------	5 7.7-mm MG's in four turrets. 2,200 pounds.	Some have 4 7.7-mm MG's and 1 20-mm cannon. Similar to Junkers JU 86.
24,000-foot ceiling	-------	1,750	-------	-------	3 7.7-mm MG's; 2 20-mm cannons. 2 1,760-pound torpedoes or 3 1,100-pound bombs.	Similar to Sikorsky S-42. Crew of 10.

g. Obsolescent types.

Manufacturer and arm of service	Type	Engine and horsepower	Wing type and landing gear	Weight with normal load	Speed cruising	Maximum mph
Nakajima; Kawasaki. Army and Navy.	95 (Ftr)	1 600-horsepower Hikari or 1 550-horsepower Kotobuki, liquid-cooled.	33-foot biplane; open cockpit. Fixed landing gear.	4,000	210	250
Kawasaki, Army	98 (Ftr)	1 850-horsepower Kawsaki, liquid-cooled.	29-foot biplane; open cockpit. Fixed landing gear.	5,500	------	270
Mitsubishi.. Army	97 (LB)	2 350-horsepower Dari-108 Diesels.	48-foot midwing monoplane. Retractable landing gear.	7,500	------	175
Aichi. Navy	97 (OB)	1 770-horsepower Aichi liquid-cooled.	43-foot biplane. Twin floats.	5,630	155	180
Navy	97 (OB)	1 radial	Midwing monoplane. Twin floats.	------	------	298
Nakajima. Navy	95 (OB)	1 600-horsepower Kotobuki radial.	36-foot biplane; 1 center float, 2 wing floats.	5,800	135	160
Mitsubishi. Army and Navy.	92 (HB)	4 800-horsepower Mitsubishi A 14 radial.	Monoplane. Fixed landing gear.	------	------	------
Aichi. Army	104 (HB)	3 770-horsepower Aichi radial.	Monoplane with twin floats.	28,600	200	230
Mitsubishi. Navy	96 (FB)	3 900-horsepower Mitsubishi liquid-cooled.	97-foot biplane. Flying boat.	38,750	125	145

h. New types. (Reported but not yet definitely recognized as operational equipment).

Mitsubishi (?). Army.	45 (?) (Ftr.)	2 radial engines	Semi-midwing. Probably retractable landing gear.	------	------	300 (plus)
Nakajima. Navy	01 (Ftr.)	1 1,050-horsepower 12 gl. liquid-cooled.	Monoplane. Retractable landing gear.	------	275	380 at 16,000 feet
Mitsubishi (?). Navy.	Zero (MB)	2 radial engines	Cantilever monoplane, single tail. Retractable landing gear.	------	200	270

Rate of climb and maximum ceiling	Range				Armament and bomb load	Remarks
	Normal		With extra tanks			
	Hours	Miles	Hours	Miles		
15,000 feet in 6 min. 33,000-foot ceiling	1.4	300 (65 gallons)	-------	----------	3 7.7-mm MG's; 1 77-pound bomb.	Copy of early Curtiss Hawk.
32,000-foot ceiling	-------	350	-------	----------	2 7.7-mm MG's; 2 20-mm cannon.	Crew of 2. Resembles Northrop A-17 fighter.
20,000-foot ceiling	3	500	-------	----------	2 7.7-mm MG's; 2 20-mm cannon; 1,280 pounds.	
25,000-foot ceiling	-------	410	-------	----------	2 7.7-mm MG's	Crew of 2.
29,500-foot ceiling	-------	------	-------	----------	----------	
18,000-foot ceiling	-------	500	-------	----------	2 7.7-mm MG's; 220 pounds.	Resembles Curtiss Hawk.
----------	-------	------	-------	----------	----------	Resembles Junkers G-38.
24,000-foot ceiling	5	1,000	-------	----------	2 37-mm cannon; 4 7.7-mm MG's, 2,200 pounds.	
13,000-foot ceiling	11	1,400	-------	----------	4 7.7-mm MG's; 1 20-mm cannon, 1,980 pounds.	Version of the Short "Calcutta Flying Boat."
26,000-foot ceiling	-------	840	-------	----------	3 12.7-mm MG's; 1 20-mm cannon.	New version of older twin-engine Zero fighter. Resembles U. S. B-10.
----------	-------	1,240	-------	----------	2 or 4 7.7-mm MG's; 2 20-mm cannons. Fitted for 1 550-pound bomb.	May have 2 12.7-mm MG's instead of 20-mm cannon. Reported from S. W. P. A.
26,000-foot ceiling	-------	1,560	-------	----------	4 7.7-mm MG's; 1 20-mm cannon in tail. 1,500-pound torpedo or bombs.	Appears to be newer version of 96 bomber; resembles U. S. B-26.

53. Aircraft machine guns.—*a. 20-mm Oerlikon automatic aircraft cannon (probably type FF).*—This type gun and antiaircraft cannon are produced in large quantities in Japan under a license sold by the Oerlikon Company (Swiss). Characteristics:

Muzzle velocity	2,720 feet per second.
Rate of fire	450 rounds per minute.
Barrel length	40 millimeters.
Drum feed	1 drum contains 60 rounds.
Ammunition	*FF explosive type.*—Weight, 0.423 pounds; length, 5.59 millimeters; charge in grains, 20.060; burster, 9 grains trotyl.
	Explosive type with tracer (visible for 1,640 yards).—Four grains trotyl.
	Explosive type with incendiary.—Four grains trotyl and 3 grains white phosphorus.

b. Type 89 7.7-mm machine gun.—This is a Vickers type gun of Japanese design.

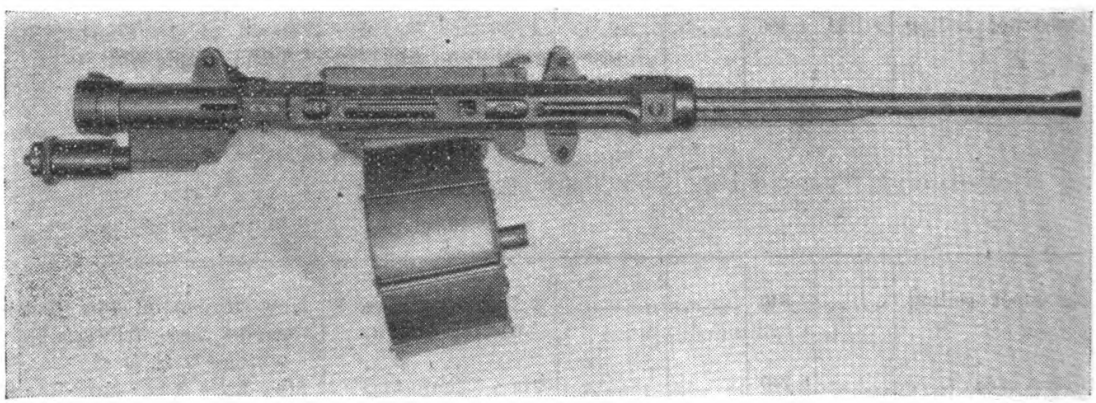


FIGURE 62.—20-mm wing gun Oerlikon, type *FF* with electric control.

c. Caliber .50 Bren machine gun.—See paragraph 41*f*(1)(*c*).

d. Gun sights.—The Aldis or the ring and bead for fixed guns, and the Norman vane type sight for free guns are in use.

e. Gun mountings.—Scarf ring type mountings with both single and twin installation are used for observer's guns.

SECTION VI

CHEMICAL WARFARE SERVICE

54. Research, manufacture, and training.—A modern chemical warfare research establishment is located in the vicinity of Tokyo, staffed by 80 officers, 50 enlisted men, and 60 civilians. A chemical manufacturing plant and a chemical warfare school for the training of selected officers of all arms except military police are also known to exist. Graduates of this school give chemical warfare training throughout the Army. It is definitely known that mustard gas, lewisite, phosgene, chloracetophenone, and certain of the smoke materials are being manufactured at Army laboratories and arsenals. Commerical plants are known to have manufactured arsenical war gases, phosgene, and to be engaged in making raw materials for the production of mustard and tear gas. Japanese production capacity for chlorine and its derivatives has been estimated at 150,000 tons per year, and of sulfur and its derivatives, 130,000 tons per year.

55. Gas and smoke shells.—*a. General.*—75-mm and 105-mm artillery, and possibly other types, employ smoke and gas-filled shells which are marked as follows: smoke, white band; incendiary, yellow band; star, yellow band; tracer, white band. Aircraft employ both smoke and gas bombs and smoke screen and curtain apparatus. No use of smoke or gas by tanks has been undertaken as yet, but in Malaya Japanese tanks fitted with flame throwers were reported. Grenade throwers have been used for smoke, also for illuminating and signal shells.

b. Japanese smoke grenade projector, type 99.—Characteristics are as shown in figure 63.

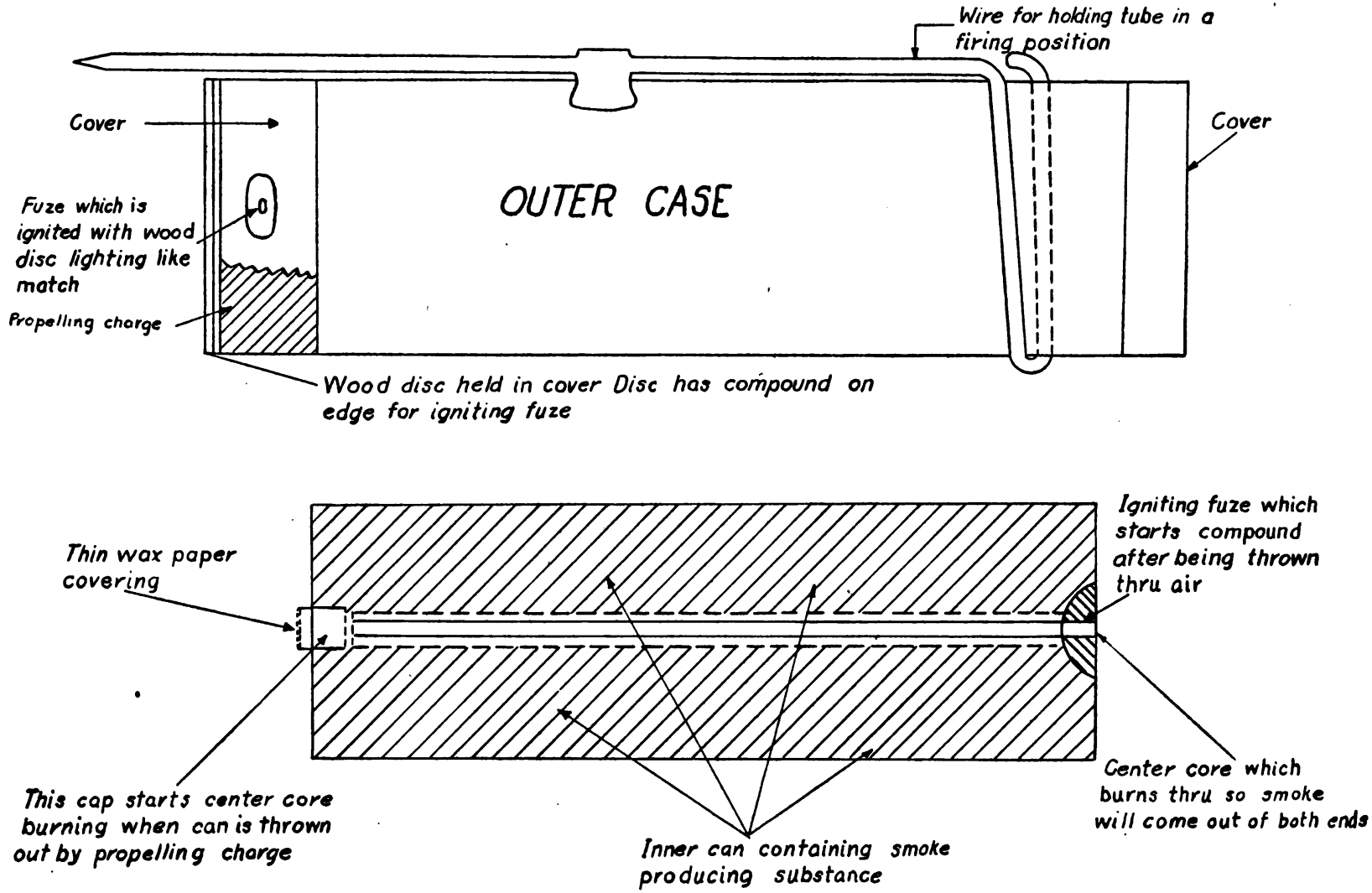


FIGURE 63.—Smoke grenade and projector, type 99.

Length.....8¼ inches Diameter.....2 inches

Marking.....Gray in color with Japanese lettering running the full length on one side. The inner container or smoke charge is propelled approximately 200 yards. The smoke charge is ignited by a time fuse about the same time the grenade hits the ground and burns with a white smoke. Additional smoke charges may be fixed repeatedly in the same projector.

56. Types of gas.—*a.* In this connection it is well to note that Japan has access to many German military secrets and receives the assistance of German technical experts, so that advances in this line may be expected. In general, it is thought that Japan is prepared to use gases in all of the four principal classes: vesicant, sternutatory, lachrymatory, and lung irritant. Japanese artillery shells of 75-mm, 105-mm, and 150-mm caliber are filled with the following chemical agents: phosgene, lewisite, mustard gas, hydrogen cyanide, chloracetophenone, diphenylcyanarsine, and diphenylaminechlorarsine (adamsite).

b. Tables of some Japanese chemical grenades, projectiles, and bombs which have been examined are given in paragraphs 60, 61, and 62; undoubtedly others are available for use.

57. Gas mask, model 92.—In appearance this mask greatly resembles the United States early model mask. It weighs about 2 pounds and is carried in a canvas carrier under the arm when not in use and on the chest when in use. The facepiece is made of thin vulcanized stockinette and rubber with deflector. The harness is spider-type with adjustable but not elastic straps. The eyepieces are somewhat small and detachable. The exhalator is inclosed in a small perforated metal box. The tube is similar to that of the United States gas mask except that it screws onto the facepiece and canister. The canister is of corrugated metal and slightly smaller than that on the United States model. The bottom is perforated over a circular area of about 2 inches. A rubber shoe is fastened over the bottom to protect the contents of the canister when not in use. The filler is soda lime and activated charcoal. The canister is not believed to contain a very effective filter.

58. Other gas masks.—There are also in existence in the Japanees Army several other types of gas masks, notably the German, with the canister attached to the facepiece. In the Philippines a new type of canister has been captured and examined. It has a rubber stopper to insert in the air inlet when not in use. This, coupled with the fact that there does not appear to be any soda lime in the charcoal, indicates that the principle of the canister is not wholly that of absorption, but one of a small amount of absorption and a large amount of chemical reaction with charcoal highly impregnated with chemicals.

59. 90-mm chemical mortar.—*a.* Characteristics are as follows:

Caliber	3.54 inches
Length of barrel	49.68 inches
Length of recoil	5.04 to 7.92 inches
Elevation	800 to 1,512 mils
Weight of barrel	75.2 pounds
Weight of mount	106 pounds
Weight of base plate	90.2 pounds
Weight of sight	2.97 pounds
Weight of mortar complete	349.8 pounds
Fuse	M93 combination
Weight of projectile	11 to 57 pounds

b. The shell shown in figure 64 is the type used in the 90-mm mortar (3.54 inch).

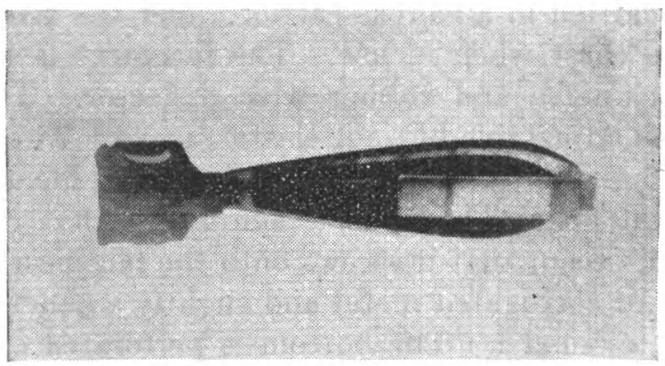


FIGURE 64.—90-mm mortar shell.

Fillings	*Marking*
Lung irritant	Yellow band
Sneezing agent	Red band

c. Other types of mortars which the Japanese may employ in the firing of chemical munitions are as follows:

(1) 81-mm mortar (Stokes-Brandt), maximum range, 3,280 yards.

(2) 72-mm mortar, maximum range, 1,695 yards.

(3) 50-mm mortar model 89 (infantry grenade discharger), maximum range, 710 yards.

d. The Japanese are equipped with light (20-kg) and heavy (50-kg) cylinders and chemical mines for the employment of chemical agents although the nature of the agents used is not definitely known. Contamination apparatus consisting of portable and vehicular types is also employed.

60. Chemical grenades and toxic smoke candles.

	Size	Weight	Material	Propulsion	Fuze	Contents	Effects
Toxic smoke candle							
Blue gray. Red band 1.5 inches from top.	Cylinder 2 by 7 inches.	0.60 pound	Plastic	Hand	Delay 3 to 4 seconds.	(Solid.) Carbonaceous mixture with high content organic arsenic.	Sternutatory, mental depressant.
Toxic smoke candle							
Greenish gray. Red band 3 inches from bottom.	2- by 8-inch cylinder; 3-inch spike at bottom.	Approximately 2.25 pounds.	Plastic; inner cylinder steel.	Powder rocket. 350- to 850-foot range.	Delay	(Powder.) Carbonaceous mixture with high content organic arsenic.	Sternutatory, mental depressant.
Gas grenade							
T. B. 10. Brown with red band around center.	5.75 by 5.5 inches, outer; flask, 3.5-inch diameter.	Complete, 4.60 pounds. Glass flask 1.20.	Outer, tin; flask, glass.	Hand (30-foot)		0.80 pint liquid hydrocyanic acid plus small amount copper powder.	Nerve paralysis, blindness, death.
Hand grenade							
89 type C. Lachrymatory tube.		0.53 pound		Hand		120 cc 10 percent solution of C. A. P. dissolved in carbon tetrachloride.	Lachrymatory.

61. Gas and toxic smoke generators.

Description	Charge	Weight of charge	Remarks
Toxic smoke generator	Pumice stone saturated with D. C.	Pumice 1.60 pounds	Has strong lung irritant effect.
Red band generators	D. C		
Green band generators	C. A. P	110 grams	330 grams of collodion wafers.
Green gas tube generator	C. A. P		50 grams of collodion wafers.

62. Chemical airplane bombs.—*a. Specifications.*—(1) *Material.*

Body of bomb				Tail of bomb			Filler	Weight of filler (pounds)
Color	Material	Thickness (inch)	Weight (pounds)	Number of vanes	Material	Thickness (inch)		
Blue-gray with 2 yellow and 1 white band.	Steel			4	Sheet iron	0. 06	Mustard and lewisite gas (50 percent each).	66. 14
Blue-gray with red band at tail.	Steel	0. 22	52. 91	4	Sheet iron	0. 06	Thermit	77. 16
Blue-gray with red band at tail.	Steel	0. 16		4	Sheet iron	0. 08	Oil	
Blue-gray	Sheet iron			4	Sheet iron		Illuminant	39. 68
Not known	Drawn steel		110. 23				High explosive and incendiary. Rubber pellets, 1 by 0.75 inch. Impregnated with phosphorus. Burns 2 hours.	

(2) *Types of fuze.*

Name	Kind	Length (inches)	Weight (pounds)	Number of suspension lugs	Fuze			
					Name	Safety device	Firing pin	Delay
No. 92, 50-kilogram vesicant bomb.	Blistering	44. 88	110. 23	1	No. 97 nose fuze.	Vane armed with firing pin restraining spring.	Impact firing pin	
60-kilogram incendiary bomb (thermite).	Incendiary	39. 76	132. 28	1	No. 97 nose fuze.	Vane arming with safety pin.	Impact firing pin	
60-kilogram incendiary bomb (oil).	Incendiary	41. 57	132. 28	1	No. 97 nose fuze.	Vane arming with safety pin.	Impact firing pin	
Illuminating shell		27. 56	72. 75	2			Impact firing pin	

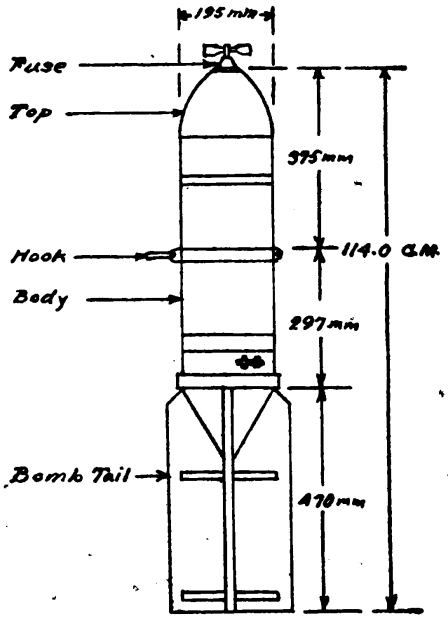


FIGURE 65.—50-kilogram chemical bomb.

b. Incendiary bombs.—These are reported to weigh 33 and 132 pounds, respectively, and the filling is principally thermit or white phosphorus with a black powder bursting charge.

c. 50-kilogram incendiary bomb (rubber pellet).—(1) *Description.*—The bomb is of ⅛-inch thick steel, welded at one end to the tail cone which takes the fins and at the other end to a turned collar which serves as a holder for the exploder tube and for fitting the nose cap. The nose cap is of steel and is held in position on the turned collar by three dowel pins which are threaded on their outer ends to fit corresponding screw threads in the body of the nose cap. The steel exploder tube is ⅛-inch thick.

(2) *Explosive.*—The nose cap of the bomb is filled with a high explosive which appears to be TNT and the exploder tube which passes down the length of the bomb appears also to be filled with TNT. The space between the exploder tube and the bomb casing is packed with cylindrical rubber pellets impregnated with phosphorus and suspended in a solution which is considered to be of phosphorus and carbon disulfide. A yellow strip of paper ⅜ inch wide by 4¾ inches long, and painted with Japanese characters, was found sticking to the exploder tube. A translation of the characters is as follows:

Class No. 100
50 kilograms
Incendiary bomb No. 2
Yellow color

(3) *Lethal properties.*—On explosion, a high fragmentation effect is obtained and the splinters have a very low trajectory. The phosphorus-impregnated pellets are scattered as far as 50 yards from the point of impact. The pellets ignite immediately or within 1 or 2 minutes after falling, each pellet giving a flame 4 to 6 inches high and burning at a comparatively low temperature. The pellets burn for 5 to 7 minutes, giving off a gray smoke and smelling slightly of burning rubber. The pellet should not be touched by any part of the body or inflammable material, and splinters are also dangerous as they are often coated with phosphorus. The fire can be put out with water but upon drying out the pellets will again rekindle and burn.

SECTION VII

ENGINEER ARMS AND EQUIPMENT

63. Arms.—Engineers carry the same arms as Infantry.

64. Equipment.—There are many types of floats, rafts, boats, and pontons. Sizes of floats range from 1-man rubber rafts and three-man rubber boats, to 12-man rubber boats. All these rubber boats are the inflatable type and are highly compartmented to prevent sinking by single bullet holes. In addition, Japanese Engineers are adept at making rafts from bamboo which is found nearly everywhere in southern Asia. Light combat boats for initial crossing of streams have sometimes been furnished by the engineers. Bridging materials range from light flotation rafts for constructing footbridges to light and heavy pontons for bridges for vehicular traffic. Railway engineers have shown exceptional skill in trestle work and rapid repair of demolished bridges.

65. Landing craft.—*a. Carriers.*—Landing craft carriers have been used which are similar in construction to whaling depot ships. Landing craft loaded with full complements of men and materials are slid on rollers into the sea through hatches in the side and stern of these vessels.

b. Landing boats.—Landing boats are usually 40 to 50 feet long and are powered with inboard motors. The engine and coxswain are protected against small-arms fire by steel plates. The bow is fitted with a landing ramp which can be lowered to the beach to facilitate unloading of wheeled vehicles. Some models have twin keels to provide stability to the craft after grounding. Some landing craft

have protective plating for a machine gun mounted near the bow. Many are of steel construction, but wooden sampan types have been used. After the initial beachhead has been secured, motorless scows loaded with men and material are towed to the beach. For shallow water and use in the smaller tributaries of rivers and weed-infested waters there is a large shallow-draft launch driven by an airplane propeller. In all there are nine classes of landing craft divided into two groups, large and small. The large type can carry from 60 to 100 fully armed men at a speed of 6 to 8 knots. The small type is fitted to mount a machine gun or guns and carries 50 to 60 armed men at a speed of 8 to 10 knots. Some of these craft have been fitted with bulletproof armor. When fully loaded the draft of the landing craft is about 3 feet.

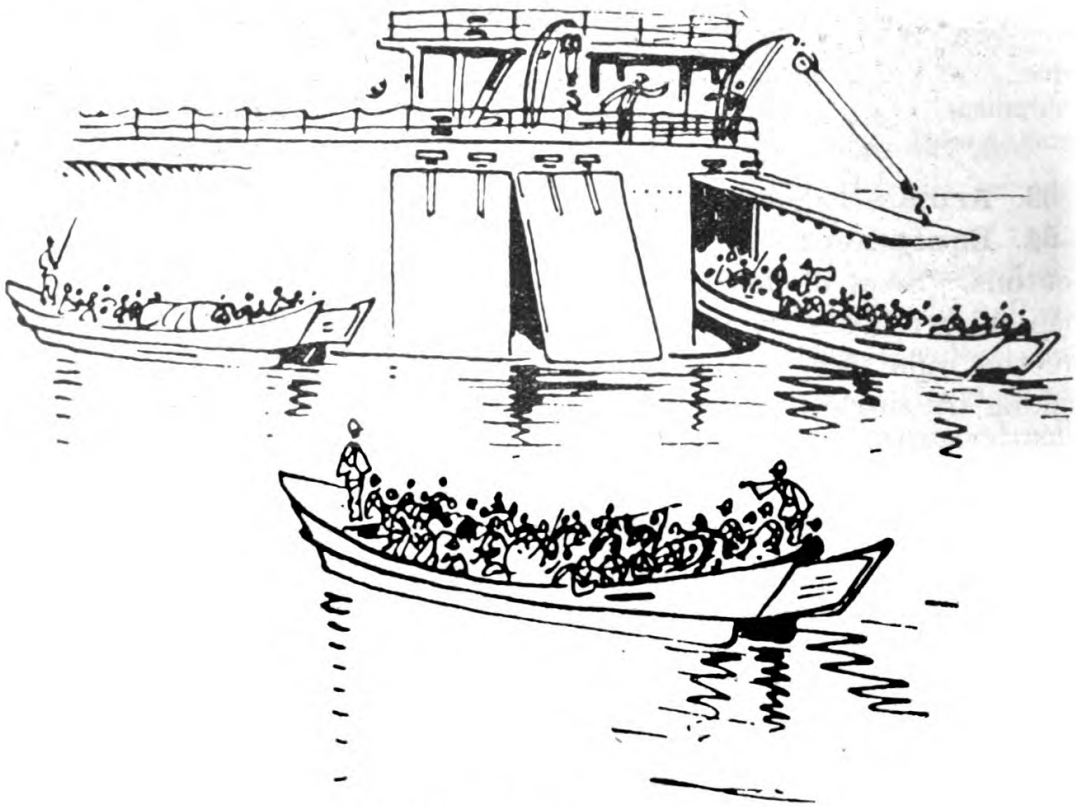


FIGURE 66.—Landing craft carrier.

Stern doors of the landing craft carrier may be used for disembarking fully loaded landing boats.

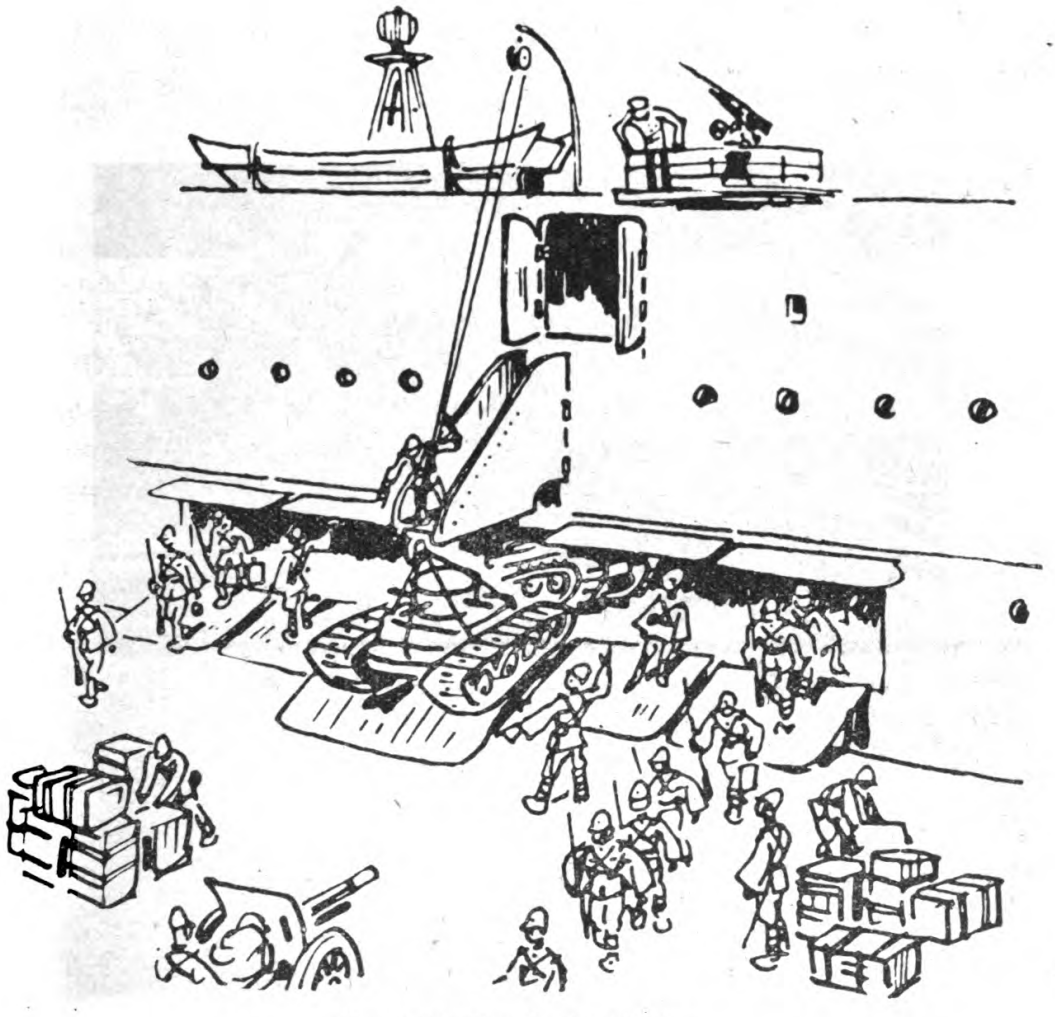


FIGURE 67.—Landing force tender.

The landing force tender has equipment sufficient to disembark heavy material, troops and stores alongside a jetty or pier.

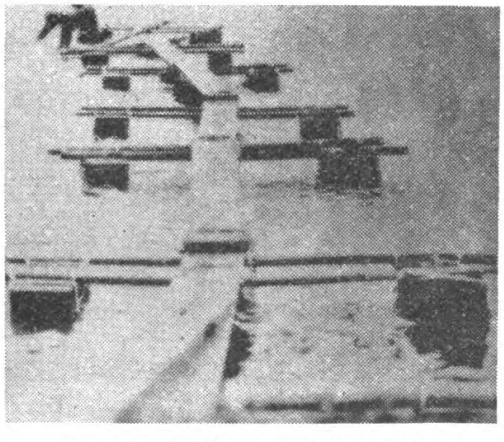


FIGURE 68.—Engineer light bridge.

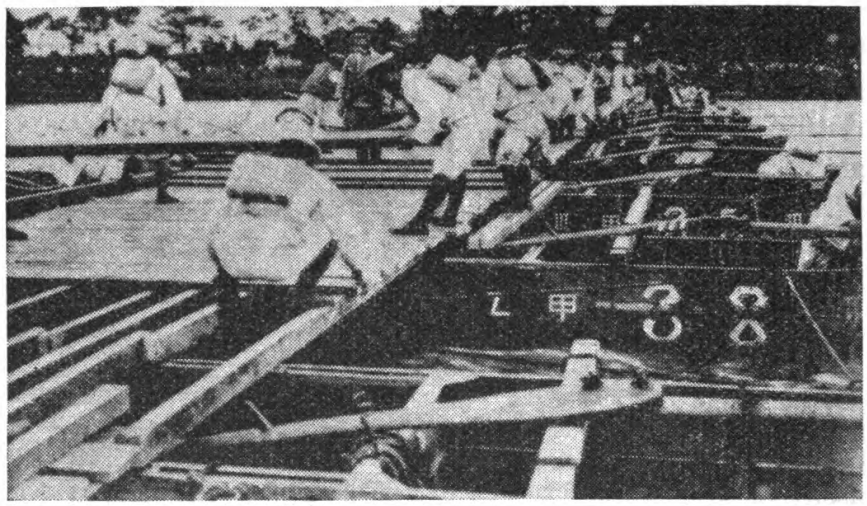


FIGURE 69.—Ponton bridge.

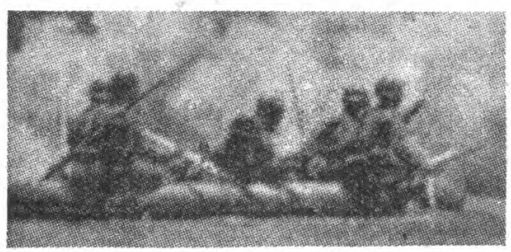


FIGURE 70.—Raft.

FIGURE 71.—Engineer light boat.

SECTION VIII

TANKS, TRACTORS, TRUCKS, MOTORCARS, MOTORCYCLES, AND BICYCLES

66. Tanks.—There are 15 or more known models of tanks in the Japanese Army. It will be noted that the basic types are few and a slight modification is given a new designation. For convenience, the tanks are classified according to weight as tankettes, light, medium, and heavy tanks.

a. Ishikawajima tankette M2592 (1932).—See figure 73.

FIGURE 72.—Ishikawajima tankette M2592 (1932).

1. Crew: 2 (1 driver and 1 gunner).
2. Armament: 1 machine gun in turret.
3. Ammunition:
4. Armor, thickness: 0.31 to 0.55 inch.
   Upper structure:
   Front:
   Sides:
5. Turret:
6. Vision:
7. Ventilation:
8. Communications: Flag.
9. Dimensions:
   Length: 10 feet 2 inches.
   Width: 5 feet 9 inches.
   Height: 5 feet 4 inches.
10. Weight: 3 tons.
11. Motor:
    Type: 4-cylinder.
    Cooling system: Air-cooled.
    Horsepower: 45 horsepower.
    Horsepower per ton: 15 horsepower.
12. Steering, brake or controlled differential:
    Front sprocket.
13. Speed:
    Cross-country:
    Road:
    Maximum: 30 miles per hour.
14. Cruising radius, at _____ speed _____ miles.
15. Operating distance without refill:
16. Gear speeds and ratios:
17. Turning radius:
18. Suspension, type: 4 bogie wheels. 2 bogies, Carden-Lloyd system.
19. Performance:
    Ground clearance: 1 foot 1 inch.
    Climbs 34° slopes.
    Negotiates vertical obstacle 2 feet 1 inch high.
    Crosses trenches 4 feet 9 inches wide.
    Fords streams 2 feet 9 inches deep.
20. Remarks: Known as light armored vehicle. Used with armored trailer for supply and intercommunication. Based on Carden-Lloyd.

FIGURE 73.—Ishikawajima tankette M2592 (1932) (side view with trailer which is used for carrying ammunition and stores).

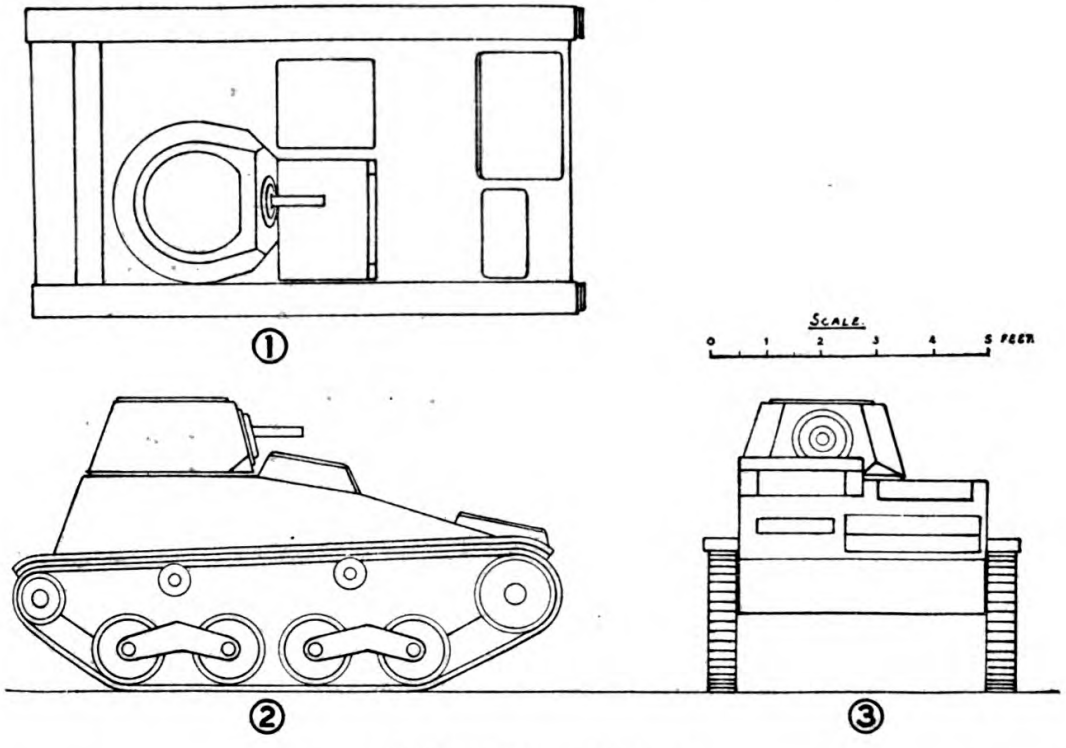
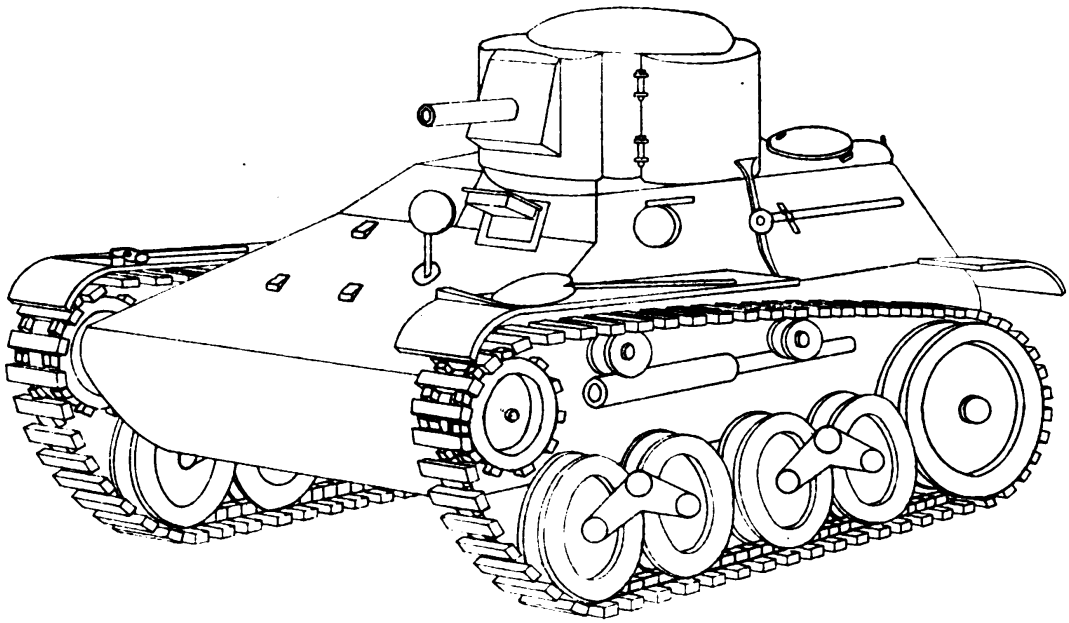


FIGURE 74.—Japanese tankette.

b. Ishikawajima tankette M2598 (1938).—See figure 75.

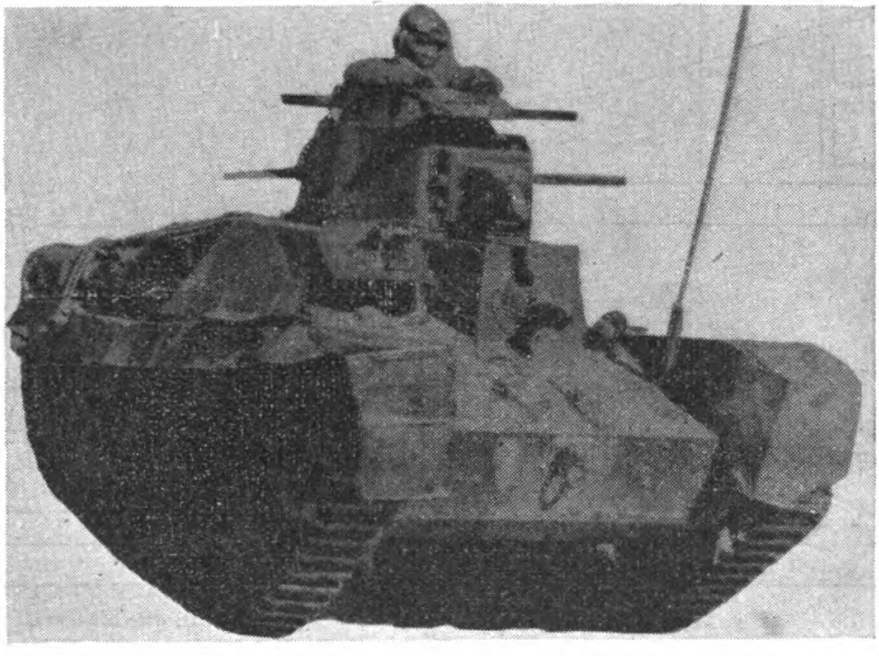
FIGURE 75.—Ishikawajima tankette M2598 (1938).



1. Crew: 2 men (1 driver, 1 gunner).
2. Armament: 1 machine gun in turret.
3. Ammunition:
4. Armor, thickness:
   Upper structure: Turret 0.75 inch.
   Front: 0.39 to 0.75 inch.
   Sides:
5. Turret: Hand traverse.
6. Vision:
   Indirect for driver.
   Slit vision for commander.
7. Ventilation:
8. Communications:
9. Dimensions:
   Length: 12 feet.
   Width: 5 feet 6 inches.
   Height: 5 feet 6 inches.
10. Weight: 4½ to 5½ tons.
11. Motor:
    Type:
    Cooling:
    Horsepower:
    Horsepower per ton.
12. Steering, brake or controlled differential: Brake or clutch.
13. Speed:
    Cross-country:
    Road:
    Maximum:
14. Cruising radius, at ..... speed ..... miles.
15. Operating distance without refill:
16. Gear speeds and ratios:
17. Turning radius:
18. Suspension, type: 4 bogie wheels (2 bogies) and trailing idler. Front drive.
19. Performance:
    Ground clearance:
    Climbs:
    Negotiates:
    Crosses:
    Fords:
20. Remarks: Characteristics are similar to Japanese light tanks which MacArthur reported the Japanese to be using in the Philippines.

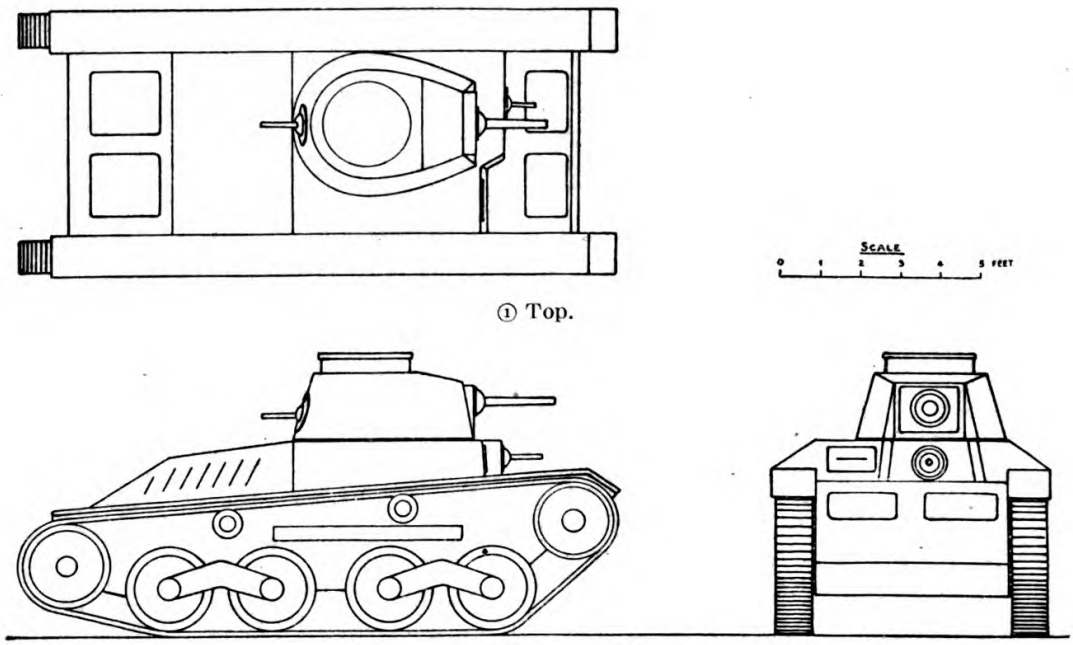
FIGURE 76.—Ishikawajima tankette M2598 (1938) (improved model observed in Japan in 1941).

c. Light tank M2595 (1935).—See figure 77.



1. Crew: 3 men (1 driver and 2 gunner).
2. Armament: 1 37-mm gun and 1 machine gun in turret and 1 machine gun in hull fore.
3. Ammunition:
4. Armor thickness: 0.47 inch.
   Upper structure:
   Front:
   Sides:
5. Turret:
6. Vision:
7. Ventilation:
8. Communications: Flag.
9. Dimensions:
   Length: 15 feet.
   Width: 7 feet.
   Height: 6 feet 5 inches.
10. Weight: 7 tons.
11. Motor:
    Type:
    Cooling system: Air-cooled.
    Horsepower: 70 horsepower.
    Horsepower per ton: 17.5 horsepower.
12. Steering, brake or controlled differential:
13. Speed:
    Cross-country: 10 to 12 miles per hour.
    Road: 35 miles per hour.
    Maximum: 35 miles per hour.
14. Cruising radius, at ..... speed ..... miles.
15. Operating distance without refill:
16. Gear speeds and ratios:
17. Turning radius:
18. Suspension, type: 4 bogie wheels, 2 bogies.
19. Performance:
    Ground clearance:
    Climbs .....° slopes.
    Negotiates vertical obstacle ..... high.
    Crosses trenches ..... wide.
    Fords streams ..... deep.
20. Remarks:

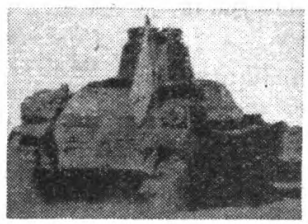
FIGURE 77.—Light tank M2595 (1935).



① Top.

② Side. ③ Front.

FIGURE 78.—Japanese light tank.

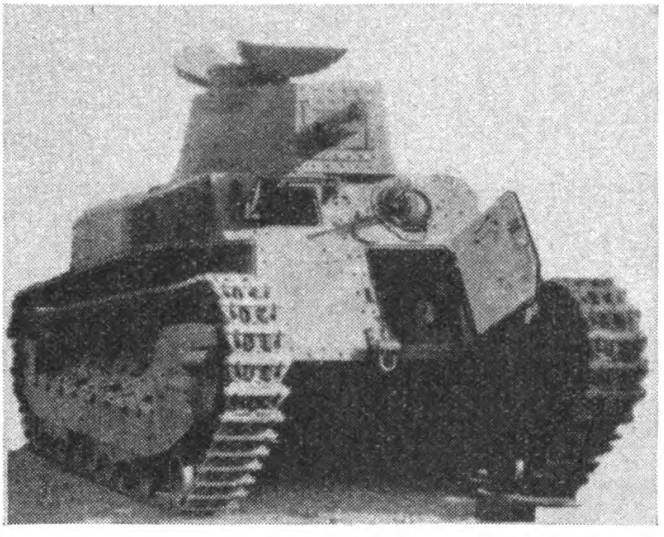


① Rear.

② Side.

FIGURE 79.– Light tank, M2595 (1935).

d. Medium tank M2594 (1934).—See figure 80.



1. Crew: 5 men.
2. Armament: 1 37-mm gun and 1 machine gun in turret, 1 machine gun in hull fore.
3. Ammunition: 6,000 rounds small arms, 120 rounds 37-mm, 100 bombs.
4. Armor, thickness: 0.67 inch.
   Upper structure: 0.67 inch.
   Front: 0.67 inch.
   Sides: Top and rear 0.43 inch.
   Floor: 6 millimeters.
5. Turret:
6. Vision:
7. Ventilation:
8. Communications:
9. Dimensions:
   Length: 20 feet 10 inches (with tail).
   Width: 8 feet 4 inches.
   Height: 8 feet 6 inches.
10. Weight: 14 tons.
11. Motor: 6-cylinder.
    Type: Mitsubishi airplane.
    Cooling system: Air-cooled, louver at rear.
    Horsepower: 160 horsepower.
    Horsepower per ton: 11.4 horsepower.
12. Steering, brake or controlled differential:
    Front sprocket.
13. Speed:
    Cross-country:
    Road:
    Maximum: 28 miles per hour.
14. Cruising radius, at ------ speed 157 miles.
15. Operating distance without refill: 210 gallons, 124 miles.
16. Gear speeds and ratios: 8 forward and 2 rear.
17. Turning radius:
18. Suspension, type: 9 bogie wheels, 4 bogies, 1 independent bogie wheel.
19. Performance:
    Ground clearance; 1 foot 6 inches.
    Climbs 46° slopes.
    Negotiates vertical obstacle 3 feet high.
    Crosses trenches 10 feet 6 inches wide.
    Fords streams 3 feet deep.
20. Remarks: Different models exist. Used by Army and Navy landing party. Army model may have only 1 gun in turret. Gun may be 47-mm.

FIGURE 80.—Medium tank M2594 (1934).

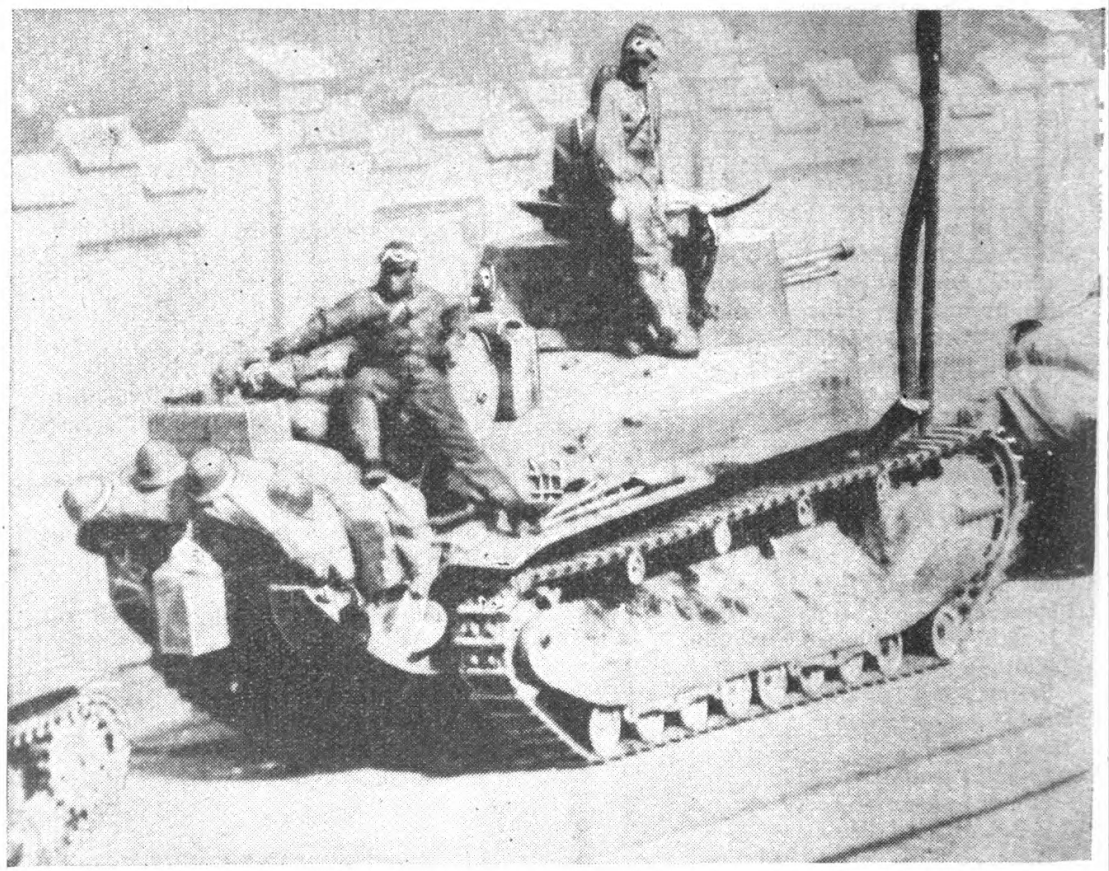
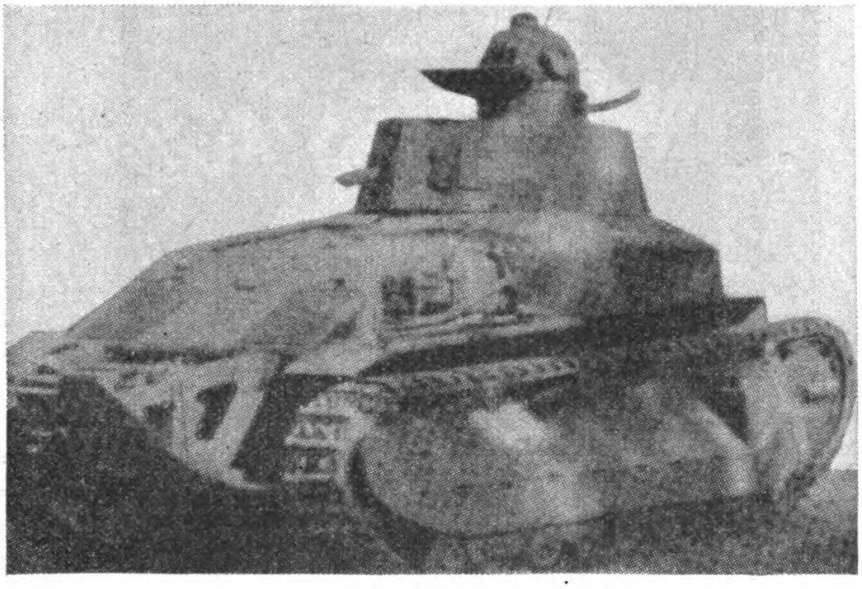
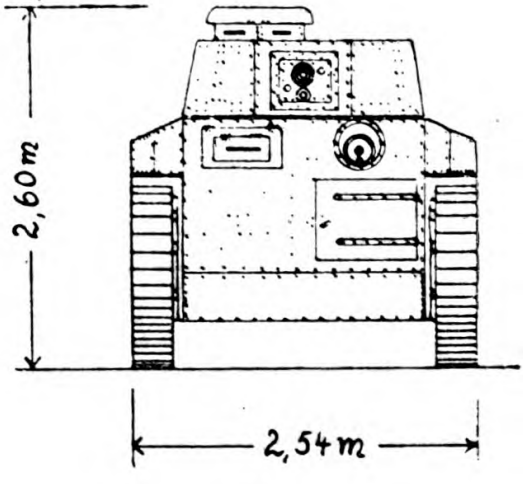


FIGURE 81.—Medium Tanks M2589 (1929) modified to M2594 (1934)—side view.

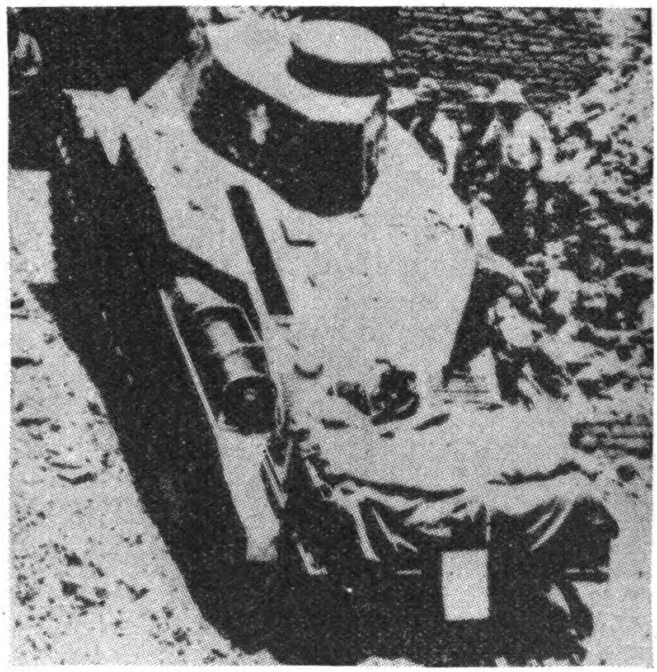


① Front.

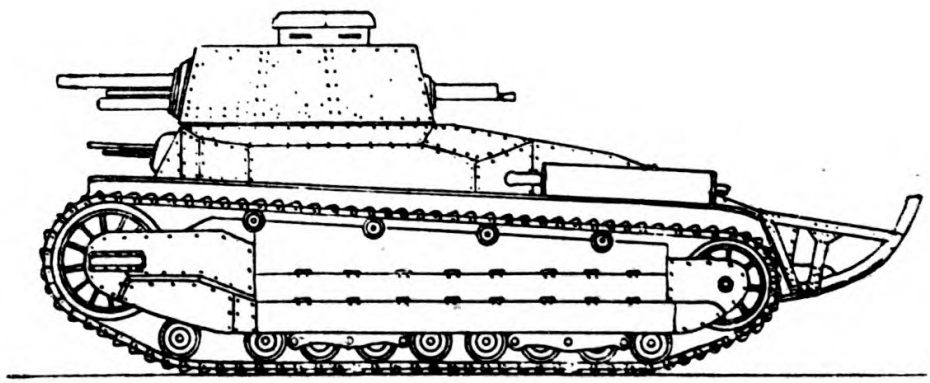


② Front.

FIGURE 82.—Medium tank M2594 (1934).



① Rear.



② Side.

FIGURE 83.—Medium tank M2594 (1934).

e. Medium tank type 97 (1937) cruiser.—See figure 84.

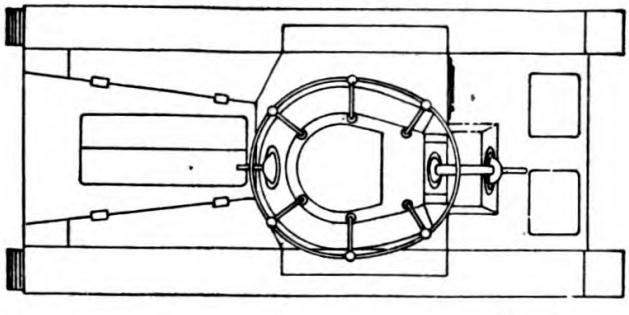
1. Crew: 5.
2. Armament: 1 37-mm or 57-mm gun in turret; 1 7.7-mm machine gun in turret; 1 7.7-mm machine gun in hull, forward.
3. Ammunition:
4. Armor, thickness: 30-mm basis.
5. Turret: Single, 360° traverse.
6. Vision:
7. Ventilation:
8. Communications: Radio.
9. Dimensions:
   Length: 22.3 feet.
   Width: 8.2 feet.
   Height: 9.8 feet.
10. Weight: 15 to 18 tons.
11. Motor:
    Type: Airtype V–12.
    Cooling system: Air.
    Horsepower: 280.
    Horsepower per ton: 15.
12. Steering, brake or controlled differential:
13. Speed:
    Cross-country: 6 to 9 miles per hour.
    Road: 15 to 20 miles per hour.
    Maximum: 20 miles per hour.
14. Cruising radius, at ..... speed ..... miles.
15. Operating distance without refill:
16. Gear speeds and ratios:
17. Turning radius:
18. Suspension: Christie type, 6 large wheels, evenly spaced, 2 track-support wheels.
19. Performance:
    Ground clearance: 1.2 feet.
    Climbs 40° slope.
    Negotiates vertical obstacle 2.75 feet high.
    Crosses trench 8 feet wide.
    Fords streams 3.2 feet deep.
20. Remarks: Low, wide hull, giving appearance of great stability, turret is well forward, leaving long, flat space to the rear. Has heavy hand ring around turret. Reported fitted with flame-throwing equipment.

FIGURE 84.—Medium tank type 97 (1937).

FIGURE 85.—In left foreground—modern light tank M2595 (1935); in right foreground, modern medium tank M2597. Part of a tank regiment.

①Rear

②Side



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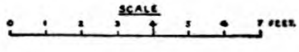

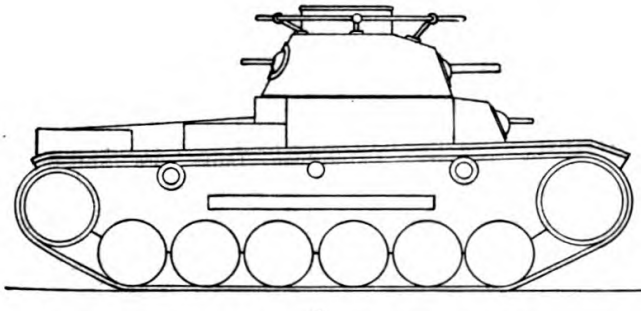

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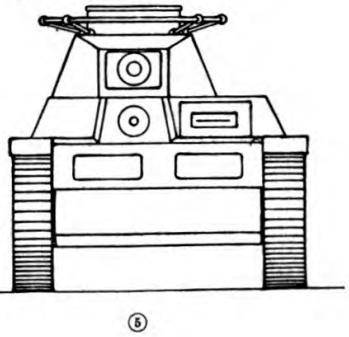

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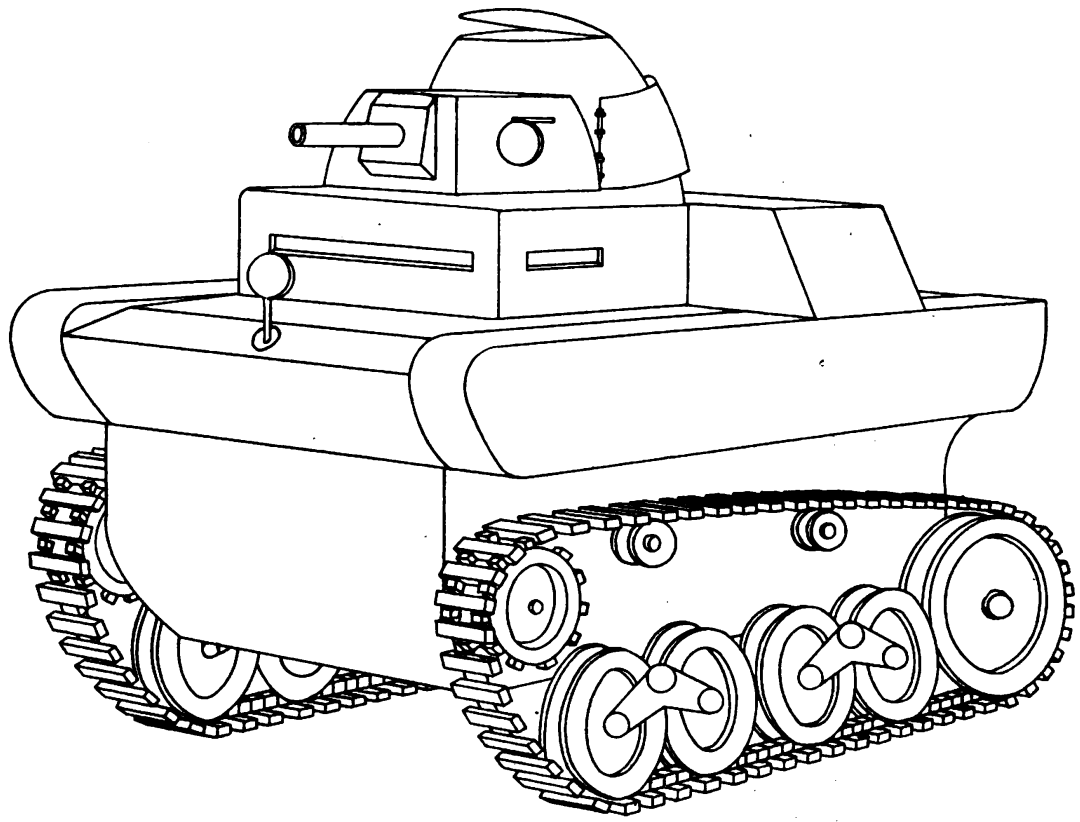
FIGURE 86.—Japanese cruiser tank.

f. Amphibian tank.—See figure 87.



1. Crew: 3 men.
2. Armament: 1 37-mm gun, 1 light machine gun.
3. Ammunition:
4. Armor, thickness:
   Upper structure: 0.75 to 1.0 inch.
   Front: 0.5 to 0.75 inch.
   Sides:
5. Turret: Hand traverse.
6. Vision: Probably indirect for driver.
7. Ventilation:
8. Communications:
9. Dimensions:
   Length: 16 feet.
   Width: 7 feet.
   Height: 7 feet.
10. Weight: 7 to 9 tons.
11. Motor:
    Type:
    Cooling system:
    Horsepower:
    Horsepower per ton: 7.8.
12. Drive:
13. Speed:
    Cross-country:
    Road:
    Maximum:
14. Cruising radius, at ------- speed ------- miles.
15. Operating distance without refill.
16. Gear speeds and ratios:
17. Turning radius:
18. Suspension type: Trailing idler.
19. Performance:
    Ground clearance:
    Climbs:
    Negotiates:
    Crosses:
    Fords:
20. Remarks: Amphibian tanks are apparently built in two sizes, one about 7 to 9 tons in weight, and one estimated to be 4 or 5 tons.

FIGURE 87.—Amphibian tank.

67. Tractors.—In the past 5 years both Niigata and Hitachi Diesel have expanded tractor production, both for the Army and agricultural use in Manchuria. These are caterpillar types of medium (8- to 20-ton rated capacity) Diesel-power tractors, following the American Holt in general design. The Army also owns several hundred Holt and Mercedes-Benz full caterpillar heavy tractors and a large number of Fordson wheeled tractors. As far as known, no Japanese wheeled tractors have been made.

68. Trucks and motorcars.—*a. Trucks.*—(1) The Japanese Army is well supplied with light motor trucks (1½- to 3-ton capacity). Since 1937 they have purchased and commandeered many thousand Japanese-built Ford and Chevrolet trucks and an additional large number have been shipped to them direct in Dairen and Shanghai.

(2) In addition, two Japanese light trucks are in volume production. The Nissan, a modified cab-over-engine design of 2-ton capacity is manufactured in a large modern plant near Yokohama. In March 1940, production had reached 3,000 chassis monthly. A steel cab and body are also manufactured for this vehicle.

(3) The Toyoda, a faithful copy of the 1939 Chevrolet truck, is manufactured near Nagoya and it is believed that a monthly capacity of 2,000 units can be attained.

(4) Several types of heavy trucks, some powered with Diesel and some with gasoline engines, have been manufactured in Japan for some years past, but production has always been small. The standard prime mover of the Japanese Army is a six-wheeled vehicle of 3- to 4-ton capacity, powered with a six-cylinder engine of approximately 90-horsepower. Two rear axles are used and the four rear wheels drive. The front end is of conventional design. This vehicle is an Army design and a small subsidy is given to commercial buyers. It has an unusually high ground clearance. This standard prime mover, which is the chassis of the Japanese armored car, is manufactured by Chiyoda, Sumida, and Isusu in Japan and by Dowa in Manchuria.

(5) Manufacturers of Diesel type motors used in tractors and heavy trucks include Ikegai, Mitsubishi (both Kobe and Tokyo), and Niigata Diesel. All privately owned commercial vehicles in Japan Proper have been converted to charcoal burners and it is possible that many of the Japanese Army trucks used in Japan Proper may have been converted to use this type of fuel.

b. Motorcars.—(1) Only two types of passenger vehicles are manufactured in Japan at present. The Nissan, the standard seven-passenger automobile of the Japanese Army, is an adaptation of the

1935, six-cylinder Graham. This vehicle may now be considered in successful production.

(2) The Toyoda Company, after making a failure of a medium-sized design embodying both Ford and Chevrolet features, began to manufacture in 1940 a much smaller European type passenger car with a wheel base of only 100 inches and a small six-cylinder engine. It is believed that circumstances have prevented any large production of this type.

69. Motorcycles and bicycles.—*a. Motorcycles.*—The standard motorcycle of the Japanese Army is a twin-cylinder Harley-Davidson type of 1,500-cc capacity. This design has an unusually high road clearance, with large wheels and is of very heavy construction. When used with a side car, a reverse gear is incorporated in the transmission. This is a satisfactory military vehicle. One design includes a mount for the 7.7-mm machine gun on the side car. Detachable shields can be fitted to both side car and motorcycle. Motorcycles of this type are manufactured in a factory in Shinagawa, Tokyo, which was designed and tooled by Harley-Davidson engineers. Several other manufacturers produce both single- and twin-cylinder motorcycles of English and American design, but the production is small. A two-stroke 250-cc lightweight solo machine attained some volume in 1939 and 1940, but it is doubtful if production continues.

b. Motor tricycles.—The commercial motor tricycle (Sanrinsha) is a purely Japanese design developed during the past 12 years. With a rated capacity of 1,000 pounds these light vehicles often carry a ton and have been used by the Japanese Army in Japan Proper and to some extent in North China and Manchuria. Engines vary in size from 300 to 1,000 cc, practically all single-cylinder. The smaller types have final drive by chain but the larger are shaft driven. All have three speeds forward and reverse. The Sanrinsha is now a sturdy and dependable vehicle.

c. Bicycles.—Japan is one of the world's largest producers of bicycles and the bicycle is very widely used throughout the country. In 1940 there were 1,000,000 bicycles in Tokyo alone. There is a standard Army type designed along English lines, with front and rear wheel brakes and large wheels. The Japanese Army has made wide use of the bicycle in all campaigns of the present war.

SECTION IX

SIGNAL COMMUNICATION

70. Radio.—*a. General.*—Radio communication between ground units, and between ground and air units, has been well developed by the Japanese. In their recent campaigns they have displayed good technique in radio communication. A long-established radio industry provides the armed forces with sturdy sets of minimum bulk, modern design, and good construction.

b. Direction finders.—Direction-finding equipment is in use by the Japanese. No direct evidence is available to show they possess radar equipment.

c. Description.—Japanese military radio sets are of three main series, 15, 87, and 94, with a number of varying types in each series. Series 15 and 87 are the older types, and are being replaced by series 94. They may still be found in use by the old-type square division. The 96 series, although found in naval aircraft may also be employed by army air units. The table below outlines the characteristics of known types.

ARMY GROUND RADIO SETS

...s	Type No.	Use	Power in watts	Range in miles		Frequency in kilocycles		Remarks
				C. W.	Phone	Transmitter	Receiver	
97	1	Between GHQ, Army groups and armies.	2, 000	333. 3	166. 6	100 to 166	100 to 200	
94	1	Between armies and divisions.	1, 000	166. 6	86. 6	200 to 500	200 to 600	
94	2	Between HQ of divisions	250	66. 6	33. 3	166 to 333	156 to 375	
15	3	Between divisions and brigades.	30	33. 3	16. 6	333 to 750	300 to 750	
15	4	Between cavalry brigades and units.	20	33. 3	16. 6	333 to 600	300 to 750	
94	4C	Cavalry regiment or brigade.	10	10	6. 6			Carried by two-man team. Hand generator power source.
94	6	Between regiment and battalion.		6. 6	3. 3			
94	3A	Division to cavalry regiments.	15	10		400 to 5,700	350 to 6,000	Crystal controlled; also automatically changed to self-excited oscillator when crystal removed.
94	5	Infantry brigade down to companies.	2			900 to 2,000; 4,000 to 5,000.	900 to 2,000; 4,000 to 5,000.	Hand generator power source.
66	A		1			5,000 to 10,000	5,000 to 10,000	Three-tube battery transceiver C. W. or phone.

ARMY AIRCRAFT RADIO SETS

Series	Type No.	Use	Power in watts	Range in miles		Frequency in kilocycles		Remarks
				C. W.	Phone	Transmitter	Receiver	
(?)	1	Reconnaissance	150	250	125	350 to 1,000	(?)	Marconi type A. D. 6.
(?)	2	Bombing	120	250	(?)	3,200 to 14,500	(?)	Japanese modified Marconi type A. D. 19 and 20.
(?)	3	Fighters	75	(?)	20	2,500 to 3,500	(?)	Japanese modified Marconi type A. D. 5.
(?)	4	Long-range bombing	500	500	(?)	4,000 to 14,500	(?)	Japanese design and manufacture.

ARMY GROUND RADIO SETS

Series	Type No.	Use	Power in watts	Range in miles		Frequency in kilocycles		Remarks
				C. W.	Phone	Transmitter	Receiver	
87	1	Between GHQ, Army groups and armies.	2, 000	333. 3	166. 6	100 to 166	100 to 200	
94	1	Between armies and divisions.	1, 000	166. 6	86. 6	200 to 500	200 to 600	
94	2	Between HQ of divisions	250	66. 6	33. 3	166 to 333	156 to 375	
15	3	Between divisions and brigades.	30	33. 3	16. 6	333 to 750	300 to 750	
15	4	Between cavalry brigades and units.	20	33. 3	16. 6	333 to 600	300 to 750	
94	4C	Cavalry regiment or brigade.	10	10	6. 6			Carried by two-man team. Hand generator power source.
94	6	Between regiment and battalion.		6. 6	3. 3			
94	3A	Division to cavalry regiments.	15	10		400 to 5,700	350 to 6,000	Crystal controlled; also automatically changed to self-excited oscillator when crystal removed.
94	5	Infantry brigade down to companies.	2			900 to 2,000; 4,000 to 5,000.	900 to 2,000; 4,000 to 5,000.	Hand generator power source.
66	A		1			5,000 to 10,000	5,000 to 10,000	Three-tube battery transceiver C. W. or phone.

ARMY AIRCRAFT RADIO SETS

Series	Type No.	Use	Power in watts	Range in miles		Frequency in kilocycles		Remarks
				C. W.	Phone	Transmitter	Receiver	
(?)	1	Reconnaissance	150	250	125	350 to 1,000	(?)	Marconi type A. D. 6.
(?)	2	Bombing	120	250	(?)	3,200 to 14,500	(?)	Japanese modified Marconi type A. D. 19 and 20.
(?)	3	Fighters	75	(?)	20	2,500 to 3,500	(?)	Japanese modified Marconi type A. D. 5.
(?)	4	Long-range bombing	500	500	(?)	4,000 to 14,500	(?)	Japanese design and manufacture.

NAVAL AIRCRAFT RADIO SETS (MAY BE IN USE BY ARMY)

Series	Type No.	Use	Power in watts	Range in miles		Frequency in kilocycles		Remarks
				C. W.	Phone	Transmitter	Receiver	
96	1	Combat planes	50	35	(?)	4,200 to 5,000	4,200 to 5,000	
96	1	Reconnaissance planes	60	350	(?)	7,500 to 10,000	(?)	
96	2		100	450	(?)	300 to 500; 5,000 to 10,000.	Same	
96	2 (special)	Three-place planes	150	500	(?)	Same as above	Same as above	
96	3	Three-place planes	150	750	(?)	Same as Nr. 2	Same as Nr. 2	
96	4	Multiple-place planes	300	1,000	(?)	Same as Nr. 2	Same as Nr. 2	Long-distance air-ground communication.
94	1	Three-place planes	150	100	(?)	200 to 500	100 to 500	
94	1 (modified)	Multiple-place planes	300	800	(?)	5,000 to 10,000	5,000 to 10,000	Long-distance air-ground communication.
94	2 (modified)	Three-place planes	150	500	(?)	300 to 500; 5,000 to 10,000.	5,000 to 10,000	Partly crystal-controlled.
	YT-2	Combat planes	60	10	(?)	4,000 to 5,000	4,000 to 5,000	
	YT-2 (modified)	Combat planes	60	10	(?)	4,000 to 5,000	4,000 to 5,000	Smaller than YT-2.

71. Telephone.—The Japanese use a buzzer-type telephone encased in a wood and aluminum box about 12 inches long, 5 inches wide, and 7 inches high. Directly beneath the aluminum cover are a transmitter, handset receiver, a single earphone head set, and a buzzer key. Permanent 2-foot lead-in wires are attached to the telephone and carry on the free ends female fittings into which male contacts attached to the field wire are fitted. Besides the ringing circuit there is a buzzer circuit by which messages may be sent in code. The field artillery battery has six telephones; the field artillery battalion, eight telephones.

72. Reels.—Reels are designed for carrying 1,640 feet of wire. The side plates are made of perforated steel plate and the spindle of brass-reinforced wood. The field artillery battery carries 22 reels of wire, the field artillery battalion 26.

73. Signal lamp.—This is mounted on tripod and operated by dry cells. It is provided with red, white, and green bulbs.

74. Signal flags.—*a.* Two small red and white hand flags are used for semaphore. They can be read from a distance of about ½ mile.

b. The Morse flag is a large red and white flag on a bamboo shaft about 5 feet long. Messages can be read from a distance of about 1 mile.

75. Airplane panels.—According to the Signal Communication Manual, Tentative, 1939, four types of panels are issued. They are: basic panels, unit indicator panels, number indicator panels, and marking panels. Basic and number indicator panels come in two sizes. Artillery is furnished the large and other branches the small size.

FIGURE 88.—Japanese military dog.

76. Military dogs.—The Japanese Army uses trained dogs for carrying messages. The message case is attached to the collar.

77. Pigeons.—Pigeons are used extensively for carrying messages. These birds are well trained and will return to their loft even if it has been in a new locality only a short time.

CHAPTER 5

AMMUNITION

SECTION I

INFANTRY

78. Rifle.—The rifleman usually carries 120 rounds in clips of 5 on his person, but bandoleers may be added before going into action. In addition, 60 rounds are carried on the battalion wagons and 150 rounds per man in the division train (horse-drawn trains).

79. Light machine gun.—Like ammunition for the rifle, this is packed in clips of 5 and carried in 4 steel boxes by a pack horse of the section. Each box contains 540 rounds. The squad alone can carry 1,960 rounds.

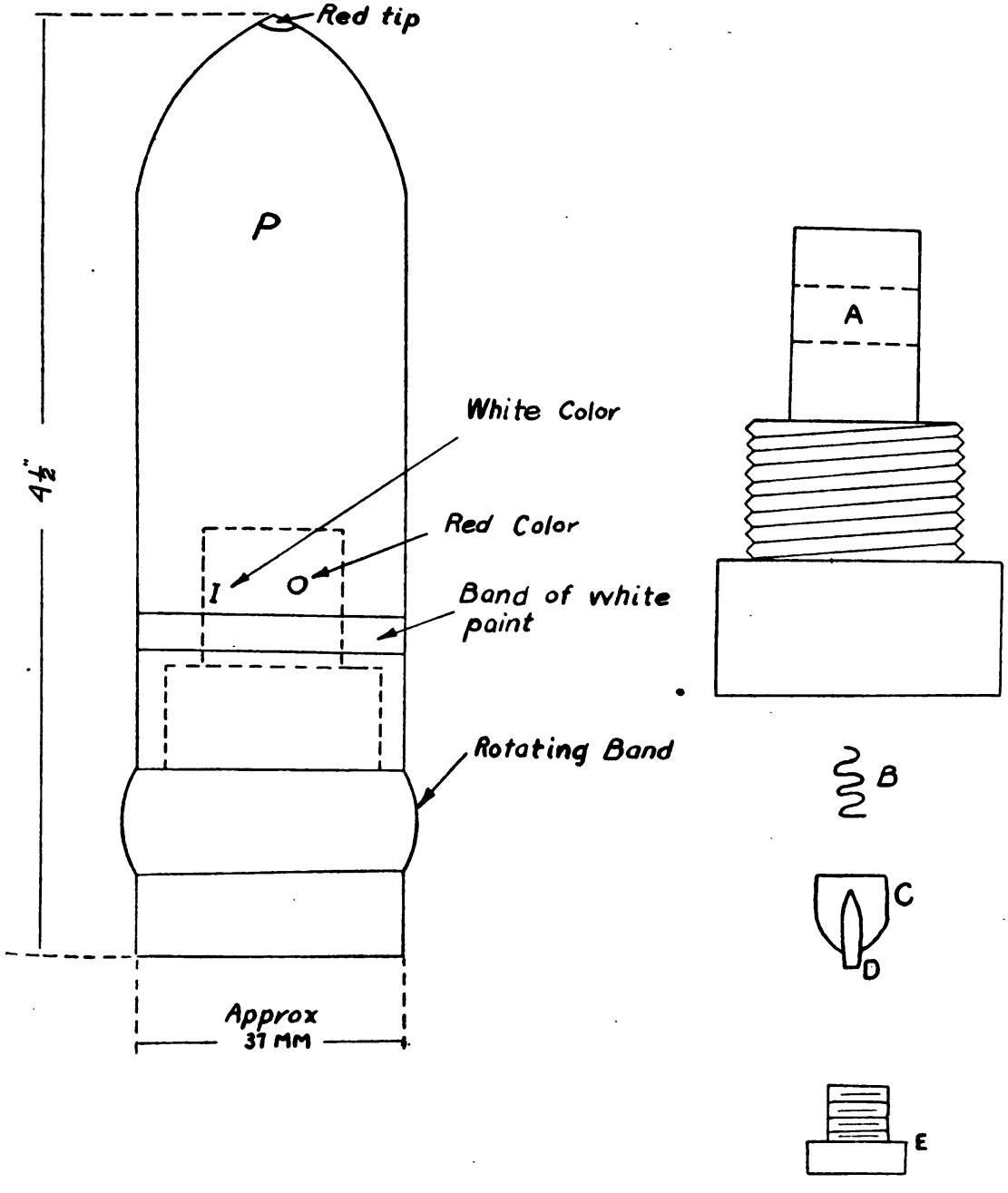
80. Heavy machine gun.—This comes in boxes of 48 pounds—600 rounds in 20 pasteboard strips of 30 rounds each ready for serving from the strip. Each gun squad carries four boxes of ammunition, two on each side of ammunition pack horse.

81. 70-mm battalion howitzer, model 92 (1932).—*a.* Semifixed, brass case. Packed in boxes of five rounds each. There are 25 rounds with each piece, 10 in the limber and 15 in the caisson.

b. Instantaneous and short-delay fuzes are used. With instantaneous fuze the maximum effective radius of fragments is about 22 yards.

82. 75-mm regimental mountain gun, model 41 (1908).—The types are fixed shrapnel, high explosive, and smoke. These are identical with projectiles fired by light artillery except that the powder charge is lighter and the fixed round shorter. The ammunition is carried in boxes of six rounds each—7 boxes per gun section. There

are 8 boxes in each of 5 ammunition sections, or a total of 408 rounds in the company and 102 rounds per gun. Time, instantaneous, and short-delay fuzes are employed.



A. Primer and detonator.
B. Spring.
C. Collar.
D. Firing pin.
E. Cap.
F. Projectile.

FIGURE 89.—37-mm shell.

83. 37-mm infantry rapid-fire gun, model 94.—The types are shell, armor-piercing, and shell, regular. The regular 37-mm high-

explosive shell is very similar in construction to the U. S. M1916 37-mm shell and is probably used in about the same manner. The ammunition is carried in split metal boxes containing 12 rounds each. The caisson will hold 6 to 8 boxes. In addition to the ammunition in the caisson, 3 boxes can be carried on the packsaddle.

SECTION II

ARTILLERY

84. 75-mm gun.—*a. General.*

Type specifications	Weight	Range
Long pointed shell +HE	13 pounds	11,800 yards.
Shrapnel	14 pounds	6,300 yards.

b. 75-mm gun ammunition carried with organizations (horse-drawn wheel transport).

Organization	Rounds carried	Rounds per gun	Days of fire	Shell	Shrapnel
Firing battery	544	136	0. 45	0. 0	1. 0
Battery combat train	200	50	0. 17	0. 0	1. 0
Total battery	744	186	0. 62	0. 0	1. 0
Battalion combat train	900	75	0. 25	0. 44	0. 56
Total battalion	3, 132	261	0. 87	0. 2	0. 8
Regimental combat train	1, 500	42	0. 14	0. 6	0. 4
Total regiment	10, 896	303	1. 01	0. 3	0. 7
Division trains	10, 000	277	0. 92	0. 6	0. 4
Total division	20, 896	580	1. 93	0. 55	0. 45

NOTES

1. Battalion and regimental ammunition trains are not organized in time of peace.
2. Ordinarily only shrapnel and common shell are carried within the regiment.

c. 75-mm chemical shell.—This shell was captured by the Chinese Army and has now been examined.

(1) The interior of the shell follows the general lines of British design. A lead washer is trapped in between the body of the shell and

the burster container to form a liquid-tight joint. The burster appears to be an ordinary explosive.

(2) The weights were as follows:

	Pounds	*Ounces*	*Drams*
Weight of shell (filled, without fuze or plug)	12	1	--
Weight of propellent charge	13	5	--
Weight of cartridge case	2	13	8
Weight of burster	--	2	8

(3) The filling was found on analysis to be lewisite, the particulars of which were as follows:

Specific gravity at 30° C.—1.527.
Total weight of liquid—642.5 grams; 1 pound 6¼ ounces.
Volume of liquid—424 cubic centimeters; 0.746 pint.

(4) The shell was colored gray, with white and yellow bands. It had a red tip followed by a blue ring.

(5) The propellent charge was contained in a silk cloth bag and the cartridge case was a push fit onto the base of the shell.

(6) In general, the sound quality of the materials used in the manufacture of the shell, the absence of coning or indenting for attaching the cartridge case, and the firmness of union between the burster container and the body of the shell are the main features of interest.

(7) The fuze is of a delayed-action type, and operates in the following manner: The acceleration sets back a stirrup spring. Centrifugal force opens four segments, which fly out from the center leaving the striker suspended by a creep spring. Impact overcomes the resistance of the creep spring and the needle penetrates the detonator. A small magazine or gaine attachment at the base of the fuze is filled with high explosive. This in turn passes to the burster container in the shell.

85. 105-mm gun.—*a. General.*

Name	Type	Length without fuze (inches)	Specifications			Tail (inches)	Range (yards)
			Body (inches)	Ogive (inches)	Band		
Shell, long	HE	20	6	9	Copper, 1 inch in 3 seconds.	3	9,000 to 20,000.
Shell, short	HE	16	6	6½	1 inch	1½	0 to 14,600.
Shell	Shrapnel, smoke.	12	6	3½	Copper, 1 inch	1½	Air: 11,000. Ground: 14, 600

b. Battalion combat train (truck-drawn).—Number of rounds carried (estimated)—1,280.

86. 155-mm howitzer.

Type	Range
Shell, common, + HE	8,750 yards.
Long pointed shell, + HE	10,500 yards.

87. Fuzes.—*a. Instantaneous percussion.*—Point-detonating, 2½ inches long (external length); 1-inch thread. Used for high-explosive shells.

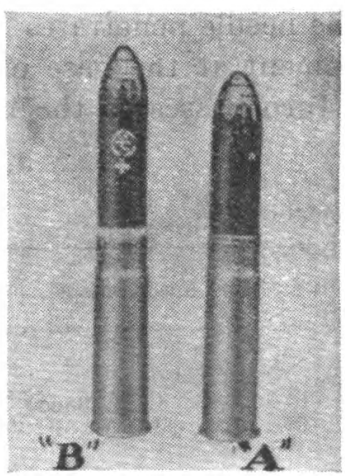
b. Short-delay percussion.—Point-detonating, 1 inch long; 1-inch thread. Used for high-explosive shells.

c. Combination.—Standard powder train; external height, 2½ inches; thread, 2 inches; time train, 0 to 36 seconds; set by hand fuze setter. Used for shrapnel and smoke shells.

SECTION III

ANTIAIRCRAFT

88. 75-mm shell.—*a.* Two types of 75-mm antiaircraft ammunition are shown in figure 90.



A. Ordinary HE. *B.* Segmented shell.

FIGURE 90.—75-mm antiaircraft ammunition.

b. Figure 91 shows a cross section of the 75-mm antiaircraft segmented shell.

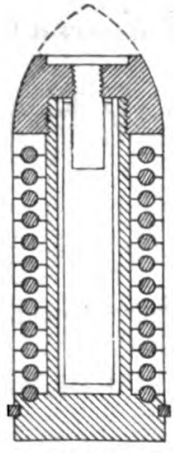


FIGURE 91.—Cross section of 75-mm antiaircraft segmented shell.

CHAPTER 6

SUPPLY AND EVACUATION

SECTION I

SUPPLY

89. General.—Without doubt, the Japanese system of supply has undergone many changes due to operations in China and Manchuria during recent years. In the past the system was based upon the exclusive use of animal transport except for rail and water facilities. Lately, however, motors have played a prominent role in supplying the numerous units in China and Manchuria. In view of the lack of definite information concerning the use of motors in the Japanese supply system, it may be assumed that their supply system functions, in general, like that of the German Army, where many Japanese Army officers go for military study.

90. Division transport regiment.—The division transport unit carries the rolling reserve of the division. For its organization, see paragraph 16*b*.

91. Ammunition supply.—*a.* Each unit, infantry and artillery, has its own combat and field trains and operates them to obtain its own supplies. The division transport, carrying the rolling reserve of the division, is commanded and operated by officers and men from the Japanese Transport Corps. It performs the same functions as our division quartermaster battalion.

b. Unit trains and division transport must at all times keep in touch with the organizations they serve and be prepared to fill their requirements. Infantry battalion combat trains (pack), infantry regimental gun company and battalion howitzer company ammunition platoons (pack), and regimental combat trains go to the advance points of issue of the division transport on the order of the battalion or higher com-

mander and exchange empty ammunition boxes for full ones. Regimental and battalion combat trains of the divisional artillery go to the

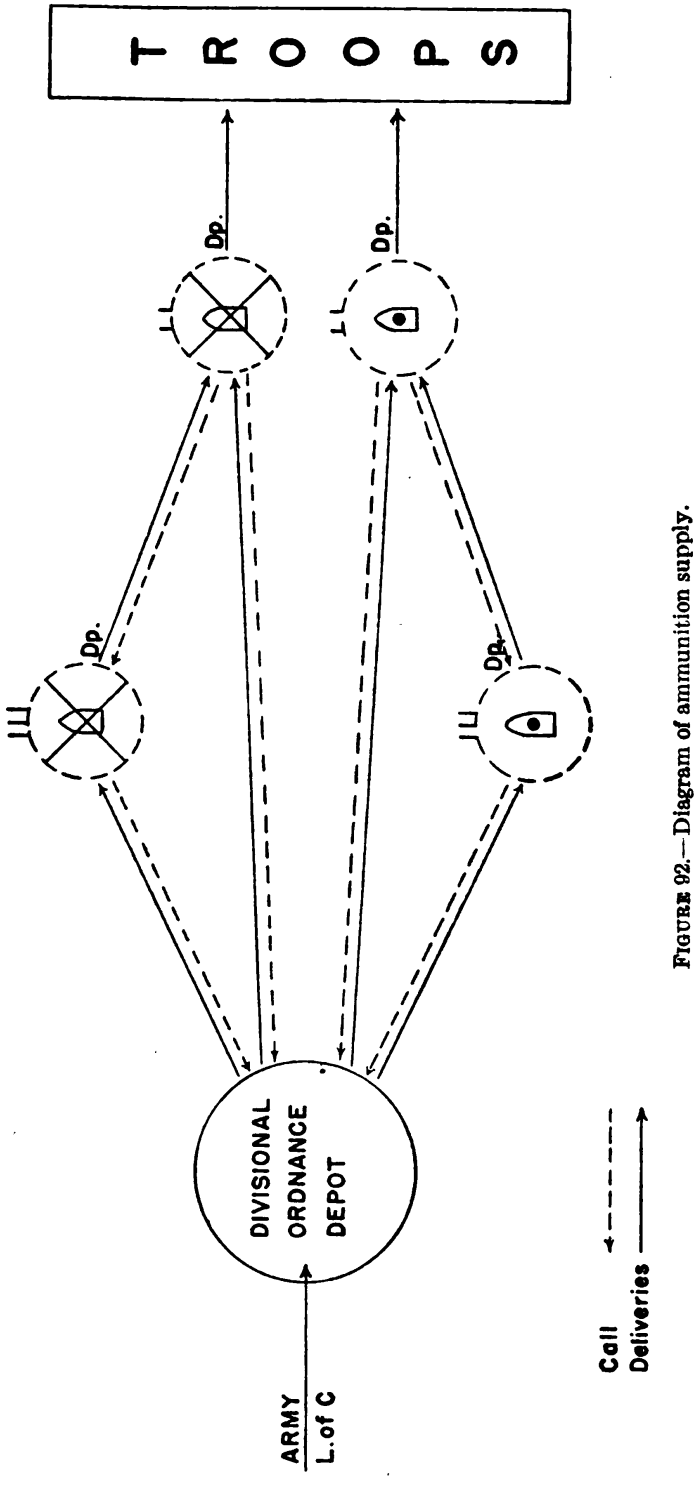


FIGURE 92.—Diagram of ammunition supply.

position of the division transport to refill. Regimental combat trains of heavy artillery are usually supplied direct from the line of communication.

92. Organization and operation of line of communication (Heitansen).—*a. General.*—The line of communication is a series of supply and evacuation establishments along a main supply line (road, railroad, or waterway), extending from the communications zone or from the base ports of an oversea force forward into the areas of the front line divisions. It has length without distribution in width in contrast to the conception of zones of supply establishments in vogue in our logistical organization. A large force of several divisions will be served, however, by several such parallel lines of communication which give a certain lateral disposition to the supply establishments.

b. Functions of line of communication.—The line of communication is an organ of the army commander who exercises his authority through a line of communication commander. The functions of the line of communication are—

(1) To receive, billet, ration, and forward men and animal replacements.

(2) To receive, shelter, and forward supplies.

(3) To evacuate men and animal casualties, prisoners of war, unneeded supplies, salvage, and captured equipment.

(4) To provide medical service for men and animals in transit to and from the front.

(5) To investigate the supply resources of the area and requisition them as needed.

(6) To operate depots for all classes of supplies and to displace the depots forward as needed.

(7) To organize and operate wagon trains (jūretsu) formed from locally commandeered equipment.

(8) To provide local defense for all line of communication establishments.

c. Line of communication troops and local levies.—To operate the line of communication, the army receives the following units, attached in number consistent with its size, its location with reference to its supply base, the terrain, and the military situation:

(1) Headquarters, line of communication.

(2) Signal detachment of two or more companies.

(3) Line of communication wagon transport companies. Each company is made up of animal-drawn wagons and carts with a total carrying capacity of about 60 tons, organized generally in the same way as the wagon transport company of the division transport regiment. Strength, about 250 men per company. Companies are attached to the army at the approximate rate of four per division and four per army troops.

(4) Line of communication truck companies. These have the same cargo capacity as the wagon companies. Attachment rate is about one-fourth the number of wagon companies.

(5) Transport supervision detachments. These are small detachments of infantry reservists who supervise the organization and operation of locally organized transport companies. The number attached depends on the number of such companies (jūretsu) which it is planned to organize locally.

(6) Line of communication hospital. Attached at the rate of one per division. Capacity can be varied with the situation.

(7) Reserve infantry battalions and cavalry troops. Variable number attached for the protection of the line of communication.

(8) Reserve engineer detachment. For road work and construction.

(9) Light railway (keiben). Detachment with 62 miles (or less) of track for use in the depot area of the base terminal of the line of communication.

(10) Labor troops. For loading and unloading the supplies and for construction at depots, hospitals, and relay posts.

The number of troops on a line of communication will plainly vary between wide limits.

d. Installations of line of communication.—(1) *Route of line of communication.*—In selecting the route the desiderata are the same as we look for in choosing the main supply road except that the Japanese do not plan on having a hard-surfaced road. Under ideal conditions one line of communication may supply two divisions, but it is always desirable to have a ratio of one line of communication per division if the force expects to get as far as 125 miles from its base.

(2) *Terminals of the line of communication.*—The base terminal (heitan shuchi) is the area of the base depots where the supply columns (jūretsu) are organized, loaded, and dispatched. Because of the difficulty of displacing the depots, the base terminal is seldom moved. The forward terminal or line of communication head (heitan suichi) is the point where the line of communication transfers its supplies to the divisional transport regiments. The point is kept close up to the front line divisions and when possible it is near the center of the division bivouac areas. The maximum distance that it is allowed to fall behind the bivouacs of the field trains is 30 miles, a distance which corresponds to a half day's march of the field trains plus a day's march of the division transport regiments. As the latter have two ration-carrying companies each capable of carrying 1 day of class I supplies, these can take turns in transporting supplies between the line-of-communication head and the field trains and thus are capable of dis-

placing the rations received on a full day's march. The field trains, however, with the capacity of a single day's ration, must make a round trip between the division train and the consuming troops every day; consequently, their forward location cannot exceed a half day's march from the transfer point with the division transport regiment.

(3) *Posts on the line of communication (heitanchi).*—Relay posts are set up along the line of communication at points about a half day's march (10 miles) apart. Shelter, bivouac, and loading facilities are needed; hence, towns appropriately located are desirable points. The area needed is considerable, for the post may be called upon to handle daily as many as 11 wagon companies of 100 to 150 carts each and, in addition, animal and personnel replacements and evacuees and prisoners of war in accordance with the situation. In forwarding supplies, one wagon company per hour can be loaded and dispatched. As the commandeered wagon company personnel will generally be hostile to the Japanese, it is considered essential that the loading of supplies at one post and their transport and unloading at the next be done in the hours of daylight to facilitate supervision. Thus the number of transport companies that can be dispatched daily from a line of communication varies from 7 to 11, depending on the season of the year. This number becomes a controlling factor in determining the supply capacity of the line of communication.

(4) *Depots and hospitals.*—Depots for all types of supplies are located at the base terminal of the line of communication and advance field depots are set up as needed along the line of communication as the army advances. Thus, in advance of an attack, field depots for ammunition, engineer, and class I supplies are set up within 15 to 20 miles of the front and stocked with supplies estimated as needed for the attack. In the area of the field depots the line of communications sets up its line of communication hospitals to receive evacuees from the field hospitals of the divisions. Depots and hospitals are under the command of the line of communication commander. They receive labor troops (yūsetsutai) for the physical handling of supplies, etc.

e. Operation of line of communication.—(1) In case the force to be supplied is stationary, the required number of posts established depends upon the distance of the force from the base. To decentralize administration of the line of communication, the commander divides it into subsections (kanku) in accordance with the following considerations:

(*a*) The subsection boundaries should follow along local administrative lines.

(*b*) The local subsections should be about equal in resources and important engineering works (bridges, railways, tunnels, etc.).

(*c*) Each subsection is provided with a headquarters.

(2) Supplies are shuttled between relay or intermediate post of line of communication in one of three ways:

(*a*) A loaded supply company moves forward from *A* post to *B* post (½-day march apart), transfers its supplies at *B*, and returns empty to *A*, where it bivouacs at night.

(*b*) A supply company goes back empty from *B* to *A*, picks up supplies, and returns loaded to *B*, where it bivouacs for the night.

(*c*) A loaded supply company moves from *A* to *C* (1-day march), transfers its supplies, and bivouacs. On the following day it returns empty to *A*, where it receives a new load. When the army is not advancing, the third method is most advantageous, as it reduces the number of transfer points and avoids the unnecessary loading and unloading of supplies.

(3) With no large consumption of class II, III, and IV supplies taking place, the supplies forwarded along the line of communication are principally the daily ration and forage. This quantity of supplies requires the cargo capacity of one transport company per division, one per army troops, and, as the line of communication becomes long, one for the personnel of the line of communication.

(4) In case the force is advancing at a normal daily rate of 15 miles the line of communication is either extended by setting up successive new line of communication posts behind the advance or extended prior to the advance under cover of an advance detachment along the line to be followed by the army. The latter method is desirable when it can be applied safely but must be regarded as exceptional.

f. Handling of class I supplies by division transport regiment.— A front-line division in the advance bivouacs in an area about 10 miles deep. The two ration companies of the transport regiment (each with a capacity of 1 day's class I) bivouac near the division rear boundary. Each night the line of communication is pushed up to a point near this rear boundary. Assuming Company 1 to be loaded and Company 2 to be empty, the division companies operate as follows: At daylight Company 1 advances in the wake of the army 20 miles to the center of the next night bivouac area, delivers to the field trains, and returns 5 miles to bivouac at the division rear boundary. Meanwhile, Company 2 loads from supplies delivered by the line of communication transport, moves forward 15 miles to the rear boundary of the new division bivouac area, and bivouacs near Company 1. The following day the operations of the two companies are reversed.

g. Comments.—(1) The organization and operation as outlined of the line of communication was in effect in 1932. Nothing is known of modifications in the system brought about by the experience in Manchuria and China since that time. It is believed to be basically unchanged, however, except as modified in detailed application by increased use of motor transport.

(2) The Japanese line of communication impresses by its fragility, intricacy, and dependence on improvisation. The maximum output of the line in summer (longest period of daylight) is 11 transport companies daily, or 660 tons. Any variation in the normal rate of consumption of supplies must be anticipated days in advance in order to start the extra supplies forward in the slow-moving shuttle from relay posts. The large number of supply trains involved makes for great difficulty in maintaining the complicated schedule of interlocking movements which may be further disturbed by adverse weather or intervention by the enemy. The regular transport units assigned the line of communication are insufficient to furnish more than a small fraction of the cargo capacity needed for the army so that a large amount of equipment must be obtained locally. While it may be assumed that the Japanese would first be sure that the needed equipment was in the area before basing plans on its use in their supply organization, nevertheless, the resulting patchwork organization does not inspire confidence in the ability of the system to assure a smooth and efficient movement of supplies.

(3) It is interesting to note the dependency on employing locally commandeered or requisitioned transportation—a practice used extensively in China. While such a system lacks efficiency, it denotes flexibility in the supply system by which almost anything which will roll is made to serve some purpose.

(4) The above system is based on an operation in which there are no rail facilities or motors involved. Due allowance must be made for the fact that the use of motors will greatly modify many of the distances, numbers of vehicles, and installations pictured herein, though there are undoubtedly sectors or forces in China which are being supplied by the methods described. Such sectors are those wherein the terrain is such as to render the use of motors impractical and to which the small cart is peculiarly adapted.

SECTION II
EVACUATION

93. General.—Although Japanese organization is somewhat elastic, and in many instances a group of troops corresponding to a division would either lack a medical regiment or have but a part of it attached, for general purposes it may be said that a medical regiment accompanies the division into the field. The regiment operates in conjunction with a division field hospital, and establishes its three advance field hospitals in such places as will best serve the front-line combatant regiments. From each advance field hospital a collecting company composed of three platoons is sent forward to operate with the troops engaged in combat. Usually the tactical deployment makes it possible for one collecting platoon to work with each front-line infantry battalion.

94. Detailed actions.—When a soldier is wounded in action, his companions call for the medical man who is permanently assigned to the company, and this medical man, with as little delay as possible, comes to render first aid. If necessary, the medical man directs the companions of the wounded soldier to move him to a place where he can be found by the members of the collecting platoons. Often, at this stage, the services of the battalion medical officer who is supervising the activities are solicited. The patient is given first-aid treatment and tagged with a description of his wound which tells where and when it occurred, and what first-aid treatment was applied. Next the company medical man calls for one of the collecting platoon stretcher groups, who carry the casualty to the first-aid station where the patient is put under shelter and given whatever supplementary first-aid treatment examination shows he requires. In each case the patients are gathered at one or another of the first-aid stations, classified as to their condition and the gravity of their cases, and evacuated to the advance field hospital, where they are registered, entered into the proper section, and given appropriate treatment. As soon as possible, they are evacuated to the division field hospital.

95. Medical regiment with division.—*a.* Figures 93 and 94 chart the broad aspects of the evacuation system of the Japanese Army.

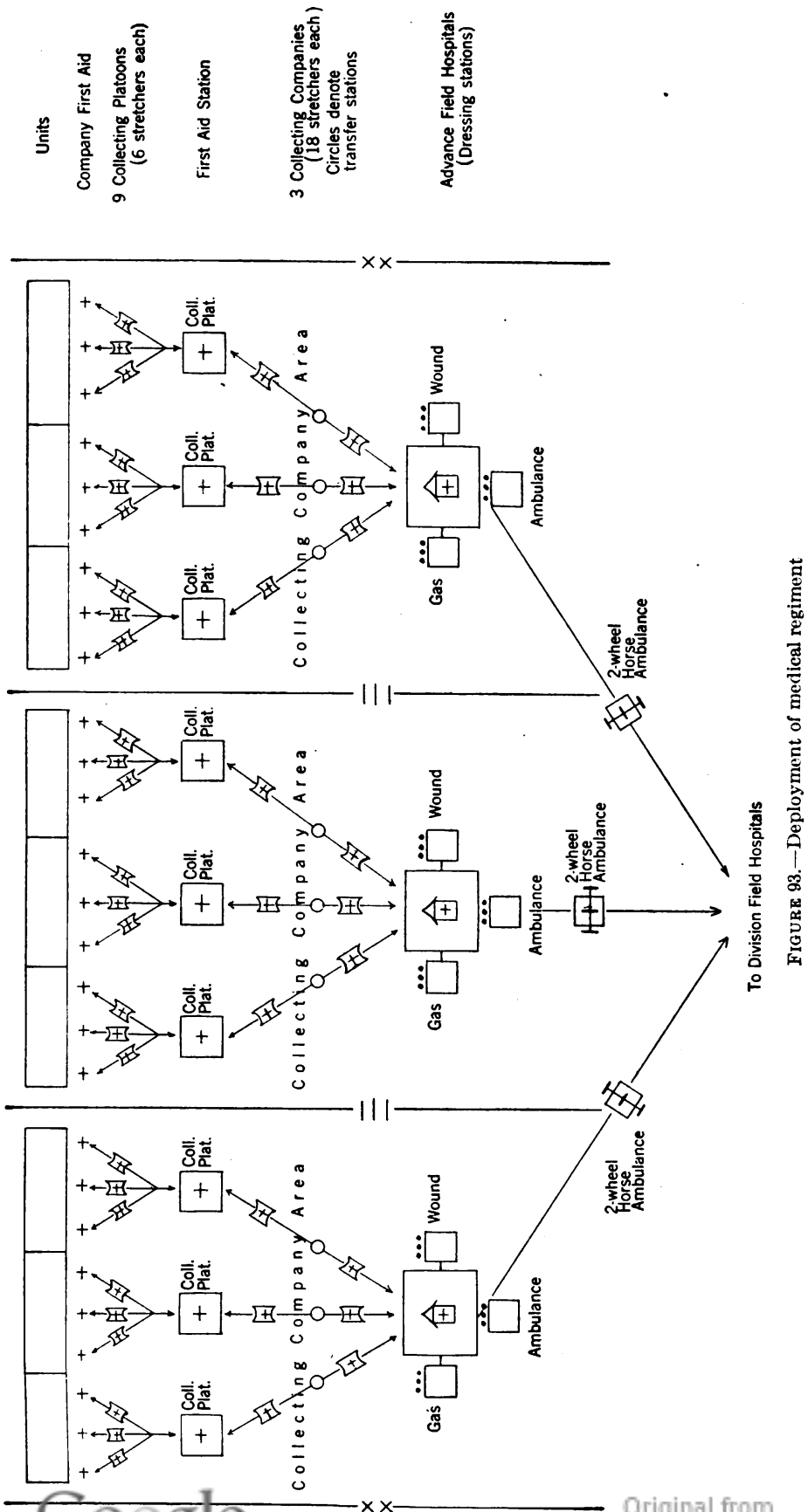


FIGURE 93.—Deployment of medical regiment

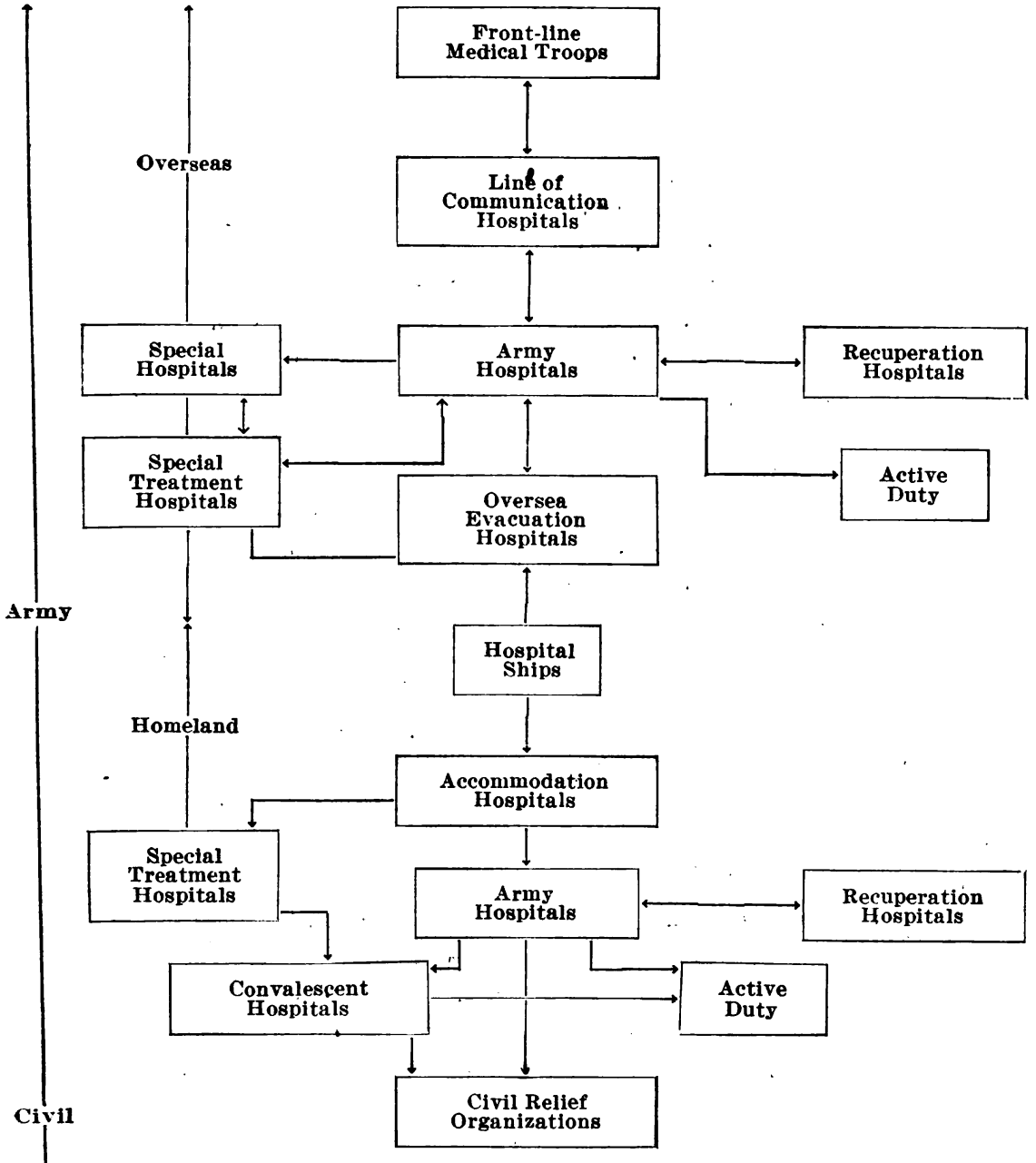
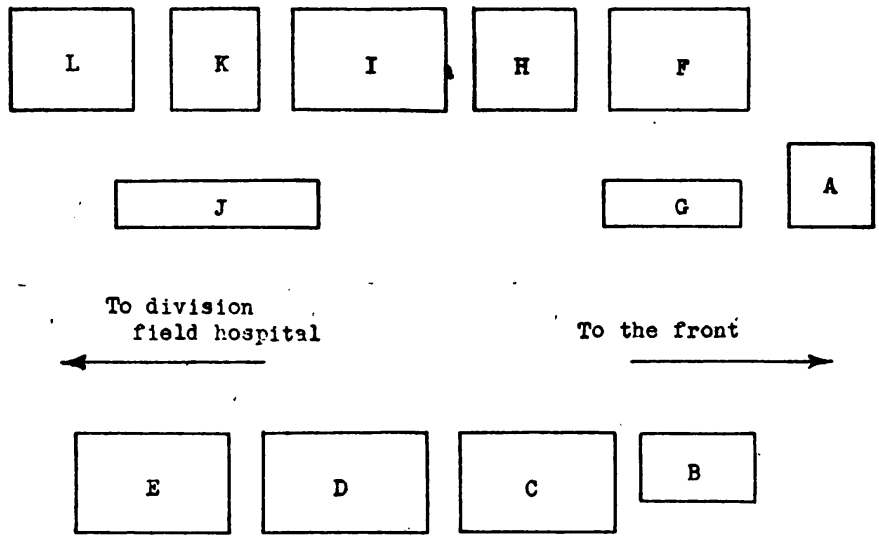


FIGURE 94.—Army evacuation system.

b. Figure 95 illustrates the organization of the advance field hospital (dressing station) with the division.



A. Classification section.
B. Gas patients preparation section.
C. Gas patients treatment section.
D. Gas patients rest.
E. Gas patients evacuation.
F. Operation and treatment of severe wounds.
G. Dressing light wounds.
H. Rest after operation or treatment.
I. Disinfectant and supply sections.
J. Evacuation section.
K. Headquarters and medical camp.
L. Ambulance pool.

FIGURE 95.—Organization of advance field hospital (dressing station).

CHAPTER 7

TRAINING, EFFICIENCY, DISCIPLINE, AND MORALE

96. Training.—*a. Principal military schools.*

(1) *Superior schools.*

General Staff College.

(2) *Technical and special service schools.*

Artillery and Engineer School.
Medical School.
Automobile School.
Intendance School.
Communications School.
Chemical Warfare School.
Land Survey Department School.
Veterinary School.
Military Police Training School.
Physical Training (Toyama) School.
Artificers School.

(3) *Schools of the arms (except Air Corps).*

Infantry School.
Tank School.
Field Artillery School.
Heavy Artillery School.
Air Defense School.
Transport School.
Signal School.
Automotive Equipment Maintenance School.
Mechanized and Armored Force School.
Cavalry School.
Engineer School.

(4) *Air Corps Schools.*

Balloon School.
Tokyo Air School (primary).
Kumagaya Air School (basic, pilotage, meteorology, navigation).
Utsonomiya Army Flying School (basic, pilotage, navigation, meteorology).

Tachiarai Flying School (basic, pilotage, navigation, meteorology).
Tokorozawa Aviation Branch, Military Academy (basic, pilotage, meteorology, navigation).
Akeno Air School (air combat, gunnery).
Mito Flying School (aircraft weapons and ground duties).
Hamamatsu Air School (bombing).
Shimoshizu Air School (observation).
Gifu Air School.
Hokota Air School.
Air Maintenance School (maintenance, repair).
Army Air Signal School (communications).
Army Air Technical School.
Army Air Academy.

(5) *Parachute training centers.*—Reported at—
Himeji—western Japan (not far west of Kobe).
Kasumigaura—eastern Japan (northeast of Tokyo).
Yōkaichi—western Japan (south of Lake Biwa between Kyoto and Ise Bay; not the same as Yokkaichi near Nagoya).
Shirahama—eastern Japan (western coast of Kii Peninsula south of Wakayama).
Akitsu—eastern Japan (near Tokyo).
Kanoya—southern Japan (in Kagoshima north of Sato Misaki).
Funabashi—eastern Japan (east of Tokyo, northeast of Chiba city).
Tsudanuma—eastern Japan (east of Tokyo, northeast of Chiba city).
Nio—eastern Japan (near Shizuoka).
Nakamita—central Japan.
Kōkō—northwestern Formosa.
Kai Ken Hang—near Canton, China.

(6) *Reserve military academies* (for reserve officers).
Morioka—Infantry.
Toyohashi—Infantry and Field Artillery.
Kurume—Transport Corps.

(7) *Cadet schools.*
Junior Military Academy.
Military Academy.

(8) *Noncommissioned officer schools.*
Toyohashi Noncommissioned Officer Training School.

Sendai Noncommissioned Officer Training School.
Kumamoto Noncommissioned Officer Training School.

b. Nature and objective of training for officers.—The training of Japanese officers is somewhat narrow and arbitrary in its methodical and inflexible system of indoctrination. There is a rigidity about it which mitigates against originality in thought or deed. Training, nevertheless, is progressive, thorough, and along modern military lines. It has produced a corps of officers aggressive, courageous, and thoroughly competent to train and lead the conscript forces against Japan's potential enemies. Higher commanders and staff officers compare very favorably in knowledge and ability with those of the Armies of other first-class powers.

c. Nature and objective of training for men.—The training of conscripts is progressive, systematic, and thorough, and includes both theoretical and practical instruction. Great stress is placed upon physical training, upon the cultivation of loyalty, obedience, patriotism, and the offensive spirit. The system produces hardy, well-trained, well-disciplined, and fanatically courageous soldiers.

d. Unit and combined training.—The training year begins in January with the arrival of the new conscript class. Training starts with the smallest units, progresses steadily through all the units of each arm and culminates in November with combined maneuvers of all arms involving from one to three or four divisions. The careful, progressive unit training followed by extensive combined exercises produces organizations which are accustomed to work in combination with the other arms and services in large commands. Training is especially thorough in landing operations and in night operations.

97. System of promotion.—In peacetime the promotion system is a combination of seniority and selection; in wartime largely by selection. In peacetime, regulations provide for retirement for age in grade. In wartime, these regulations are suspended.

98. Efficiency.—Officers are well qualified to perform their various duties in peace and war. Enlisted men are well-trained, well-disciplined, courageous, and aggressive fighters. Considering combat efficiency and value as a whole, the Japanese Army is a powerful and efficient striking force specially trained and equipped to combat its potential enemies on the mainland of Asia.

99. Discipline.—*a.* Discipline in the Japanese Army is excellent. Contributing factors to this splendid training are—

(1) The family system in which each member has a definite place of subordination which is unquestionably accepted. This results in a disciplined individual who is easily molded into a disciplined soldier.

(2) Military traditions which have helped to make the Japanese an essentially military people. The feats and exploits of the Samurai are kept before the nation through school texts, novels, and classical drama. Fencing with the two-handed sword, a subject emphasized in middle schools, continues throughout military service.

(3) Regimentation by which the individual is under very rigid control of the agencies of the national and local governments. In the family, the home, and Army, the individual is inculcated with the spirit of military discipline and loyalty to the Emperor and other constituted authority.

(4) Hard work and Spartan living to which the conscripts, the vast majority of whom are from agricultural districts, are already accustomed. On entering the Army they find the rigors of Army life do not far exceed those of civil life.

b. Instances in which there is a complete breakdown of discipline, such as the revolt in Tokyo in February 1936 and the unbridled actions of officers and men following the capture of Nanking, China, in December 1937 are rare. The Tokyo incident was motivated by a fanatic nationalism which transcended all else in the minds of the insurrectionists.

100. Morale.—Morale in the Army is excellent. Japanese morale is engendered by—

a. Training in spiritual loyalty to the Emperor, who is the titular head of the state religion (Shintoism) as well as the reigning monarch. The Shinto religion is based on a mythology which teaches that the Emperor is a descendant of the Sun Goddess and the Japanese people are a superior race. The Japanese also believe their culture is of such a high type that it sets them apart from the rest of the world and gives them a manifest "divine mission" (the latter is but another term for an insatiable ambition for territorial and economic expansion).

b. Self-esteem, traditional prowess with the sword in combat, and Japan's success in the wars in China in 1894 and Russia in 1904–05, and the present conflict, which have instilled a confidence and bravado which is conducive to high morale, regardless of the lack of combat efficiency of the opposing Armies.

c. Sufferings from many natural calamities such as earthquakes, floods, hurricanes, and fires. These adversities have induced in the people remarkable recuperative capabilities and an indomitable tenacity of purpose. It is believed, however, a crushing defeat in battle will totally destroy their belief in their invincibility and "divine mission."

CHAPTER 8

TACTICS OF JAPANESE ARMY

SECTION I

GENERAL

101. General.—A study of Japanese tactics causes many adverse criticisms to arise in the mind, criticisms which are frequently voiced throughout these pages. It is well to remember, however, that the Japanese Army is designed to fight in North Asia against China or Russia, and in Southeast Asia against European-trained native troops and relatively small units of occidental troops which are handicapped by the climate. The tactical methods described in the first part of this chapter are those considered suitable for use in operations against Russia, whereas against Chinese troops greater boldness is felt to be justified. In the last part of this chapter Japanese tactics in the jungles of Southeast Asia and in the islands of the South Pacific will be discussed. Before indulging in immoderate condemnation of Japanese tactics, it should be borne in mind that Japan's tactics and methods have been singularly successful in all her operations thus far. Japan understands war in Asia and the islands of the Pacific. It behooves the doctrinaire tactician not to be too critical of the tactics of an Army successful in the field.

SECTION II

OFFENSIVE

102. General.—*a.* Japanese tactical doctrine insists vigorously on the inherent superiority of the offensive. The object of all maneuver is to close quickly with the enemy where the assumed superiority of the Japanese in close combat can be realized to the utmost. Like the French Army at the outbreak of the first World War, the Japanese seem to feel that in the attack there is some mystic virtue which can overcome material weapons in profane hands; that it is more important to have spirit (seishin) than men or weapons. The corollary to this fetish of the offensive is the rejection of defensive combat as a negative form of action unworthy of the Imperial Army. Trained in the faith of this offensive doctrine, Japanese officers reach attack decisions in map and field maneuvers where, by all orthodox tactics, the situation patently requires some form of defensive action. What elements there are of strength and of weakness in this type of training will be a matter of subsequent comment.

b. The division described in this section is the two-brigade division with limited motor transportation. The Japanese are rapidly converting all of their divisions into three-regiment or triangular divisions. It should be borne in mind, therefore, that while their tactics will not materially differ from those described, the composition of columns described and units designated as taking part in the various phases will differ. The brigade as such will rarely be encountered

and the units making the holding and enveloping attack will in all probability be regiments and the division reserve will probably still be a regiment.

103. Forms of attack.—*a. Envelopment.*—(1) In keeping with usual military theory, the Japanese consider the envelopment, single or double, as the preferred offensive maneuver. Envelopment implies frontal, direct pressure to hold the enemy while the attacker maneuvers to strike a flank. In ascending order of effectiveness, the envelopment may be single, double, or a complete encirclement (kanzen hōi). In conflict with tactical teachings elsewhere, the Japanese are willing to try a double envelopment without any considerable numerical superiority and regard it as sometimes possible even by an inferior force. The Japanese commander may seek to obtain envelopment in one of several ways.

(*a*) The force advances in several parallel columns one or more of which are directed against the enemy flank and rear during the advance to contact.

(*b*) The force advances with certain units in second echelon which can later be displaced to a flank to execute the envelopment.

(*c*) After the force has encountered the enemy and partially deployed, some units may be moved laterally for envelopment if covered by night or fog.

(2) The procedure of (1)(*a*) above is considered the normal one for units of the size of a division; (1)(*b*) is especially applicable to small units, while (1)(*c*) is feasible only in certain favorable situations. The frontal pressure force of a division will also often execute a close-in envelopment in performing its fixing mission whereas small units such as squads and platoons always seek to obtain the effect of flanking fire (shageki hōi).

(3) The troublesome question of which flank to envelop is decided in accordance with the same considerations we employ.

(4) To intensify the effect of the envelopment they often consider it desirable to combine it with a turning movement (ukai). When such a movement is tried, the force sent around by a division in the attack is relatively weak, about a battalion reinforced by a light battery and a squad of Engineers. This is the only time that the Japanese maneuver suggests a wide envelopment and, in this case, the unit sent wide is not the main effort of the attack. The mission of such a turning force is usually similar to that of a pursuit detachment; indeed, it will become a pursuit detachment if the main attack succeeds.

b. Frontal attack.—(1) Japanese regulations contain the usual admonitions against a frontal attack yet, in practice, the Japanese treat it

with more favor than is customary elsewhere. The feeling is that, by virtue of the increased offensive power of tanks, artillery, and air force, the offensive is now at least as strong with relation to the defensive as in the first World War. Hence, the frontal attack should be about as practicable now as in 1918. The Japanese, however, do not proceed logically from this premise and assemble a 1918 superiority of matériel before embarking on a frontal attack.

(2) Situations which may give rise to a frontal attack are those to which Americans are accustomed. These situations, being standard ones, can hardly be made the basis of criticism. In observed practice, however, the time element or the fear of allowing the enemy leisure to improve his position is often allowed to justify a very questionable decision to make a frontal attack.

(3) The main effort of a frontal attack is made against a weak point in the enemy line leading in a decisive direction into the enemy rear areas. Other considerations in making the main effort of a frontal attack are identical with those taught in United States service schools. The artillery supporting the division seldom exceeds three battalions of 75's, one battalion of 105's and one of 155 howitzers. This artillery is capable of covering with a simultaneous, effective concentration a front of 550 yards (about 115 yards per battalion). This allocation of artillery is obviously inadequate to permit more than a shallow penetration on a narrow front if first World War conditions are approximated.

c. Comments.—The impressions gained from a study of Japanese teachings on the offensive and their application in practice may be summarized in the following statements:

(1) The Japanese will attack in many cases where the orthodox decision is some less positive action. The attack may be rash and costly but will never lack vigor and determination.

(2) Where the attack is an envelopment it is likely to be of a shallow close-in type obtained by an overlapping of the hostile flank by parallel columns. It is characterized by speed and energy rather than by intricacy of maneuver and careful coordination of arms.

(3) The frontal attack, often with inadequate means, is common and will remain so until corrected on the battlefield.

104. Meeting engagement.—*a.* The meeting engagement as defined in Japanese military writings is the collision either of two hostile forces in motion or of a force in motion and one which has halted but has not had time to organize a detailed position. The training of the Japanese Army strongly emphasizes this form of combat, for it is felt that the meeting engagement allows an optimum development of

the alleged Japanese aptitude for swift and decisive offensive action. In contrast to the doctrine of western armies, which tends to regard the meeting engagement as a dangerous gamble, the Japanese seek it deliberately. Aside from the question of the assumed superiority of Japanese fighting spirit, the meeting engagement offers to them the added advantage of minimizing the deficiency in matériel, especially in artillery, of the Japanese division, a deficiency which is necessarily felt more acutely in the case of the deliberate attack of a position. Also, the objection that the meeting engagement disrupts the coordinated control of the several arms is not felt to be particularly valid, for the combined use of the arms has never been a strong point of the Japanese, whereas their rugged Infantry can look after itself where the fighting becomes a matter only of the rifle and bayonet. In spite of the progress of aviation which tends to eliminate surprise from the battlefield, Japanese commentators feel that meeting engagements will continue to be of frequent occurrence since fog, night, etc., will often blind observation from the air. The meeting engagement is thus made the basis of Japanese combat training, the official regulations giving much more space to it than to any other form of combat. In the words of one Japanese writer, "The Imperial Army seeks to wage a short war to a quick and decisive conclusion. The meeting engagement conforms to this spirit and is to be sought whenever possible."

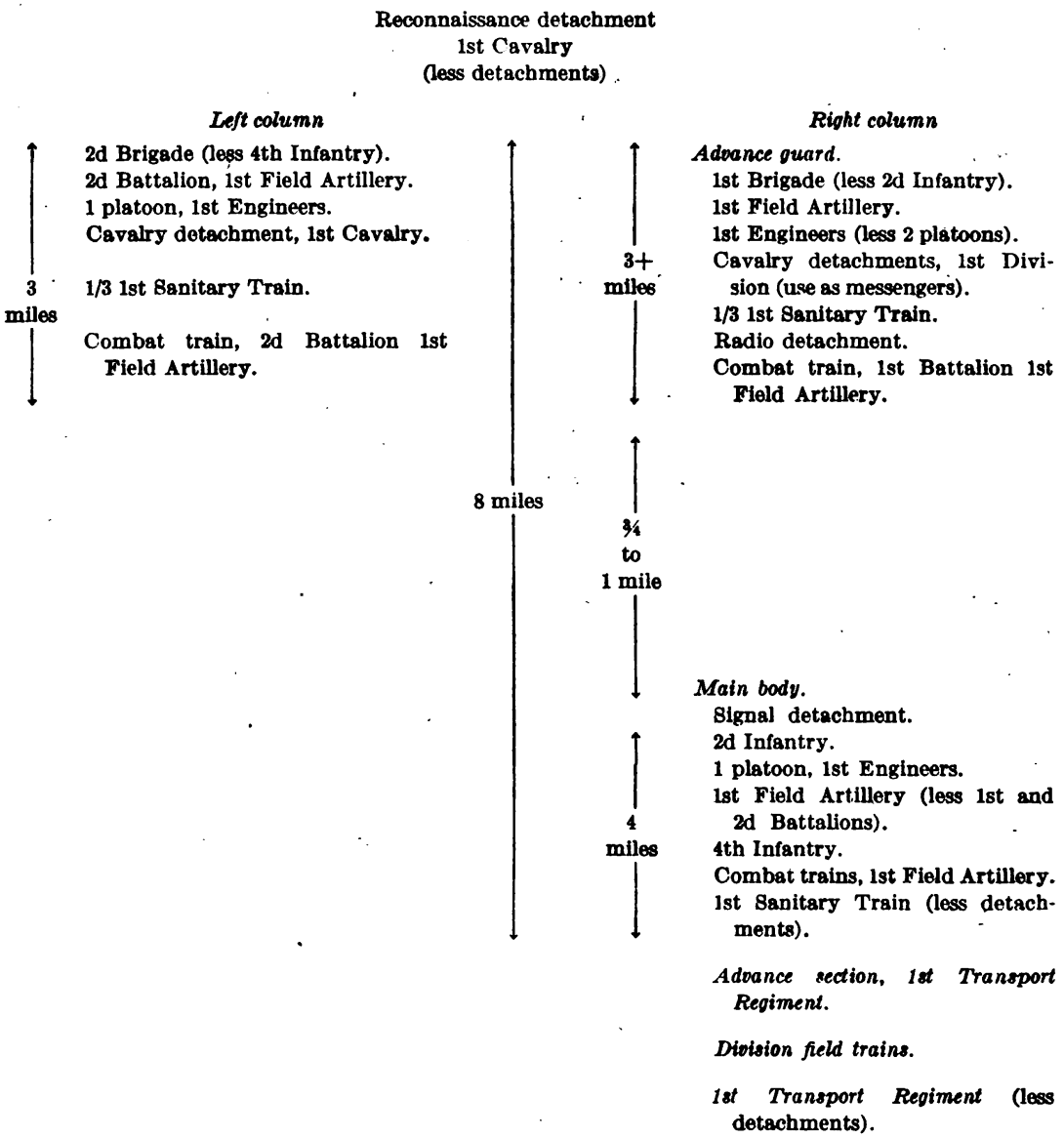
b. The fundamentals of success in the meeting engagement are taught to be—

(1) The seizure and retention of the initiative.
(2) Bold, independent action by subordinate commanders.
(3) Prompt occupation of important terrain features.
(4) Energetic leadership during combat.

105. Advance.—*a. General.*—Considerations governing the formations in the advance and day or night movement are similar to those found in our manuals. When the division is to advance at night, the division commander often sends forward in daylight a mixed detachment of cavalry and motorized infantry to seize important terrain features and to cover the movement at night. As a meeting engagement becomes likely, the division commander modifies the formation as needed to facilitate the entry of the division into action with a view to enveloping one or both flanks of the enemy.

b. Advance in two columns.—(1) In the tactical problems consulted there are examples of the division advancing in one, two, and three columns. The two-column formation is used, however, in the vast majority of cases, other dispositions being rare exceptions. In

this two-column formation the essential components of the division are disposed as shown in figure 96.



With the above formation, the division commander expects, if anticipatory plans have been correct, to execute an envelopment of the hostile left flank, using three regiments in the initial attack, with the 4th Infantry becoming the division reserve.

FIGURE 96.—Advance in two columns.

(2) This manner of indicating the composition of the march columns is that of a Japanese division field order. It is noteworthy that an advance guard is designated by the division commander for the right column only, whereas the left column receives merely an indication of the units to compose it. This results from the curious system of command which the Japanese use to control this march formation. The division commander commands concurrently the

division and the right column. In the latter capacity, he prescribes the detailed organization of that column, making the major general of the 1st Brigade the commander of the advance guard. The detailed organization of the left column falls to the major general of the 2d Brigade, who designates an advance guard for the protection of his column, one which is not an instrumentality for the protection of the division as a whole and which is not directly under the control of the division commander. Thus, as a meeting engagement becomes imminent, the immediate subordinates of the division commander to whom he issues orders directly are the colonel of the 1st Cavalry (commanding the reconnaissance detachment), advance guard commander (right column), colonels of the 2d Infantry, 4th Infantry, 1st Field Artillery, etc. (commanding components of the right column), and column commander (left column). It is not clear how the division commander plans to coordinate the action of his right column advance guard and the one which the major general of the 2d Brigade will organize. The term "advance guard," as used subsequently, applies only to that which the division commander directly controls.

(3) In the above formation, the infantry strength in the advance guards of the two columns amounts to about four battalions, or one-third of the infantry of the division. Where there is a greater number of columns, the advance guards sometimes reach half the infantry strength of the division. *Strong advance guards in approaching a meeting engagement are a Japanese characteristic.*

c. Advance in other than two columns.—(1) An advance in one column is avoided because of the delay incident to developing the division for an attack. Whenever that formation is adopted it is imposed by the road net. An advance in three columns has been rarely observed. In this case, the main column of the usual two-column formation (described in *b* above) is reduced by one infantry regiment which, with a platoon of Cavalry attached, becomes the third column. The division commander remains the commander of the strongest of the three columns. An advance in a greater number of columns than three, while recommended in the new Combat Regulations, has been exceptional in past practice.

(2) As a Japanese division prior to the China "incident," which began July 7, 1937, had little organic motor equipment, it has not been usual in the past to organize a special motor column on the march. The new regulations, however, anticipate the presence of motorized units which will ordinarily be serialized on roads not used by foot and animal-drawn units.

d. Attachments.—Frequently attached to a division in the advance are a battalion of medium artillery, a flight of observation aviation, and a battalion of antiaircraft artillery (two gun batteries and a searchlight battery).

e. Trains.—The division trains normally follow the main column of the division under division control in the order: advance section transport regiment, field trains, and remainder of the transport regiment. Distances between these units are normally from 1 to 2.5 miles. The massed field trains are under a field train commander, usually a captain designated by the division. The advance section of the transport regiment consists of an infantry ammunition section, two artillery ammunition sections, and a horse depot. Two field hospitals (there are four in the square and two or three in the triangular division) are attached to the advance section of the transport regiment.

f. Antiaircraft protection on march.—Each front-line division usually has attached to it for the advance a motorized antiaircraft detachment (yasen kōshahōtai). This detachment which includes two motorized gun batteries moves by leapfrogging from critical point to critical point along the axis of the division's advance. The guns go into position during the noonday halt, while passing defiles, while in bivouac, etc. If possible, the batteries displace forward by roads not used by the other elements of the division; otherwise they must double the marching columns. The average march rate for the detachment is 6.2 miles per hour. The effective radius of action of one battery is considered to be 6,800 yards.

g. Advance detachments.—(1) There is a notable tendency for the division commander to send forward a mobile detachment in advance of the division for one of the following purposes:

(*a*) To cover a night march to the probable battlefield where the division expects to be committed to action shortly after daylight.

(*b*) To secure a vital terrain feature on the front of the division.

(*c*) To execute demolitions of the road net and hamper the advance of the enemy.

(*d*) To execute surprise attacks on the enemy while in march formation.

(2) These detachments consist generally of the division cavalry, some infantry and engineers in trucks, and a battery of light artillery. The infantry strength will ordinarily not exceed a regiment. An exception to this latter statement has been noted in the case where the division plans to make an active defense. In this case, as much as half of the division may be pushed forward by forced marches to occupy a defensive position, while the remainder of the division follows

more slowly with the intention of launching a counteroffensive against an enemy flank.

106. Division commander in approaching a meeting engagement.—*a.* The march disposition of the division contains in it the germ of the maneuver which, from a prior study of the terrain and the enemy situation, the division commander expects to adopt if he encounters the enemy on the march. When the latter is reported approaching from a considerable distance, the division commander estimates where the battle will occur and communicates to his subordinate in a general form the plan of maneuver which he expects to adopt. He indicates time and place for the delivery of reports and a dropping ground for the air service. His artillery and engineer commanders receive technical information from their own patrols marching with the advance guard and reconnaissance detachment. As contact becomes imminent the division commander, who has been marching at the head of the main body of the principal column, moves forward on personal reconnaissance accompanied by appropriate staff officers. An advance message center may be designated behind the advance guard to facilitate the collection and dissemination of enemy information.

b. As the result of his personal reconnaissance and the reports of his reconnaissance agencies, the division commander determines the area in which the division will make its decisive effort, his plan of maneuver, and the location of his command post. He then issues fragmentary orders to initiate the deployment of his division.

c. Combat Regulations warn against waiting for overdetailed information before reaching a decision. This injunction seems to authorize a very short reconnaissance phase in map problems.

107. Deployment of division.—*a. Advance guard.*—(1) The prescribed actions of the advance guard in the meeting engagement are normal. Left to his own devices, however, the advance guard commander usually elects to drive headlong into the advancing enemy unless specifically restrained by division order.

(2) The advance guard artillery, as the advance guard closes to contact, prepares to furnish continuous support by leapfrogging batteries from position to position in rear of the infantry. Normal missions are to interdict the movement of enemy columns, to support the action of the advance guard infantry, and to perform limited counterbattery. Extreme ranges for interdiction by the 75's are 7,600 to 9,000 yards but, in practice, missions are seldom fired at over 5,500 yards. Positions are chosen with a view to supporting the attack of the main body without change of position. The advance

guard artillery reverts to the control of the artillery regimental commander at the time of the attack of the main body.

(3) It must be emphasized that the advance guard discussed is that of the column directly commanded by the division commander. The security detachments in advance of other columns are for local protection only and are not agencies of the division and the latter makes no effort to coordinate their action.

b. Main body.—(1) *Deployment.*—In his basic decision for the deployment of his division, the division commander decides whether it will be coordinated or piecemeal. The basis for this decision is found in Combat Regulations (par. 74) which reads:

> The division commander in order to profit by or to extend an advantage won by the advance guard may have to commit to combat each march column and each element of the main body successively upon arrival. However, if the situation permits, the division commander should seek the coordinated entry into action of his units, in which case he orders the deployment of each unit, establishes close cooperation between infantry and artillery, and coordinates the time of the infantry attack.

Thus the question of whether to make a piecemeal attack appears to be decided largely by the success of the advance guard action. In map problems, however, the piecemeal engagement of all or part of a force was often justified by the necessity of seizing some prominent terrain feature before the enemy or of getting out of a defile. The object of the piecemeal attack is to take advantage of a sudden opportunity, while the coordinated attack aims at securing effective use of the combined arms at the expense of time.

(2) *Coordinated deployment.*—(*a*) As indicated above, the Japanese prefer a coordinated development "if the situation permits." The measures taken by the division commander to secure this coordination are—

1. Assignment of a line of departure (tenkaisen) behind which the major units of his command are to deploy for the attack.
2. Detailed arrangements to assure coordination between the artillery and the Infantry.
3. Announcement of an hour for crossing the line of departure.

The line of departure is usually in extension of the line held by the advance guard. If the enemy has secured the advantage of priority in deployment, however, the main body of the division may deploy along a line behind or to the flank and rear of the advance guard in order to escape a threatened envelopment or premature engagement with superior numbers. In the latter case the advance guard sup-

ported by all the division artillery, covers the deployment and delays the advance of the enemy.

(*b*) If the enemy, anticipating collision with the Japanese troops, assumes the defensive, the deployment is modified to resemble the relatively cautious procedure of the attack of a position. In this case also, the division commander tries to develop and attack in the same day to avoid giving the enemy time to improve his position.

(*c*) The phases of the passage from march column to complete deployment are indicated by the following nomenclature used in Japanese regulations:

1. *Bunshin.*—Breaking from march columns into smaller ones out of hostile artillery range at the beginning of the approach march.
2. *Tenkai.*—Deployment along a line of departure (tenkaisen) with a view to performing an assigned combat mission.
3. *Sokai.*—Advance from the tenkaisen in small (squad or section) columns.
4. *Sankai.*—Final deployment of front-line units to permit firing duing the last few hundred yards of the assault.

These phases are shown diagrammatically in figure 97.

(*d*) It is important to note that the coordinated attack from the Japanese point of view does not imply passing into division assembly areas, hence is not truly coordinated in the American sense of the term. This passage into assembly areas, called "kaishin," is observed only in the attack of a position. In the coordinated meeting engagement columns develop directly behind the "tenkaisen" without halting prior to arriving on it. No special time is allotted for issuing ammunition and final reconnaissance.

(3) *Piecemeal attack.*—(*a*) In the piecemeal attack the troops are committed to action in order of arrival on the field. The division

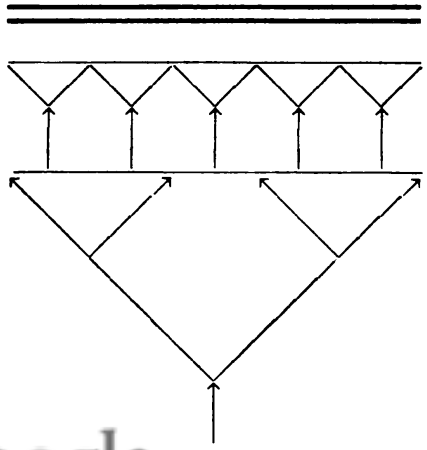


FIGURE 97.—Passage from march column to complete deployment.

commander, decentralizing control to his column commanders, limits himself to a designation of routes of advance with a view to subsequent attack in the desired directions. There is no division "ten-kaisen" and no common hour of attack. There are no detailed plans for coordination between the various arms.

(*b*) Despite the lip service rendered in regulations to the coordinated deployment and attack, the piecemeal method is very common on the map and on the maneuver ground. Often this is the result of the precipitate action of the advance guard commander who gets himself seriously engaged on his own initiative. In such a case, a sort of hybrid development is sometimes executed with a part of the main body going in piecemeal to help the advance guard while the remainder makes an orderly development. Occasionally, a column commander has been known to stage a piecemeal attack all of his own in a situation where the prompt seizure of a terrain feature on his front seemed essential to the subsequent success of the division. Such action was taken without waiting for orders or authorization from the division commander.

(4) *Rates of march during approach march.*—The march rate of the Infantry as it enters the zone of effective hostile artillery fire is reduced to about 1.2 miles per hour. In this zone the artillery displaces by bounds of battalions while furnishing continuous support to the Infantry. The theoretical rate of displacement for this artillery is 2.5 miles per hour, although this may increase to about 5 miles per hour if a battalion is allotted a road for its exclusive use. The range limit of effective fire support is about 5,500 yards. As this limit is reached the battalion prepares to displace forward making a bound of about 5 miles.

(5) *Trains.*—As contact becomes imminent the transport regiment and the field trains are halted in a sheltered location. The advance section of the transport regiment will often be as close as 2.5 miles to the line of anticipated contact while the field trains are normally about 5 to 6 miles in the rear of that line. The remainder of the transport regiment will be behind the field trains.

108. Division attack order.—*a. Development order.*—The division development order gives a combat mission to the advance guard and march directions to the several columns with a view to executing a preconceived maneuver. While the elements of his command are carrying out these orders, the division commander watches the development of the advance guard action, matures his plan, and, with a minimum of delay (1 to 2 hours), issues a verbal attack order to his principal subordinates.

b. Attack order.—The division attack order differs from that of the United States only in the organization of the front-line Infantry into "wings." It is generally issued in fragmentary form to the commanders concerned.

c. Orders to infantry.—In the organization of the Infantry for combat, the brigade (less a regiment) which has been the division advance guard normally becomes one wing and executes the holding attack. The other brigade executes the main attack (frontal or slightly enveloping) after deploying as the other wing along a line of departure (tenkaisen) generally in prolongation of the advance guard position. About one regiment is held in division reserve. This attack order is issued when the enemy is fixed in a given area where contact is expected. It is often prior to making actual contact and before the advance guard has developed the situation. Depending on the clarity of the situation, the order assigns to the infantry wing specific objectives (such as "to attack the hostile forces on *X* ridge") or a very general attack mission (such as "to advance in the direction of *Y*, locate and attack the enemy's right flank"). This latter type of objective is appropriate in an obscure situation when the plan of maneuver is predicated largely on a study of the terrain. In this case the attack direction given is one which will certainly take in flank any formation or position which the enemy may reasonably assume. In an extreme case, the attack order was issued 7.4 miles from the expected point of contact of the advance guards.

d. Orders to artillery.—(1) The artillery paragraph indicates the location of the positions in general terms. Detailed reconnaissance is made by artillery commanders to determine the final locations. Attachment of artillery to Infantry is considered to be justified under the following conditions:

(*a*) The front of attack is very wide.
(*b*) Liaison with the Infantry is difficult.
(*c*) Combat begins unexpectedly.
(*d*) The terrain is broken and wooded.

(2) In the normal case the division retains control of the artillery and coordinates its action. Typical missions during the successive phases of the combat are as follows:

(*a*) *Phase I.*—During the approach march and deployment.
1. Objectives in order of importance.—Hostile artillery; enemy machine guns firing at extreme ranges.
2. Purpose.—To cover the deployment of the Infantry.
(*b*) *Phase II.*—During the attack.

1. *Objectives in order of importance.*—Hostile Infantry, artillery, reserves.
2. *Purpose.*—Close support of Infantry.

(c) *Phase III.*—During final assault.

1. *Objectives in order of importance.*—The area of the decisive attack; the enemy reserves.
2. *Purpose.*—Neutralization and interdiction of movement of reinforcements.

e. Orders for piecemeal attack.—The division attack order described in the foregoing applies to the coordinated attack. In the piecemeal engagement columns are organized into wings and receive attack directions and the attachment of the proper auxiliary arms. There is no coordinated deployment of any units larger than a battalion. The artillery, less detachments, is kept under division control. The maneuver takes the form of a frontal collision without any effort made at the echelon of the division to obtain the effect of envelopment.

109. Frontages and distances.—*a. Frontages.*—The following frontages are averages from several problems:

Battalion of a covering detachment: 1,600 yards.
Regiment in a holding attack: 3,300 to 4,400 yards.
Regiment in the decisive attack: 1,600 to 2,200 yards.
Interval between frontal and enveloping attacks: 1,600 yards.

b. Distances.—Distances from the line of departure:

Division command post: 2,200 to 3,300 yards.
Brigade command post: 1,100 to 1,600 yards.
Artillery positions: 550 to 1,100 yards.
Division reserve: 1,100 to 2,700 yards.
Advance echelon, division transport: 4,400 to 6,600 yards.
Field trains: 8,800 to 11,000 yards.
Remainder of division transport: 11,000 to 13,000 yards.
Line of departure from enemy positions: 1,100 to 2,200 yards.

c. Assault.—Attacking units do not try to retain alinement. Where the going is easy, they press ahead. When gassed areas may be encountered, the leading wave includes decontamination squads. A gassed area is avoided when possible; if it must be traversed, the local gas squads use their light disinfecting equipment to neutralize it. Where this equipment is insufficient or absent, the troops resolutely cross the gas at an increased gait. The artillery leapfrogs batteries forward close behind the Infantry. Its forward observers advance with the Infantry. Victory is won by closing with the bayonet. At this moment infantry and artillery fire is increased

and reserve units are brought up. The Cavalry closes in on the enemy flank and rear. The division reserve is used to extend and exploit an advantage gained, to meet a counterattack, or to extend the flank of the enveloping force. If darkness interrupts the attack it will be continued at night or renewed at dawn.

110. Comments.—*a.* In the Japanese meeting engagement there is a praiseworthy boldness and vigor in the behavior of all echelons of the division. Speed in decision and execution is stressed in regulations and carried out in application. A hostile force encountering a Japanese division may expect to receive a quick and energetic attack and unless the covering forces are solidly deployed on their position, the Japanese attack is likely to upset the plans for a coordinated attack of the opposing commander.

b. Regulations and their application suggest, however, an overwillingness to engage in piecemeal action. Contrast paragraph 74 of Combat Regulations (par. 107*b*) with our Field Service Regulations:

"485. Against a strong enemy a decision to develop and deploy for attack directly from march columns risks loss of control and sacrifices some of the capabilities of artillery, tanks, and other supporting weapons. Ordinarily an attack in a moving situation may be organized and coordinated in assembly positions.

"486. From a march formation the commander develops the main body for a coordinated attack by assigning march objectives to the larger units, usually the assembly positions they are to occupy, and routes or zones of advance thereto * * * ."

Plainly our regulations are strongly for the coordinated attack as against the piecemeal. The latter is generally said to be justifiable only if time is pressing, if there is a limited objective, and if combat superiority is on our side. If these criteria are applied to the situations in which the Japanese commander has decided to make a piecemeal attack, it will be found that time is pressing and there is usually a limited objective, but never combat superiority. As for the latter element, the enemy is always superior, and is in at least an equal state of readiness for combat. (In one map problem, the Japanese division was marching in one column while the enemy was in two.) In short, the only combat superiority is in the mind of the Japanese commander. It is believed that such a doctrine taught in peace will make wasteful piecemeal action the rule rather than the exception in war and develops a dangerous overconfidence unjustified when faced with first-class troops.

c. The march formation with the division commander a column commander is an awkward one which burdens the division commander needlessly with the details of organizing and commanding a column. It complicates the handling of the advance guards which

are usually not coordinated under division control. In fact, the advance guards of columns adjacent to the one commanded by the division commander are generally ignored in the division plan of maneuver. As a result the division does not appear to develop behind solidly organized covering forces which can assure an uninterrupted deployment through coordinated defensive action even though the numerical infantry strength of the advance guards is unusually large, averaging from a third to a half of the infantry of the division.

d. The attack itself tends to be frontal or a very flat, close-in envelopment. The frequent use of the advance guard reinforced to make a holding attack is open to criticism as it is always deployed on such a wide front that control is difficult and the organization of an effective attack unlikely. The cramped style of envelopment often employed arises out of the desire to get the attack off quickly and from the weakness of the organic artillery of the square division. The Japanese try to keep the latter in a central location where their fire can be maneuvered over most of the front of both holding and enveloping attacks. This restricts the scope of the possible attack directions.

e. Map problems and terrain exercises show an insufficient time for reconnaissance and organization of the attack. The nonuse of division assembly areas has already been commented on. In one map problem only 1½ hours elapsed between the decision of the division commander to attack and the jump-off of the so-called coordinated attack. While this is an extreme case, the impression of insufficiency of time for preparation is general.

f. In summary, the characteristics of the Japanese division in the meeting engagement are—

(1) Rapid, aggressive offensive action by all echelons.
(2) A tendency to uncoordinated, piecemeal action.
(3) Development behind weakly articulated covering forces.
(4) Frontal or restricted close-in envelopments.
(5) Inadequate artillery support.
(6) Sacrifice of proper reconnaissance and organization to obtain speed in attack.

111. Attack of position.—*a. General.*—When the enemy has had time to occupy and organize a position, the Japanese commander endeavors to fight the decisive action outside of the organized area by turning the position. The character of the terrain, however, or the presence of other Japanese units on the flanks, will often limit the possible maneuver area and will impose the attack of the posi-

tion. The technique of such an attack resembles the coordinated meeting engagement in the approach march and the development of the situation by the use of the advance guards; it differs in the amount of time necessary for reconnaissance and attack preparations. These latter, while carefully executed, should not in the judgment of Japanese commentators be made the excuse for allowing the enemy undue time to strengthen his position. According to teachings as exemplified in map problems, when a commander encounters a position which has been strengthened during a period of several days, he ordinarily drives in the covering forces and reconnoiters during all or part of 1 day and launches his main attack on the following morning. He is quite capable, nevertheless, of doing all of this in 1 day, if anything in the problem can be construed as indicating that time is pressing.

b. Development.—(1) The hostile position will normally be covered by security detachments which will vary in strength from patrols to a relatively strong force supported by artillery and deployed on an outpost line of resistance. As the Japanese advance guards approach contact with these security forces and before the main body comes under long-range artillery fire, the division commander orders his columns into assembly.

(2) It is to be noted that this going into assembly areas is a phase of the attack of a position not present in the meeting engagement. In problems consulted, these areas are from 2,200 to 4,400 yards from the hostile outpost line and thus 4,000 to 6,000 yards from the hostile artillery. In the typical case of the division advancing in two columns three assembly areas are designated, one for a brigade (the main attack), one for a brigade less a regiment (the secondary effort), and one for a regiment (the division reserve). As shown on a situation map, a brigade area is about 1,600 by 1,600 yards. Security detachments cover the assembly from positions about 1,100 to 1,600 yards in advance.

112. Driving in covering forces.—*a.* In order to obtain adequate information of the main defensive position, the Japanese division ordinarily first drives in the hostile covering forces, then executes the necessary reconnaissance for the main attack. If these covering forces are weak and do not form a continuous front, the advance guard commander drives them in on his own initiative; otherwise, the division commander organizes the operation under the cover of strong artillery support. In the typical case, this attack takes place on the afternoon of 1 day, followed by the attack of the main position at daylight or shortly thereafter. When the two forces occupy positions

very close together, 2 nights may be necessary to get the attacking forces and matériel into position.

b. This procedure of successive attacks, while designated as orthodox in Combat Regulations, is often replaced in practice by a continuous attack of both outpost and main position. It is not clear when this variation is considered justified, but apparently the deciding factor is whether or not the artillery can support the attack through both positions without displacement and whether the time element is pressing. When the continuous attack is made, that of the outpost line becomes a phase of the main attack and the attacking Infantry usually pauses to reform on the captured outpost position, which becomes a sort of secondary line of departure (tenkaisen). In about half of the map problems consulted the continuous method was adopted, although there was no apparent need for especial haste in getting off the attack.

113. Attack order—general.—The division commander having completed his plan of attack based on reconnaissance reports received while his infantry is developing in assembly areas (kaishin haichi) and the advance guard is driving in the covering forces, now issues his order for the final deployment of the division and the subsequent attack. The order includes familiar elements, except that the Infantry of the assault echelon is divided into right and left wings (occasionally into a right wing, left wing, and center) in accordance with the scheme of maneuver.

114. Technique of attack.—*a. General.*—The normal enemy situation in peacetime exercises is that of an enemy force of all arms of a numerical strength one-half to two-thirds that of the Japanese which has been occupying a position for a period of from 1 to 4 days. The position is normally covered by a weak outpost position and by a limited amount of wire. The terrain and other factors are such that the Japanese commander is forced or considers himself forced to make a penetration or a close-in envelopment. The division attack order is usually a complete, formal field order.

b. Infantry.—(1) Eight to nine battalions of Infantry are normally in the assault echelon attacking on a front of 3,300 to 5,500 yards. The typical disposition is into wings with one brigade as the right (left) wing to make the main effort while one brigade (less one regiment) as the left (right) wing makes the holding attack. These infantry units, in accordance with the plan of deployment, advance from the assembly areas (tenkai haichi) to their assigned positions along the line of departure, where they make final attack preparations. Where the attack is to jump off about dawn, the advance to

the line of departure is made under cover of the darkness of the preceding night; if in daylight, every effort is made to conceal and protect the movement. The line of departure is chosen so as to be protected from effective small-arms fire and varies in problems from 550 to 2,000 yards from the enemy main position. When the attack of the main line of resistance and the outpost line of resistance is continuous, a pause and a realinement take place along the rear edge of the outpost position which becomes a phase line in the course of the attack. Attack objectives (terrain features) or attack directions are given the front-line infantry units according to the detail with which the enemy position is known. Normally the line to be reached by the attack is deep in the zone of the hostile artillery. The hour of attack is usually about 1 or 2 hours after daylight, as the Japanese have little confidence in the ability of their artillery to adjust and fire a preparation at night. In the case of an attack entirely in daylight, a minimum of 4 hours is allowed between the time of issuing the attack order and the assault, to allow for the distribution of the order and the artillery preparation.

(2) On the front of the decisive effort the following frontages of attack are average:

Company	225 yards.
Battalion	440 to 600 yards (two or three companies in line, two or one in reserve).
Regiment	1,100 yards (two battalions in line, one in reserve).
Brigade	2,200 yards (regiments abreast).

Frontages of units making a secondary attack are 20 to 25 percent greater.

(3) The division reserve consists of from two to four battalions of Infantry assembled under cover in the zone of the main effort from 1½ to 2 miles from the line of departure. The attachment of motors to the reserve was never observed. Neither was the assembling and use of the division Engineers as an emergency reserve.

c. Tanks.—Tanks are not ordinarily considered to be available to a division making the attack of a position. When present they consist of a company of accompanying tanks. These are brought up with great secrecy to assault positions, where they are attached to front-line battalions and jump off at the same time as the front-line Infantry. The latter are warned not to stop if the tanks are destroyed but to keep going by virtue of their own organic weapons. Tank missions are the destruction or neutralization of hostile elements

most dangerous to the infantry and the opening or completion of breaches in the enemy's wire.

d. Artillery.—(1) The division artillery (three battalions of horse-drawn 75's plus 1 battalion of 105-mm howitzers) is frequently not reinforced. If reinforcement is made, it is by the addition of a 155-mm howitzer or a mountain artillery battalion. The organization for combat usually provides for a direct support group of from one to two battalions for each wing without any artillery being held in general support. If a fourth battalion is attached, it may be reserved as a counterbattery group in a relation similar to general support. Fire missions are varied according to the phases of the proposed action, a typical assignment where there is no reinforcing artillery being the following:

(*a*) *Phase I.*—Attack of the outpost position. Missions: counter-battery by one battalion, direct support fire by two battalions, with especial attention to the troops of the main effort.

(*b*) *Phase II.*—From the occupation of the outpost line of resistance to the opening of the artillery preparation. Missions: counterbattery, harassing, and interdiction fires.

(*c*) *Phase III.*—The artillery preparation.

1. Duration: 1 to 2 hours.

2. Subdivisions:

½ to 1 hour of fire for adjustment in daylight.

½ hour for wire-cutting accompanied by slight counter-battery.

½ hour of fire on infantry position.

(*d*) *Phase IV.*—The attack. Mission: direct support fires with particular attention to the main effort.

(2) All the division artillery deploys for the attack of the outpost line of resistance. The artillery positions are pushed forward to within 550 to 880 yards of the infantry line of departure so as to be able to support the attack of the principal position without displacement. At the time of the latter attack, one or two batteries are often attached to the main effort as accompanying artillery.

(3) The ammunition allowance for the light artillery in an attack of a position is usually 3 to 3½ days of fire (1 day of fire 75-mm equals 300 rounds).

(4) Two to three airplanes are normally attached to the artillery for observation and command purposes.

(5) No provisions are ever made for firing unobserved fires. Gunnery methods implied are elementary with main reliance on axial, ground observation with observation posts close to the guns. The

new Combat Regulations imply, however, that the artillery is capable of registering at night and of opening fire promptly at dawn.

e. Antiaircraft artillery.—The normal attachment of antiaircraft artillery appears to be a battalion which is believed to consist of two gun batteries and a searchlight battery. Such machine guns as are in this battalion are for its own local defense. In the attack of a position, the gun batteries are both put in the zone of the main effort in initial positions about 2,700 to 3,300 yards from the line of departure of the Infantry. The effective radius of an antiaircraft battery is considered to be 6,600 yards.

f. Cavalry.—About one platoon is normally attached to each wing for duty as messengers and orderlies. The remainder is divided for flank protection with the bulk on the decisive flank. As the division cavalry regiment has a strength of only 531, the combat value of this unit is not great.

g. Engineers.—Engineer missions in the typical case are: maintenance of communications, assistance to the artillery and tanks; wire-cutting, and the removal of obstacles.

h. Command posts.—The average distances of command posts from the line of departure for the attack of the main position are—

Infantry regiment	1,100 yards
Infantry brigade	1,600 to 2,200 yards
Division and artillery regiment	2,700 yards

i. Destruction of obstacles.—The Japanese normally assume there is some wire in front of the hostile position. An attack order includes provisions for cutting the wire in one of the following ways:

(1) By detailed destruction fires by the artillery.

(2) By artillery fire in the most important places supplemented by hand cutting by infantry, tanks, and engineers elsewhere.

(3) By the artillery cutting the wire imperfectly at all points; to be completed in detail by infantry, tanks, and engineers. Where there are several bands of wire, it is normal to make the destruction of the first band the exclusive duty of the infantry and engineers.

j. Sanitary troops.—One-third of the sanitary train is assigned to support each wing. These detachments set up and operate division collecting (dressing) stations at the rate of one per brigade behind the regimental dressing stations. Locations are from 1,600 to 2,200 yards behind the line of departure. The remaining third of the sanitary train is held in reserve. Two field hospitals are set up about 2,500 to 4,000 yards from the line of departure. The division is capable of setting up two other hospitals which are held initially in reserve.

k. Ammunition supply.—The advance echelon of the transport regiment (senshin shicho) ordinarily opens an infantry ammunition distributing point in rear of each brigade and one artillery distributing point.

115. Assault.—There is little in tactical problems which bears specifically on the conduct of the assault. While the infantry pushes ahead boldly, bayonets fixed, without regard to alinement, the division commander influences the action by the fire of his artillery (although he has none available which is not on direct support missions) and by the division reserve. The latter he uses to meet a counterattack, to exploit a success, or to cover the flank of a penetrating unit. The division reaches its objective prepared to pass to the pursuit in accordance with plans previously made by the division commander.

116. Criticism.—*a.* In their conception of the attack of a position the Japanese show complete disregard of casualties in pressing the attack to a successful conclusion. Their campaigns have met with uniform success in tropical countries where climate was less a handicap to them than to their enemies. In jungle warfare the Japanese were successful largely because they adapted their tactics to make the most out of what their enemies considered to be hindrances and handicaps. The following characteristics were common to their campaigns:

(1) Careful, meticulous staff work in the detailed planning of the operation, training and equipping of the forces to be used, and in coordinating and carrying out the action.

(2) Great boldness, both in the conception of the operation and in executing the details of the action.

(3) Contempt for the enemy and the ground weapons he had at his disposal.

(4) Disregard of casualties in attaining an objective.

(5) Use of surprise and deception.

(6) Never advancing to the attack until they had interdicted all nearby enemy airfields and had air superiority in the area of the attack.

(7) Great speed in infiltration, in envelopment, and pursuit.

b. Since the Japanese in recent years, except for action in North Burma and China (including Manchuria), have not engaged in warfare in open country, the following criticisms of the Japanese conception and technique of the attack of a position were made from observation of maneuvers and map problems in open country warfare:

The means available for the attack seem inadequate.
The time for reconnaissance and preparation is unduly short.
Frontal or nearly frontal attacks are the rule.
Assembly areas are too close to the enemy.

The artillery is inadequate to perform the missions assigned.
Provisions for the destruction of obstacles seem inadequate.
Administrative and command installations are not distributed in sufficient depth.

(1) The usual special situation of a map problem sets up conditions which would be considered impossible of solution at any staff school outside of Japan—the attack of a wired position offering little possibility for maneuver by a division with a slight numerical infantry superiority, three to four battalions of artillery, and a few accompanying tanks. That this basic situation is permitted and considered capable of successful and logical solution is the most significant point in the present study. Any explanation of this assumption of military superiority calls for an analysis of Japanese psychology, national vanity, past military experience, and future hypothetical opponents which goes beyond the scope of this study. As has been pointed out in paragraph 101, the tactical methods described herein are those which the Japanese consider appropriate against the Russians. Against the Chinese, Japanese officers say that they can be more bold; against troops of a first-class western power, they expect to adopt more circumspect methods.

(2) The willingness with which the Japanese commander will order the simultaneous attack of an outpost and a main position has been mentioned in paragraph 112*b*; this, in spite of the prescription in Combat Regulations which indicates that effective reconnaissance is obtained only after the covering forces have been driven in. This shortening of time for reconnaissance and preparation in many cases reduces the already slender chances of a lieutenant general of reaching his objective. This tendency to a simultaneous attack, however, should not be overemphasized, as it results in many cases from map problem boldness which would probably be tempered in the field. The Japanese officers among whom considerations of "face" make expressions of "toughness" most important are probably prone to paper heroics which the naturally cautious Japanese temperament will restrain in practice.

(3) The development of the division is generally orthodox except that the assembly areas are invariably within effective light artillery range. The brigade areas are also laterally contiguous but this criticism is rather one of the plan of maneuver which lies behind the development.

(4) The plan of maneuver offers nothing in advantageous attack direction. It is usually a parallel, frontal, or semifrontal push executed by the two wings of the division with one wing, the decisive

effort, somewhat stronger in infantry and artillery. It is true that the conditions of the problem generally limit the possibility of maneuver but it is significant that the critique of problems never mentions the possibility of utilizing the famous marching powers of the Infantry to execute anything like a wide envelopment. If one accepts the form of maneuver, however, there is still a weakness in the absence of a decisive massing of the means on the decisive front.

(5) The use of the artillery is subject to numerous criticisms, but the fundamental fault is that there is not enough of it. It is uncertain whether this weakness in artillery (in the square division) is the result of a lack of appreciation of the need of adequate fire support, is a feeling that past war experience has not demonstrated the need of a stronger artillery, or is the acceptance of the fact that Japan is economically incapable of providing and supplying a numerous artillery. At all events, no western artilleryman will concede that any real effect can be had on a wired-in position by four battalions of light artillery. The period of daylight fire for adjustment prior to the fire for effect reduces the tactical surprise and diminishes the moral effect of the preparation. This unwillingness to fire the preparation unobserved at night suggests low gunnery efficiency. Also the absence of general support artillery reduces the flexibility of the artillery fires and limits the ability of the division commander to intervene promptly in the action through his artillery. From the picture drawn in the tactical problems, one can feel reasonably sure that the Japanese infantry will jump off with the hostile wire uncut and the enemy artillery and machine guns far from neutralized. The detailed workings of the direct support fires are not described in the problems studied; hence, no estimate of their effectiveness can be made other than that implied by the absence of detailed plans for infantry-artillery liaison.

(6) While the detailed administrative plan of the attack does not appear in the problems studied, such establishments as are located on the situation maps are considerably closer to the front line than we consider standard. Lack of depth is thus characteristic of both the tactical and administrative dispositions of the Japanese division and has its origin in the Japanese lack of appreciation of the effects of modern fire power, particularly that of the hostile artillery. A short period of contact with a well-equipped enemy will in all probability be a quick corrective for this tendency.

(7) In general, although the adverse criticisms which are discussed are numerous, it is not to be assumed that the Japanese will long persist in these errors, if errors they prove to be, on the battlefield.

The Japanese gift for adaptation and improvisation can be counted upon to remedy quickly many of the faults in their peacetime doctrine.

117. Pursuit.—*a. General.*—Japanese regulations and tactical disquisitions emphasize in the usual way the need for pursuit to reap the full fruits of victory. They also recognize the existence of many deterring elements such as fatigue of the troops, disorganization, and depletion of supplies. In spite of these, the Japanese commander is urged to pursue relentlessly and thus to avoid the need of another battle against a reorganized and reinforced enemy.

b. Preparations for pursuit.—The Japanese commander throughout an engagement plans constantly for the pursuit. The enemy is observed carefully, especially at night, for signs of an intention to withdraw. To determine this intention, the Japanese commander has at his disposal observation aviation, ground reconnaissance patrols, and spies. When these are inadequate, he is urged unhesitatingly to stage a local attack to gain the required information. While he is pushing this reconnaissance, he makes preparations for a possible pursuit. These preparations take the form of making certain units ready for immediate pursuit, of assembling sufficient ammunition for the operation, and of outlining a tentative administrative plan.

c. Types of pursuit.—While the quick destruction of the defeated enemy is the object of all pursuit, this optimum cannot always be effected immediately by a single simple maneuver. In seeking to destroy his opponent, the pursuer will usually try to fix him by frontal pressure while enveloping or turning one or both flanks. If this maneuver fails, he may try to push the retiring enemy off his line of retreat or into a disadvantageous position where he can be more effectively attacked. Recognizing these differing situations implicit in the pursuit, Japanese writers treat the operation under two types: type *A*, where the enemy is destroyed near the field of battle where he sustained his initial defeat; type *B*, where the enemy has partially succeeded in extricating himself and the pursuer must take distant objectives deep in the enemy's rear after resuming semimarch dispositions. In both types, the destruction of the enemy is accomplished by fixing him with direct frontal pressure while mobile pursuit detachments, moving around the flanks, occupy the critical points along his line of retreat and fall upon his rear.

d. Technique of pursuit.—(1) *General scenario.*—(*a*) *Type A.*—This form of pursuit finds its type example in the case of the daylight withdrawal of a hard-pressed enemy. The withdrawal is observed by the attacker who redoubles the frontal pressure while available reserves are quickly formed into pursuit detachments which turn the

enemy's flanks and fall upon his rear. Boundaries between front-line units are readjusted as needed. The destruction of the enemy is thus accomplished on or near the original field of battle. The detailed action of the separate arms is essentially the same as in type *B* except that distant marches are not required with a reforming of march columns by the frontal pressure force of the infantry.

(*b*) *Type B.*—This form of pursuit is regarded as usual by the Japanese. All problems studied were of this type wherein the enemy succeeds wholly or partially in disengaging himself and beginning a displacement to the rear. The initial withdrawal is usually under cover of darkness and is not at once discovered. When the Japanese front line unit commanders find out what is occurring, they renew the attack individually and upon their own initiative in an effort to push through or around the hostile covering forces. As these Japanese units slowly push through the enemy position, reserve units, formed into pursuit detachments, are started around the flanks with objectives deep in the enemy rear. When the Japanese front-line infantry units have passed through the zone of resistance of the covering forces, the division commander halts them, organizes and sends forward additional pursuit detachments, and causes the remainder to form march columns and follow in the trace of the pursuit detachments. As this form of pursuit is considered to be usual, the subsequent remarks on the missions of the various arms apply specifically to this type, although also applicable with slight modifications to type *A*.

(2) *Front-line infantry.*—All units are individually responsible for discovering the hostile intention to withdraw. Having made this discovery, they drive into the enemy covering forces on their own initiative. In order to get through the latter as quickly as possible, it is preferable to turn the organized localities by maneuver or to infiltrate through the gaps. When neither is possible, a quickly organized attack on a narrow front is indicated. As the action of front-line units is decentralized, most of the division artillery is attached to front-line infantry regiments. Tanks are sent in to block the enemy's retreat and to attack his artillery and command posts. To avoid a serious loss of control, the division commander usually indicates a line in rear of the probable enemy covering positions where the troops halt and reform for further pursuit. A part of the front-line infantry is then organized into one or more pursuit detachments which press on in conjunction with previously formed pursuit detachments. The bulk of the division reforms march columns and follows after the pursuit detachments.

(3) *Artillery.*—When the enemy is discovered to be withdrawing, the artillery endeavors by fire to disrupt the enemy's retreat by interdicting the important defiles and bottlenecks in the road net. As the front-line infantry penetrates into the covering position, the artillery, attached to infantry units, displaces close behind the advancing troops and concentrates its fire on the resisting enemy Infantry. Some batteries are attached to pursuit detachments.

(4) *Pursuit detachments.*—The actions of pursuit detachments conform to those in our service.

(5) *Other arms.*—The missions of the other principal arms are normal.

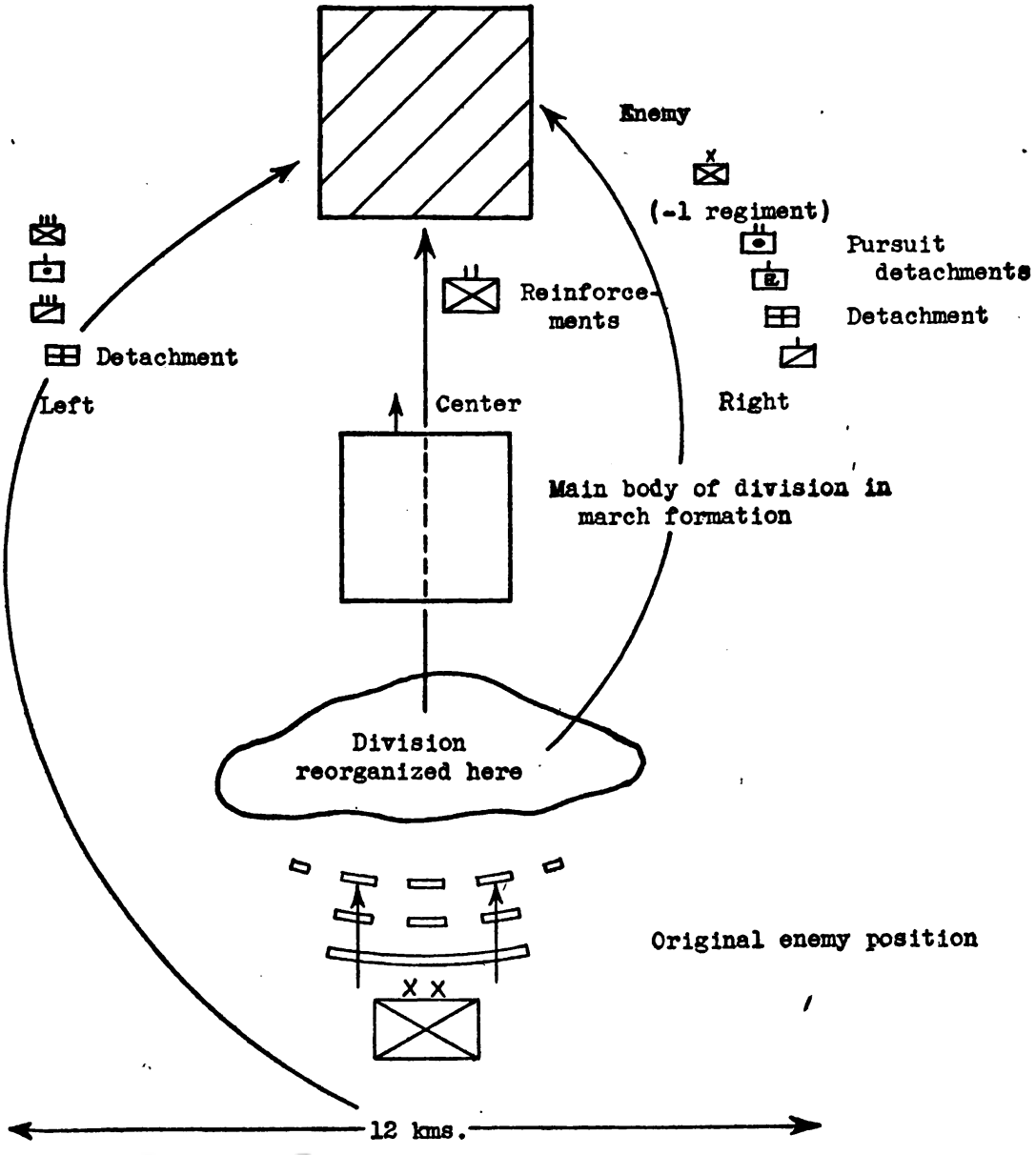


FIGURE 98.—Pursuit formation.

e. Comments.—The Japanese pursuit offers little variation from standard practice worthy of comment. It is felt, however, that the absence of sufficient organic motor equipment in the division to motorize any considerable part of the pursuit detachments will make it often impossible for the latter to reach their destinations in time on the enemy's line of retreat. Japanese regulations urge the utilizing of all available transport, but, in the absence of especially attached motors, the division transport is incapable of giving the required mobility to the pursuit detachments. The well-known marching powers of the Japanese infantry can be counted upon to compensate in a measure for this deficiency in mechanical transport but not to the degree of assuring in the normal case the interception of an enemy retiring along shorter lines and animated by a pressing desire to get to safety. The pursuit is a form of operation thoroughly in line with the offensive spirit of the Japanese Army. The war in China has shown that the Japanese pursue just as vigorously and unhesitatingly as the regulations say they should. The North China campaign was particularly rich in examples of rapid pursuit. In the advance down the Pinghan and Tsinpu Railways, the Japanese put their pursuit detachments on freight cars and sent them far into Chinese territory while the main body of the divisions followed partly by rail, partly by marching. Off the rail lines, the Japanese organized special motorized units (kaisoku butai) to give rapidity to their pursuit.

118. Attack of river line.—*a. General.*—(1) Japanese river crossing methods are essentially those of the other modern armies of the world. Success is sought through surprising the defense by concealment of preparations and rapidity of action after the crossing starts. Normal attachments to a division contemplating a river crossing are: two or three antiaircraft batteries, one or two squadrons of observation aviation, one or more independent engineer companies, two or more bridging companies, two to three battalions of artillery (mountain or medium howitzers), and an armored car troop.

(2) The advance to the river is made on a broad front and is preceded by advance detachments who drive back enemy patrols from the near bank and seize existing bridges, bridging materials, and boats. The aviation reconnoiters both banks of the river while the Engineers conduct a detailed reconnaissance for possible ferry and bridge sites, and for local engineering resources.

b. Comments.—The river crossing methods just described are so orthodox as to excite little comment. The pooling of all the Engineers into a unit in general support of the crossing is a deviation from the usual method of attaching Engineers to the crossing commanders. The

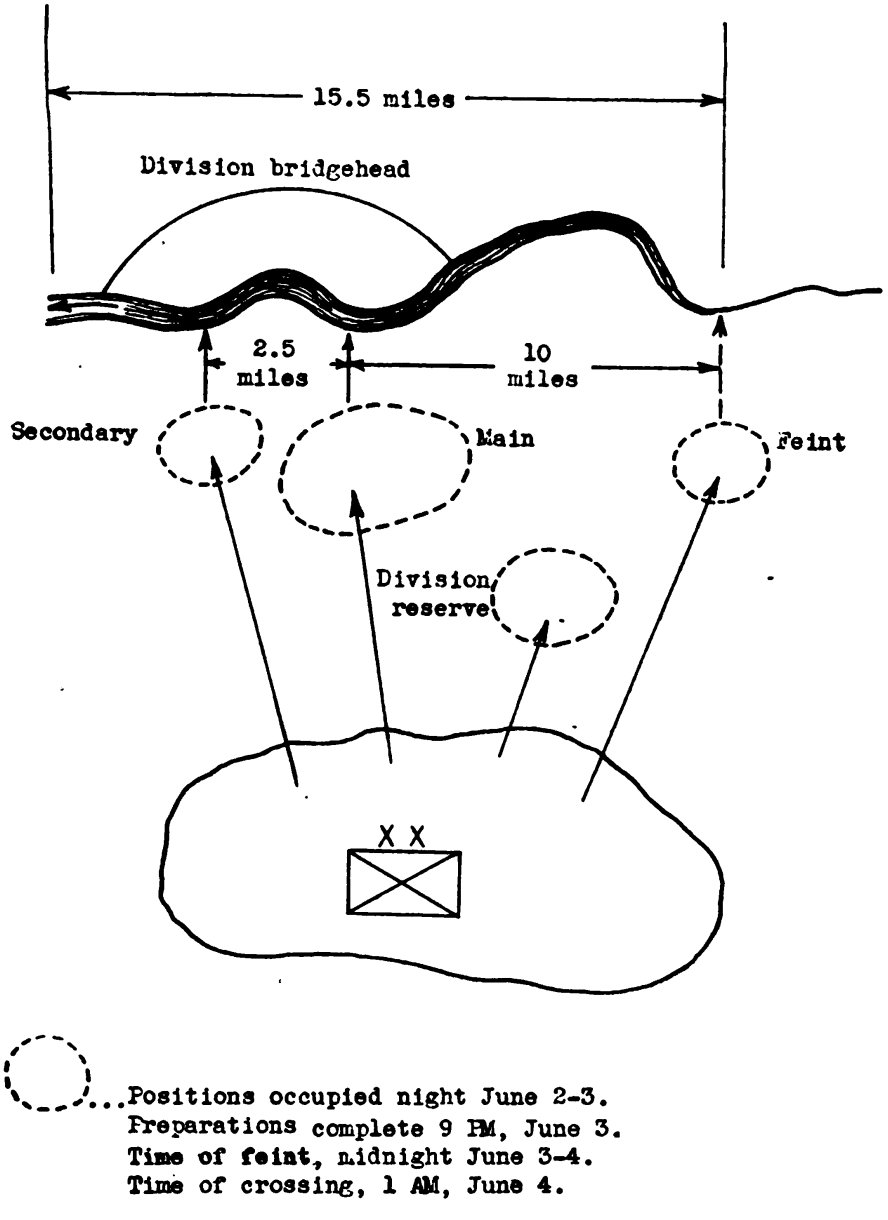


FIGURE 99.—Typical river crossing.

weakness of the divisional artillery makes especially awkward the support of an operation on a wide front such as a river crossing. It becomes difficult to allot any artillery to the distant feint, without which there cannot be much deception. The use of the reserve to create false activity and the measures taken to control spies among the civilian population are further examples of the emphasis placed on secrecy in all Japanese operations.

119. Night attack.—*a. General.*—The Japanese Army has a strong partiality for the night attack. This form of combat favors the bayonet fighting stressed in the training of the Infantry and tends to cover the weakness in artillery and cooperation of the combined

arms which foreign observers consider to exist in the Japanese Army. The Japanese are further encouraged in their faith in night attacks by successful experiences in the Russo-Japanese War and subsequent operations in Manchuria and China. Tactical commentators refer to the night attack as "a specialty of the Japanese Army" and as "a traditional Japanese method."

b. Advantages and disadvantages.—The advantages attributed to the night attack are avoidance of losses, concealment of movement, and rapidity in closing with the enemy. Disadvantages conceded are loss of cooperation between units, loss of unified direction, chance of mistakes, and confusion. It is felt, however, that trained troops can overcome these disadvantages and succeed even when opposed by superior numbers. Thus, in justifying a night attack there is a tendency to reason, "The enemy is too strongly organized or too numerous for us to hope to defeat him in daylight; only by a night attack have we any possible chance to defeat him and accomplish our mission."

c. Occasions for night attacks.—(1) Night attacks are appropriate for units varying in size from the company to the division. Orthodox situations calling for night attacks are the following:

(*a*) A large unit (brigade or division) wishing to extend or complete a success gained during a daylight engagement may continue the attack at night.

(*b*) Large units (brigades or divisions) may use a part of their force to seize by surprise at night points needed to assist the attack of the following day.

(*c*) Local night attacks may be used to distract or mislead the enemy and to conceal one's own activity elsewhere (for example, a night withdrawal).

(2) These three occasions are referred to as orthodox since they are the ones described in Combat Regulations. In practice the night attack has been used in the following additional situations:

(*a*) A large unit wishes to prevent a hostile night withdrawal or to complete the defeat of the enemy before the latter can be reinforced.

(*b*) Superior fire power of the enemy has prevented the reaching of attack objectives in daylight.

d. Hour of attack.—Combat Regulations indicate just after dark or just before daylight as desirable hours of attack. In four peacetime exercises the hours were 12:30 AM, dusk (in this problem enemy reinforcements were expected), 2 PM, and midnight. The considerations involved in choosing these hours were that the engineers need at least 2 hours early in the night to cut paths in the hostile wire prior to the attack and that the objectives should be reached

shortly before dawn to allow a coordinated renewal of the attack a little after daylight from the new line of departure.

e. Reconnaissance.—Regulations insist on the importance of a thorough knowledge of the terrain on the part of all commanders involved in a night attack. Commentators stress the need of detailed information as to the location of enemy strong points, machine guns, obstacles, and searchlights. In observed peacetime practice, however, the time allotted for reconnaissance is usually quite short. Concrete examples noted are—

(1) A regimental commander, hard pressed in a meeting engagement, decides at 3:30 PM on a night attack at dusk, less than 4 hours later.

(2) In two separate map situations, two brigade commanders decided at 4:00 PM and 5:00 PM, respectively, while in the course of attacking a prepared position, to make a night attack shortly after dusk of the same day. These decisions are believed to have been made at such time and under such conditions as would preclude much real reconnaissance.

f. Objectives.—(1) "The objectives of a night attack are limited and are shallow in comparison to those of daylight attacks." (Combat Regulations.) Each subordinate unit receives a clearly defined terrain objective. Villages are avoided, as they are difficult to attack at night.

(2) Objectives assigned are often ambitious. The lines of tactical localities assigned frequently are not clearly defined features which guarantee against errors in the dark. The final objective is usually the rear edge of a position about 1,100 yards deep. Apparently about half of this is believed enough for the first bound. It will be seen in the discussion of attack dispositions that this depth of objective requires a night passage of lines on the first objective.

g. Conduct of attack.—(1) *Infantry.*—(*a*) The infantry of a night attack is usually disposed in two assault echelons and a reserve. If the objective is shallow, one assault echelon may suffice. In the normal situation, however, a first wave rushes forward and seizes the line which constitutes the first objective; the second wave passes through the first and moves on to the second objective. This second wave has also the mission of repulsing counterattacks and destroying enemy searchlights. The relative strength of the first and second waves depends on the relative strength of the first and second positions. In general, a force of from one to two platoons commanded by an officer is given the mission of attacking and occupying a definite enemy strong point. A battalion generally attacks in a 450- to 550-

yard sector with two rifle companies in the first wave, two companies less a platoon in the second wave, and a platoon in battalion reserve. The battalion is expected to reach and occupy two objectives, the more distant being some 1,100 yards from the jump-off line. Where the rear objective is more distant than this or the going is more difficult, two battalions may attack in column, the rear battalion being responsible for the taking of the second objective. Figure 100 is a schematic representation of a typical attack formation.

(*b*) In the foregoing dispositions, Companies 1 and 2 are in a line of platoons, each platoon being in a line of squad columns; Companies 3 and 4 are about 110 yards behind the leading companies in a line of platoons, each platoon being in a column of squads. Exact intervals between platoons are not known but the frontage of a company is relatively narrow, about 110 to 165 yards. The battalion reserve follows the preceding company at about 55 yards. While the Japanese recognize that this dense formation is highly vulnerable to fire, they consider it justified by ease of control and effectiveness of shock action.

(*c*) The infantry assault is with the bayonet without firing. Battalion guns may be used against searchlights and obstacles. Machine guns will participate in protective fires.

(2) *Wire-cutting, gas, and smoke.*—Engineers are attached to assault battalions for cutting of lanes through the enemy wire. This cutting starts secretly after dark about 1½ to 3 hours before the attack. About three lanes per battalion are apparently considered sufficient. If gassed areas are to be encountered decontaminating detachments precede the assault. Chemical detachments for laying smoke screens also may be pushed forward if the enemy searchlights are troublesome.

(3) *Artillery.*—(*a*) The Japanese classify night attacks as "*kishū*" and "*kyōshū.*" The first may be translated as "attack by surprise" and the second "attack by force." The first is characterized by an infantry rush with the bayonet unsupported by a preparation or accompanying fires by the artillery or infantry weapons. The second implies coordinated accompanying fires and possibly a preparation. The attack of the first objective in the problems mentioned is a "*kishū*" unless the enemy is thought to be expecting a night attack; the attack of the second objective is a "*kyōshū.*"

(*b*) An artillery battalion normally supports an infantry regiment. The artillery commander after conference with the Infantry prepares fires to be available on call during the attack. The usual method of call is by rocket. In preparing fires, special consideration is given

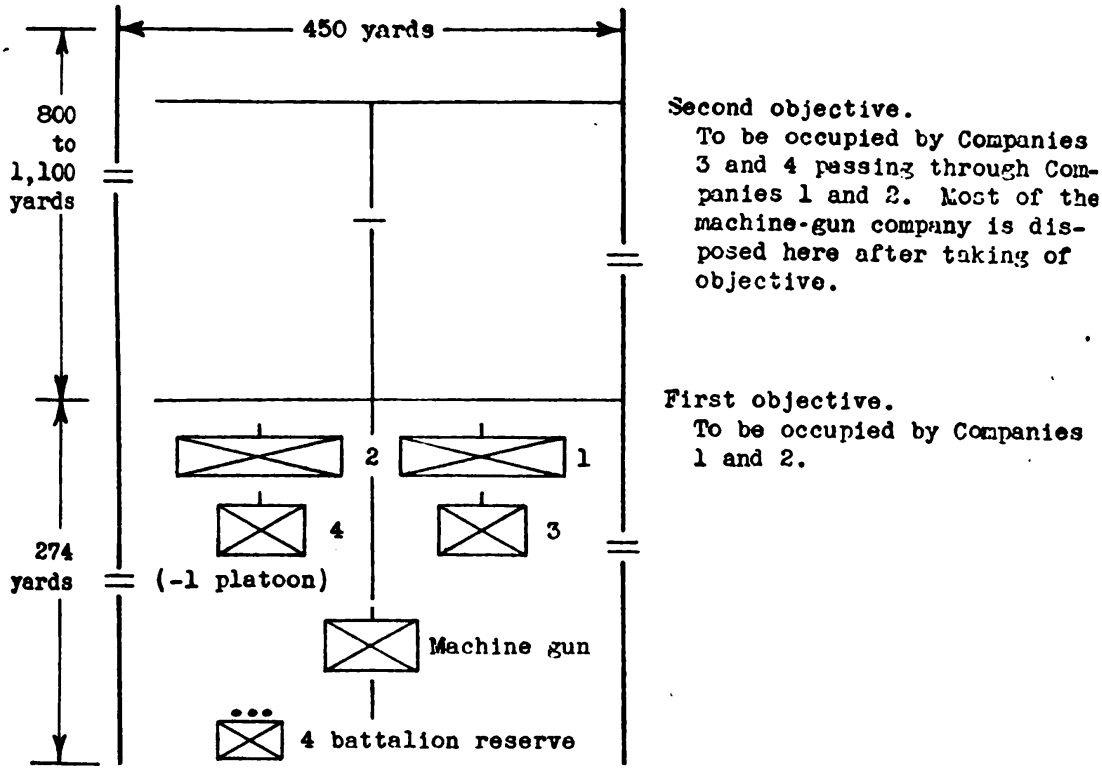


FIGURE 100.—1st Battalion in a night attack.

possible enemy counterattacks. The artillery may be required to cut wire, but this is costly in ammunition.

(4) *Maintenance of direction.*—Maintenance of direction at night, being difficult, requires special measures. Devices used are—

(*a*) Compass bearing.

(*b*) Road markers to include whitened stakes, strips of paper, lines of chalk or flour, and ropes.

(*c*) Flares.

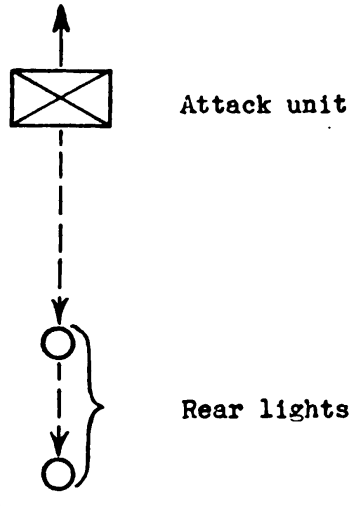


FIGURE 101.—Maintenance of direction.

(*d*) Searchlights.

(*e*) Shells fired for direction of artillery.

(*f*) Rear lights giving direction by alinement.

(5) *Identification of officers.*—Company commanders wear two crossed strips of white cloth on their backs; lieutenants, a single strip.

h. Conclusions.—(1) An enemy facing the Japanese Army may expect to receive frequent attacks at night, at least until this form of combat proves definitely unprofitable. Factors favoring the success of such attacks are—

(*a*) Detailed peacetime training in night marches, maneuvers, and attack.

(*b*) Japanese liking for the bayonet and hand-to-hand fighting.

(*c*) Emphasis placed on surprise in the execution of night attacks.

(*d*) Constant use of infiltration, outflanking movements, and attacks from the rear in country where cover is dense.

(2) Defects which it is believed will militate against the success of the Japanese night attacks in the face of an alert enemy are—

(*a*) An overreadiness to attack at night in the hope of retrieving a check received in daylight fighting.

(*b*) Insufficiency of time allowed for reconnaissance, planning, and distribution of orders.

(*c*) Overambitious objectives not clearly defined on the ground as unmistakable terrain features.

(*d*) Mass attack formations highly vulnerable to enemy fire.

(*e*) Reserve units following on the heels of assault waves where they would soon be lost to control of the commander.

(*f*) Inadequacy of artillery support to neutralize enemy automatic weapons and to cover the operation with protective fires.

(*g*) An attempt to execute a night passage of lines in the course of an attack.

(3) Against an enemy who has not been determined to hold at all cost, the night attack has had and will have in the future many successful applications. In the Philippines against a vigilant enemy strong in automatic weapons, it has proved costly to the Japanese.

120. Landing operations.—Japanese landing operations have been organized as follows:

a. Preparation.—Landing sites have been carefully reconnoitered beforehand, either by aircraft or by secret agents in peacetime. Troops earmarked for landing operations have been assiduously practiced beforehand.

b. Rendezvous of transports.—Transports and motor landing craft carriers rendezvous at some convenient anchorage the night before

the landing. Where no anchorage is available the transports have arrived off the landing point about the middle of the night.

c. Operation of landing.—Landings usually take place just before dawn on a day when it is high tide just after dawn. Periods of rain or stormy weather are chosen when possible so as to facilitate surprise. Men are transferred from transports and motor landing craft carriers to landing craft just off the site of landing. The initial force usually consists of infantry, some field artillery, engineers, and light tanks, all of which are embarked in motor landing crafts. These make for the shore at full speed, and if in formation all craft shut off their engines and drop their stern anchors together when a short distance off the beach. For the remainder of the distance the boats are eased in until grounded by means of the hand brake on the stern anchor cable. The boats normally ground at about 50-yard intervals. If the operation warrants the boats' leaving immediately, the stern anchors are weighed by hand or power and the boats make off at full speed. Military patrol craft armed with pompoms and machine guns give close support to the landings while air and naval support is provided as required. Once a beach head is established the main forces landed proceed inland as fast as possible.

d. Types of landing craft.—See paragraph 65.

e. Air and naval cooperation.—The Japanese have had complete air and naval superiority in all their landing operations on the China coast. Sea communications have thus always been secured and all landings have had overwhelming support from sea and air. On one occasion Japanese destroyers assisted the land forces by gunfire. In order to ensure surprise, naval fire may be withheld until after the landing of the first flight. Owing to the complete air superiority the Japanese appear to make little or no provision for antiaircraft protection. This fire took the following forms:

(1) Preliminary bombardment of enemy positions at a range of about 1,300 yards.

(2) Howitzer fire on special areas. This was achieved by putting extreme elevation on the ships' guns and using a small charge.

f. Forces used.—Almost all Japanese landings in China were made with a force of two divisions (40,000 men). These appear to have landed with normal equipment, which includes light tanks (3-ton), 10.5-cm field howitzers, 75-mm field guns, etc.

g. Salient points.—These are as follows:

(1) Landings are carried out on front of 5 to 16 miles.

(2) The speed of advance inland is rapid, the first flight infiltrating and pushing on, using mountain guns for artillery.

(3) Full use is made of rivers and creeks to penetrate and turn defenses. Smoke screens are freely used.

(4) Landings in nearly all cases are supported by an aircraft carrier, with shore-based reinforcing aircraft where possible.

(5) Surprise is valued more than preliminary bombardment, and the first flight often lands with no supporting fire.

(6) It appears to be the Japanese practice to anchor their transports off the point of attack about 0200 and for landing craft to reach the beaches about 0430. In general, the embarkation into landing craft is carried out in the dark and the landing of the first troops is accomplished before the first light.

(7) The time for landing operations is 2 or 3 hours before high water on moonless nights if possible. This rule is broken only for strategical or navigational reasons.

(8) Rough weather should not be considered an obstacle; in fact, such conditions are deliberately chosen and considerable loss by drowning is accepted in order to achieve surprise.

(9) A landing is often preceded by engineers who put up guide lights on shore; alternatively this is done by Fifth Columnists.

(10) It has been the practice of the Japanese to reconnoiter and bomb areas which they have subsequently attacked.

h. Conclusions.—The following factors were instrumental in giving the Japanese the successes they achieved in China:

(1) Complete security of sea communication.

(2) Overwhelming naval support.

(3) Overwhelming air support.

(4) Inadequacy of enemy intelligence organization.

(5) Lack of real enemy opposition on landing.

(6) Complete lack of enemy action at sea.

(7) Enemy lack of artillery, which made the establishment of a beachhead of little depth sufficient to cover the main landing.

(8) Japanese use of aircraft for bombing and dropping of supplies which lessened the administrative difficulties of landing transport and artillery in the early stages of the operations.

(9) Policy of Japanese, owing to lack of opposition, of bringing their transports close to the shore before transferring men into landing craft.

(10) Care taken to achieve surprise by choosing difficult landing sites and poor weather conditions.

SECTION III

DEFENSIVE

121. Defense of position.—*a. General.*—(1) Japanese military writers admit with the greatest reluctance that their troops will ever be compelled to assume the defensive. This form of combat is considered to be in opposition to the spirit of the Imperial Army and to be justified only in extremely rare cases where an offensive solution is clearly impossible. This pronounced dislike for the defensive has created such a dearth of military literature on the subject that examples in tactical problems are extremely hard to find. The data on frontages, depths, etc., contained in the following study are drawn from a very limited number of such problems and are thus not wholly reliable as generalizations.

(2) The old Combat Regulations (Sentō Kōyō), superseded in November 1938, based its discussion of the defensive on the active defense. The new regulation takes the passive defense, assumed in the presence of overwhelmingly superior forces, as the typical case of which the active defense is a variant calling for special discussion. This new viewpoint is definitely contrary to former practice where a return to the offensive is always present in the plans for the defense, even though the initial dispositions are not those of an active defense in the true tactical sense of the word. The change indicates a displacement of official emphasis but probably no real change in the practice of the defense.

b. Selection of defensive position.—The object of the defensive is to inflict on the superior enemy such losses by fire power disposed appropriately on the terrain and behind man-made defensive works that the initial disparity of forces becomes equalized to the point of authorizing a passage to the offensive. The defense is based upon a single position (shujinchitai) which is held to the last extremity. The qualities sought for this main line of resistance (observation, protected flanks, field of fire, covered communications, obstacles, etc.) are those standard to all schools of military doctrine. The new Japanese regulations, following the trend of the times, emphasize the desirability of natural antitank obstacles across the front of the position. In the presence of an enemy who may use gas, the

main line of resistance will avoid depressions where gas is likely to accumulate.

c. Occupation of defensive position.—The reconnaissance and orders for the occupation of the position are normal.

d. Dispositions of defense.—(1) *Main line of resistance.*—The dispositions, frontages, and organization of the main line of resistance (considering the guns available) are normal. There is a recent change in Japanese regulations acknowledging the occasional occupation of a "broad front" (battalion frontage about 3,300 yards).

(2) *Outpost line of resistance (keikai jinchi).*—The outpost line of resistance differs very little from that of the United States.

(3) *Advanced defensive position (zenshin jinchi).*—(*a*) On certain occasions the division commander will order the occupation and organization of an advanced defensive position in the zone between the outpost line of resistance and main line of resistance. The purpose of such a position may be one or all of the following:

1. To prevent as long as possible the occupation of important points of terrain near the main defensive position.
2. To delay the enemy preparations for the attack.
3. To induce the enemy to launch his attack in a false direction which will lead him into a position favorable to counterattack or counteroffensive.

(*b*) The organization of a formal advanced defensive position is not standard Japanese practice, although the assignment of some of the missions of such a position to the outpost line of resistance is not uncommon. Cases where advanced positions have been organized are—

1. The outpost line of resistance, to obtain observation, is pushed well forward, leaving ungarrisoned an important ridge in the foreground of the main line of resistance.
2. An oblique advanced position is organized between the outpost line of resistance and the main line of resistance to induce the enemy to turn a flank to a projected counterattack or counteroffensive. (Case of an active defense.)

(*c*) The garrison of the advanced position may come from the troops on the outpost line of resistance or on the main line of resistance reinforced by machine guns, antitank weapons, and some artillery firing from advanced positions. The Japanese recognize the delicacy of withdrawing this force at the appropriate time. They

make it the responsibility of the division commander to give the force a clear, simple mission, and to prescribe the time and manner of withdrawal.

(4) *Forward observers.*—When the division does not organize an advanced position, the zone between the outpost line of resistance and main line of resistance is covered by observers sent forward by the front line battalions of the main line of resistance. These patrol the foreground, cooperate with the troops of the outpost line of resistance, and execute local reconnaissance.

(5) *Reserves.*—(*a*) All units from the company upward hold out reserves for the purpose of executing counterattacks. The division reserve generally varies from one to three battalions. Because of the paucity of organic motor transport, it is not possible in the usual case to attach trucks to this reserve. It is initially located 5,500 to 6,600 yards to the rear in a sheltered position conveniently located with respect to the probable division counterattack. Tanks will often be attached to the reserve.

(*b*) Even when the division plans an active defense, the general reserve generally does not exceed a third of the infantry strength of the division, as front-line units deployed on the defensive are considered capable of making a strong offensive return.

(6) *Artillery.*—Artillery positions are normal except as restricted by the number of weapons available.

(7) *Command posts.*—Location in rear of the main line of resistance.

	Yards
Division	5, 500
Brigade	2, 700
Infantry regiment	1, 300

122. Organization of ground.—*a.* In the early phases of the reconnaissance of the position, the division commander gives initial instructions to his engineer regarding the supplying of intrenching tools and equipment. The defense order indicates the priority of work, a typical one being the following:

(1) Principal points on the main line of resistance.

(2) Fields of fire and observation posts of the main line of resistance.

(3) Obstacles in front of the main line of resistance.

(4) Communications.

(5) Shelters.

b. It is seldom assumed in tactical problems that there is time available for elaborate fieldworks. The division usually has from about 3 hours to ½ day to complete its organization of the ground

Three hours is considered the minimum required to organize a rudimentary system of trenches and obstacles along the main line of resistance. The time-work unit in engineering calculations is the 12-man squad which is considered capable of digging 27 yards of standing fire trench in a little over 3 hours. The man-hour excavation rate is considered to be—

17.5 cubic feet per infantry soldier.
35 cubic feet per engineer soldier.

123. Conduct of defense.—*a. Advanced elements.*—The actions of the advanced elements when the enemy approaches the position are similar to those of the United States.

b. Defense of main line of resistance.—As the hostile infantry forms up for the attack of the main line of resistance, the defensive artillery puts down its counterpreparation fires. Tanks, if available, may be sent forward with artillery support to upset the preparations of the enemy. As the attack enters the zone of infantry fires, the sector commanders conduct the defense of their sectors first by fire, then by the bayonet in front of their trenches. Unit commanders of all echelons counterattack unhesitatingly as the integrity of their positions becomes threatened by the hostile attack. The defensive artillery assists the close-in defense by standing barrages and concentrations within the defensive position.

c. Counterattack or counteroffensive.—(1) The division commander is constantly on the alert to determine the proper time for the division counterattack or counteroffensive. The favorable moment will generally be—

(*a*) When the enemy attack has stalled.

(*b*) When the enemy has blundered into an unfavorable position.

(*c*) When a favorable opportunity has been created by a successful local counterattack.

(2) Plans for the offensive return must be made tentatively well in advance of the occurrence of the opportunity. The attack direction will always attempt to secure the effect of envelopment, but the situation will sometimes compel a purely frontal attack. The counterattack or counteroffensive is supported by the mass of the artillery and tanks of the division. The division commander may control the troops of the counterattack directly or may relinquish control to a sector commander.

d. Antitank defense.—(1) A characteristic of the new Combat Regulations (Sakusen Yomurei, part 2) is a marked concern over antitank defense. The position is chosen to take advantage of all natural obstacles. Every effort is to be made to break up a tank

attack in front of the main position by antitank guns, land mines, and artillery, while an echelonment of weapons in depth aims at checking the tanks which penetrate the first defenses. Infantry small-arms fire attempts to hold up the infantry following the tanks in order to disrupt the infantry-tank team. For this purpose, the Japanese contemplate some type of obstacle which, though run over by tanks, will rise again and constitute an obstacle to the following foot troops. The defensive machine guns are carefully camouflaged to escape detection by the tanks. When the latter approach within close range, all small-arms weapons concentrate their fire on the tank ports. Command posts secure protection by camouflage and special covering detachments.

(2) The tanks of the defense are considered a potent antitank weapon. Even though inferior in number, if supported by artillery fire, they are expected to be very effective against attack tanks which have run away from their own artillery or which have become dispersed.

124. Comments.—*a.* The strong influence of 1914 tactical thinking is particularly perceptible in the cursory treatment accorded the defensive in Japanese regulations and military writings. It is officially branded as a negative form of combat un-Japanese in essence and spirit. Thus stigmatized, it becomes very hard to write a tactical problem for which officers are willing to advocate a defensive solution. In the problems studied, the basic decision to defend had already been made by the division commander, a school device to control the offensive "elan" of the student officers. Even when thus forced on to the defensive, Japanese officers have the return to the offensive always uppermost in their minds, being quick to launch counterattacks, large and small, coordinated and uncoordinated, on the slightest provocation. On the maneuver ground, troops are always ready to abandon their prearranged system of infantry fires to meet the attacker with the bayonet in front of their trenches. The defects of a defense so conducted are glaring to the foreign officer, but its positive and aggressive character has virtues, which will, on occasion, upset a careless or overconfident attacker.

b. In spite of the usual lip service to the need of echelonment in depth of the defense, there is an apparent tendency to concentrate a disproportionate strength in the front lines. Especially, this is true of the special weapons (machine guns, battalion howitzers, etc.).

c. The appearance of the "broad defense" in the new Combat Regulations appears to be a recognition of the increased strength of frontal resistance of modern infantry as well as an official corrective

to the often remarked Japanese tendency to a shoulder-to-shoulder disposition of units both on the attack and defense.

125. Withdrawal.—*a. General.*—There is little military literature obtainable to elaborate on the bare substance of the provisions of the Japanese regulations governing the withdrawal. In general, the method of withdrawal appears to be standard. It is notable, however, that there is not in regulations the usual strong insistence on the dangers of a daylight withdrawal; indeed, the few tactical problems discovered all illustrated the daylight withdrawal. No information has been obtained as to when the Japanese commander considers a withdrawal required or justified since, in the cases studied, the withdrawal was executed on army order and was not imposed by the enemy.

b. Comments.—Japanese procedure in the withdrawal is so orthodox as to warrant little comment. The absence of the customary injunctions against the daylight withdrawal is symptomatic of the Japanese underestimation of the effects of modern fire power; however, it is unwarranted to assume that, in practice, they will not try to avoid daylight withdrawals when the situation permits.

126. Delaying action (jikyūsen).—*a. General characteristics.*—(1) The Japanese do not recognize the delaying action as a separate and distinct form of military operation but include it in the broader term "jikyūsen" (holding-out combat). The latter word is used to cover, in addition to pure delay, a number of types of operations characterized by a desire to avoid a fight to finish in which the idea of delay is somewhat remote. Thus, in addition to the typical delay situations such as the action of rear guards and covering forces, the Japanese treat under "jikyūsen" demonstrations, reconnaissances in force, and night attacks designed to cover a withdrawal. In the subsequent discussion, an effort is made to disregard the elements not bearing directly on delay which the Japanese inject into the treatment of "jikyūsen."

(2) The usual purpose of delaying action is to gain time, to contain or divert a superior enemy while avoiding decisive combat. "Although these ends are frequently achieved by defensive action, there are occasions when the mission can be accomplished only by offensive action." The preceding sentence, a literal translation from the new Sakusen Yomurei, contains one significant change over the old text of the Sentō Kōyō. The phrase "frequently achieved by defensive action" is substituted for "usually achieved by defensive action." Thus, the official text is placed more in line with the traditional offensive doctrine of the Japanese Army by suggesting a greater frequency for the need of offensive action to obtain delay. Else-

where the same regulation urges that even when defensive measures are initially better adapted to the situation, the commander must always be ready to take advantage of an opportunity for offensive action. When offensive action is indicated, in order to avoid becoming deeply engaged, the division commander designates limited objectives and rigidly controls the number of troops committed to action. In comparison to the meeting engagement, fronts of deployment are wide in such an offensive action.

(3) Mobile troops well equipped with automatic weapons and artillery are best adapted to delaying actions. The fire fight generally takes place at long ranges as the engagement is broken off when the enemy draws near. Frontages are wide but the breadth is obtained not by lateral dispersion within units but by the acceptance of unoccupied intervals between key positions. Reserves are kept large to cover withdrawals, to give continuity to the resistance of the delaying force; and to provide troops for such limited offensive actions as the commander may undertake.

b. Comments.—(1) Delaying action is a form of combat for which the Japanese division is not well adapted. As a defensive form of combat it does not appeal to the Japanese soldier, who understands first and last to fix bayonets and move forward. Influenced by the strength and weakness of this psychology, the Japanese commander will often choose offensive action when the defensive is better suited to the immediate situation. It has been noted that a little fresh encouragement has been given in the new Combat Regulations to the use of offensive action to obtain delay, an encouragement of which Japanese commanders can be expected to take full advantage in order to seek delay through attack. It is felt that overaggressiveness will often ill serve the usual purposes of delay.

(2) Aside from psychological considerations, the Japanese division is ill suited to delay because of its deficiency in long-range fire power. The shortage in long-range artillery is particularly acute when two positions are occupied simultaneously and it becomes a question of allocating some weapons to the rear position without too great a loss of fire power in front of the forward position.

(3) The injunction to hold out a large reserve does not agree with the usual teachings on delay. A reserve suggests the intention to counterattack whereas a delaying position is usually abandoned before the enemy has come within counterattacking range. In the practice of map problems, this large reserve was always used to occupy a rear delaying position so that the operation became, in effect, a delay

on successive positions simultaneously occupied. Thus, the requirement of holding out a large reserve in spite of its apparent contradiction becomes reconciled with tactical orthodoxy.

SECTION IV

EMPLOYMENT OF TANKS, MECHANIZED UNITS, AND ANTITANK DEFENSE

127. Tank tactics.—*a.* Fundamentally, tanks have two main characteristics:

(1) Their armor, which enables them to approach the enemy under fire.

(2) Their mobility, which enables them to execute wide outflanking movements in independent action. The Japanese have apparently used their tanks for their armor, that is, to help the infantry, rather than for their mobility, that is, in independent tactical roles.

b. No information is available of the use of tanks by the Japanese as massed independent armored force formations, though the lessons of the European war and the influence of German advisers and technical experts may cause them to do so in the future.

c. The use of Japanese tanks has not, however, been solely confined to direct and close cooperation with the infantry on the main field of battle. Cases are on record of tanks having been used in wide outflanking movements. These were, however, accompanied or followed up by motorized infantry, and it is probably true to say that on these occasions the Japanese looked on the tanks as providing the necessary mobile support to an eventual infantry attack rather than as a force carrying out an independent mission. On these occasions the tanks concerned were probably placed under the command of the division commander some of whose infantry units had been temporarily motorized for the operations.

128. Tactical doctrine.—*a. Use of tanks.*—As a result of experience in the Manchurian incident, the present war in China, and the clash with the Russians at Changkufeng, July 1938, the Japanese Army acquired a lively appreciation of the value of mechanization. Large sums were set aside to push the mechanization program. Much thought is being given to the proper use of this new weapon in

the light of the experience of the Japanese Army itself and of that of foreign armies. A distinguishing feature of the new Combat Regulations (Sakusen Yomurei) is the modification and extension of the paragraphs devoted to the use of tanks and mechanized units. As in other countries, the Japanese are not sure of the proper use of these weapons and are not yet prepared to commit themselves to a detailed tactical doctrine. Hence, the new regulations, while giving additional space to considerations of mechanization treat the subject with broad generalities which leave considerable doubt as to whether the Japanese have worked out many of the practical details of such highly involved questions as infantry-tank-artillery liaison, control by higher commanders, logistics of mechanized forces, etc.

b. Strength.—At the outbreak of the China incident, the known mechanized strength of the Japanese Army consisted of two tank regiments. While the wartime expansion of tank units is not definitely known, it is believed that in July 1942 there were 14 or 15 tank regiments and 1 organic tank company in each triangular division not equipped with mountain guns. No formally organized large mechanized units (brigades or divisions) are known to exist in the Japanese Army; however, improvised mechanized units have been used on the continent repeatedly with considerable success. Such units, while probably without elaborated tables of organization and equipment, are organized on the basis of expediency and availability of matériel with the usual reconnaissance, ground-holding, shock, and supply components which characterize the mechanized brigades and divisions of foreign armies.

129. Tanks with division.—*a. Offensive.*—(1) *Accompanying tanks.*—(*a*) The tanks with a division are normally used as accompanying tanks attached to the infantry units making the principal attack. Such tanks are brought up secretly prior to the attack to assembly positions about 3 miles behind the line of departure. Here final reconnaissance and attack preparations are completed. Tank commanders confer with the infantry regimental and battalion commanders to whom they are to be attached as well as with the artillery which is to support the attack. Topics for conference and decision are: tank objectives and hour of attack; tank jump-off positions; routes to the jump-off position and the subsequent zone of advance; type of artillery support desired and its coordination with the advance of the tanks; plan for meeting a counterattack by hostile tanks; signal communications between infantry, tanks, and artillery. On the night preceding the attack, the tanks move to jump-off positions under cover of the noise of artillery firing and low-flying airplanes.

Attack formations aim at obtaining the effect of mass by disposing the tanks in several waves across the front of the infantry unit to which attached. The tanks move forward followed closely by the infantry and supported by the artillery which neutralizes enemy antitank weapons by fire and smoke. Tank objectives are: obstacles blocking the advance of the infantry; the enemy automatic weapons left unneutralized by the artillery; eventually, the hostile artillery and command system. The infantry must stick close to the tanks; if the latter get too far ahead, they may have to turn around and rejoin the infantry.

(*b*) The foregoing discussion applies particularly to the attack of a position where the need for tanks is especially acute. In the meeting engagement, the tactics of the tanks are in general the same except that preparations and liaison arrangements are not so detailed and the attack moves more rapidly. In a favorable situation, the division commander prior to the main attack may send out all or part of his tanks ahead of the advance guard to upset the hostile deployment and derange the command system of the opposing force. In such a case, the tanks are given a rendezvous point where they assemble and return to the main body in time for use with the principal attack.

(2) *Leading tanks.*—It is doubtful whether the Japanese have had actual experience in the use of leading tanks, although the new Combat Regulations contemplate their use in cases where tanks are available in plentiful numbers. This latter condition is not often likely to exist in the present Japanese Army, underequipped as it is in modern weapons. The Japanese first satisfy the requirements for accompanying tanks; those in excess of this requirement are organized into a leading tank detachment under division control. Taking off several minutes ahead of the main attack, they rush deep into the zone of the hostile artillery and command system. They are given a zone of action, a rallying point, and mission type of order to include the subsequent course of action. Artillery support is planned carefully to cover the tanks through the forward area of hostile antitank weapons. Long-range artillery coordinates its fire with the movement of the tanks so as not to interfere with their progress.

(3) *Miscellaneous uses of tanks.*—The following miscellaneous uses of tanks have been noted in China and elsewhere.

(*a*) Tanks break through the defenses at the mouth of a defile, reconnoiter the inner defenses, and return.

(*b*) Tanks execute local battlefield liaison and reconnaissance missions as well as transport essential supplies in the areas beaten by the Chinese small-arms fire.

(*c*) Tanks are the main force in a frontal holding attack, while the remainder of the division envelops a flank.

(*d*) Tanks block the escape of fugitives through the rear gates of walled towns.

(*e*) In the early stages of the Japanese advance in Malaya many light tanks or armored cars were used. These were particularly effective in advancing along roads through the jungle and, where terrain was sufficiently open, were effective in enveloping linear defenses.

(*f*) In Burma constant use of mechanized columns, thrusting deep into the United Nations' territory, disrupted plans for defense and caused the general retirement.

(*g*) Mechanized columns striking up the Burma Road 150 miles within the line which the Chinese were trying to maintain in Burma effectively closed the route of advance of reinforcements from China and stopped the flow of United Nations' supplies to China.

b. Defensive.—On the defense, the division commander usually holds his tanks initially in division reserve under cover from artillery fire and attack from the air. Eventually they are attached to the Infantry making the division counterattack. They are particularly valuable in stopping a hostile mechanized force, as the defensive tanks can defeat a superior number of the enemy tanks if the latter have run away from their artillery support or have become dispersed. Occasionally, the defending commander may use his tanks, before the enemy attacks, in a raid on the hostile assembly areas. In all cases, tank actions must be supported by carefully arranged artillery fire to neutralize the hostile antitank guns.

130. Mechanized units.—*a. Organization.*—As previously indicated, the Japanese have in China provisional mechanized units varying in size and composition, according to the matériel at hand and the mission to be accomplished. In general, these units have a strong nucleus of tanks supported by motorized Infantry, Engineers, field and antiaircraft artillery, antigas, and signal detachments. The whole force is supplied by a truck train formed from line-of-communication (heitan) supply units. Observation aviation is usually attached.

b. Tactics.—(1) *Offensive.*—(*a*) A mechanized force normally receives an offensive mission whereby full advantage can be taken of its high mobility and capacity for independent action. In general, its tactics are about the same as those of a large cavalry force. By secrecy and rapid movement (usually at night) it surprises the enemy force in a terrain suitable for the tanks which form the backbone of the combat strength of the command. The commander, keeping

his tanks under central control, masses them for a quick blow in a vital attack direction. The motorized infantry receives any or all of the following missions:

1. It covers the tanks and facilitates their action.
2. It holds the ground won by the tanks.
3. It occasionally takes over a front in the holding attack or makes an attack to create a diversion either by day or night.

The Infantry always fights dismounted but stays in its carriers as long as possible. The artillery performs normal support missions with especial attention to enemy antitank guns.

(*b*) As a mechanized force draws near the enemy, the commander prepares tentative plans to meet varying hypotheses, as the situation is susceptible to sudden changes in this fast-moving type of combat. He activates reconnaissance and security agencies, meanwhile gradually reducing the depth of his dispositions. As the enemy situation clears somewhat, he chooses an assembly area in conformance with his tentative scheme of maneuver. This area is as close to the enemy as is consonant with safety. If there is danger of a sudden collision with the enemy, the commander may traverse the final distance between himself and the enemy by bounds from one terrain line to another.

(*c*) A bold envelopment or a turning movement is the maneuver best suited to a mechanized force. Such a force will often march at night, assemble in darkness, and attack at dawn. In the assembly area, reconnaissance is made, order is restored, and missions are assigned for the subsequent attack. When the enemy situation is vague, the usual objective is a terrain feature the possession of which is essential to the enemy. In the final deployment troops remain in vehicles until the danger of hostile fire forces them to dismount. When this has occurred, empty vehicles are parked under cover from air and ground observation. The unit reserve is usually infantry but on occasion may include some tanks. The detailed conduct of the attack follows the tactics of a large cavalry force.

(*d*) Mechanized units are particularly well adapted to pursuit and exploitation. The objectives assigned to them are those suitable to any pursuit detachment, but their range of action permits a deeper penetration into the hostile areas. It is in this form of action that the Japanese mechanized forces have found their chief employment in the China war. Examples abound in which such units have cut the roads and railroads behind a Chinese front on the verge of collapse and have assailed the Chinese rear. The broad plateaus of

Suiyuan and Chahar have afforded a terrain particularly favorable to their use.

(2) *Defensive.*—Since the defensive nullifies the mobility of a mechanized force, it is a form of combat to be avoided, but it may be imposed by the situation. In such a case, the commander usually disposes his dismounted infantry in a discontinuous line of strong points with most or all of the tanks held in reserve. The defense is conducted along customary lines with the principal concern of the commander being the engagement of his tanks in a counterattack. In the usual defensive situation the enemy will be superior in tanks; hence, the commander must endeavor to stage the decisive tank action out of range of antitank guns. Under such conditions, his inferiority in tanks is compensated for by the supporting fires of the artillery. When the hostile tanks are defeated the crisis is passed and the counteroffensive is often justified.

131. Comments.—Mechanization is extending rapidly throughout the Japanese Army where its value is fully understood. The Army has acquired considerable battlefield experience in small-scale tank actions and in the use of improvised mechanized forces. Although these latter do not have the striking power of the elaborated mechanized forces of Western Powers, they secure most of the benefits of mechanization at a low cost.

132. Antitank defense.—*a. General.*—(1) The Japanese Army as a whole is weak in antitank weapons but gives great thought to the cheaper forms of antitank defense, particularly the use of antitank mines, incendiary grenades, and gas grenades.

(2) Experiences in fighting Russian tanks at Nomonhan in August 1939 gave the Japanese Army an initial warning that some more definite provision must be made in its tactical organization for handling enemy tanks. As a result of much thought on this matter, which was stimulated by the highly successful use of tanks by the German Army in the present war, a definite plan for resisting tank attacks was adopted. In brief, as a summary of Japanese thought, it may be stated that the utter impossibility, based on cost and nonavailability of materials, of producing tanks in numbers sufficient to deal with the tank forces of any large power led to the adoption of a theory of defense, which while admittedly far from perfect, offered the best chance of success under the circumstances.

(3) The Japanese envisage the inherent disadvantages of enemy tank operations to be as given below. Their antitank instruction stresses taking every advantage of these conditions.

(*a*) Natural and artificial obstacles.

(*b*) Long march columns which are difficult to camouflage.

(*c*) Adverse weather conditions which may prevail.

(*d*) Unfavorable working conditions and difficult observation which lower efficiency of crews.

b. Antitank weapons and antitank units.—(1) The Japanese Army dislikes single-purpose weapons. However, this idea was abandoned from necessity and steps were taken to produce an antitank gun. This gun has been produced and issued to troops in undisclosed numbers. All information concerning this weapon is regarded as secret and careful precautions are taken against its characteristics being known outside of the Army. This gun, with cover on, has been seen many times and although exact details could not be obtained it is believed to be an .80-caliber weapon, air-cooled, with automatic breech mechanism, having a long barrel and mounted on a low bipod or tripod. The gun is carried by four men in combat and transported on a cart or packed on one horse if not carried by hand. While the 37-mm gun, model 94, is still retained in service and is used as a dual-purpose, antitank and antimachine-gun weapon, this new gun is exclusively for antitank use.

(2) Other weapons in the Infantry regarded as being suitable for use against tanks are the 37-mm gun, model 94, the regimental mountain gun, model 41, the battalion howitzer, model 92; and in the Field Artillery, the mountain gun, model 94, and the M1906, M1908, and M1930 75-mm gun.

(3) Nondivisional antitank units did not exist in the Japanese Army up to the Nomonhan incident. As a result of experiences there in fighting Russian tanks two antitank battalions were formed and stationed in Manchuria. The existence of these units was a closely guarded secret and except for vague rumors that some special antitank units were contemplated nothing definite was known. At the present time no definite information as to their organization and equipment is available but in 1941 orders were noted which assigned officers to antitank battalions at Kirin and Hailar in Manchuria. In Burma, an independent antitank company was reported. It had a headquarters and four platoons, each of two squads. Each squad was composed of a noncommissioned officer, nine gunners, and two drivers for the 1½-ton truck which transported one 37-mm antitank gun and 150 rounds of ammunition. Tactically the company was split and two platoons (four guns) were attached to each of two divisions.

c. Passive defense measures.—Concealment, camouflage, and calm nerves are of utmost importance. Reconnaissance and warning nets are considered essential.

d. Active measures.—These include—

(1) Action by antitank guns, accompanying guns, and mortars.

(2) Bullet splash from machine guns and rifles at a short range (at least one squad firing at each tank).

(3) Mines and "tank fighters." The latter comprise men with special training and equipment for direct assault on tanks.

e. Antitank tactics.—(1) A cheap method of passive defense against tanks is by the use of tank mines, and such mines are used extensively by all units of the Japanese Army. In an exercise involving an infantry division 12,000 mines were laid by all units of the division. Where enemy units are known to have tanks the laying of tank mines is considered the most essential duty of the division engineer regiment. The mines are placed in a conventional manner covering the logical routes of approach for tanks. Bridges in defensive areas are habitually mined and any bridge which has been in Japanese hands must be carefully examined for the presence of contact mines before a tank unit is allowed to cross. Tank barricades have all possible detours heavily mined and it is common practice to lay a few mines under temporary barricades with the idea that if the enemy removes the barricade he will not suspect that mines have been laid in the ground underneath.

(2) A relatively new Japanese military term applying to antitank defense is "dansei bogyo" which translated as "elastic defense" is highly descriptive of the entire theory of antitank defense. This theory has been adopted as standard procedure and will shortly appear in a new edition of the Field Service Regulations (Sakusen Yomurei). Briefly, this method of combat does not provide for strong resistance to tank attacks along front lines. Not more than 20 percent of available heavy infantry weapons are employed against a tank attack from front-line positions. On the approach of a tank attack all units with the exception of one squad per platoon fall back to positions from 800 to 1,500 yards in the rear. The squad from each front-line platoon left in position scatters widely and, under cover of smoke laid down by the use of the model 89 grenade thrower, attacks the tanks as they come through the smoke with incendiary grenades. The tentative regulations specifically direct that only one individual soldier attack a single tank. It is contemplated that this initial stage of the fight will scatter the enemy, reduce control, and cause some casualties. As the tanks overcome the resistance of the front-line detachments they come under fire from the main strength of all available weapons of the infantry which fire from positions from 500 to 800 yards in rear of the front line. While this and the front-line combat

have been going on, some of the divisional artillery displaces forward to positions from which it can fire with direct laying, such positions being from 1,500 to 2,500 yards in rear of the front line. If the heavy weapons of the infantry are unable to stop the attack, the main infantry strength, using smoke and incendiary grenades, makes a direct attack, relying on the artillery to their immediate rear to handle any tanks that get through. The main feature of this defense as stated by provisional regulations is that once an attack is stopped the enemy is pinched off and by the operation of scattered units can be destroyed with grenades or any available weapons, and that the infantry, although scattered, can still offer successful opposition to enemy infantry attempting to exploit the advance of the tank units.

(3) The Japanese Army is very proud of developing this means of defense against tanks and states that the Russians are now using their tactics very successfully against the Germans. However there appears to be nothing new or novel in this idea and the whole defensive scheme is strongly reminiscent of combat against tanks as practiced in the Spanish Civil War.

(4) While it may appear that the Japanese Army will offer but weak resistance against a tank attack because of the nonavailability of modern weapons in sufficient numbers, this assumption should not lead to the idea that strong and determined resistance will not be offered.

f. Detailed method of attacking a tank.—(1) It is desirable to choose ground where tanks must travel slowly and so as not to interfere with the action of antitank guns.

(2) Each rifle company (sometimes machine-gun and heavy-weapon companies organize smaller detachments) includes a section of special tank fighters which are specially equipped for action against tanks. Each man is armed with an antitank mine, a bomb, and a smoke hand grenade.

(3) Three ways of attacking tanks are:

(*a*) The tank fighter crawls toward the tank under cover, until he is within the dead space of the tank weapons. Next, he throws the mine, which is attached to a long string, about 15 feet in front of the tank and, by means of the string, pulls it directly under the tank.

(*b*) Several pairs of tank fighters move forward under cover and place a number of mines in front of the tank in such a manner that the tank must drive over one of them.

(*c*) A number of mines are fastened, 1 foot apart, to a 150-foot line. Two men conceal themselves with this chain of mines and draw the mines across the path of the tank as it approaches.

(*d*) The tank fighter is also taught to attack the tank by jumping on top of the tank, usually from the rear, and damaging the guns or rotating mechanism of the turret with picks. The pistol may be used to fire on the crew through openings in the tank. Another method is to blind the tank crew by throwing a shelter-half over the turret or to smoke it out. Naturally, all these forms of assault are feasible only if the friendly infantry can neutralize the hostile infantry accompanying the tanks. Tanks have been delayed and stopped, finally, by driving 3-inch wooden poles or 1- to 1½-inch rods between the spokes of the tank wheels.

g. Magnetized armor-piercing hand grenade.—(1) Magnetized armor-piercing hand grenades of two types are reported to be issued to certain infantry units. They are described as follows:

(*a*) One type, known as "hakobakurai," is about 3½ inches in diameter by 1½ inches thick and shaped like a flat disk. From the periphery of the disk protrude four magnetized lugs set at 90° to one another. It is presumed the lugs are the same thickness as the flat disk so as to bring the explosive charge in close contact with the target. The disk contains nine charges of explosive and the whole grenade weighs 2 pounds. Detonation occurs 5 seconds after the withdrawal of the safety pin.

(*b*) The second type, known as "kyuchaku bakurai," has the same use and nature as (*a*) above but this grenade is shaped like a bun with a flat base. It is said to have increased magnetic properties which enable the grenade to be thrown from a 10-yard range. The weight of this grenade is 2 pounds.

(2) There is no evidence that the Japanese have used these weapons although they are carried by infantry squads. The scale of issue is not known. The effectiveness of the "hakobakurai" type appears to depend entirely on the personal bravery of the soldier since he will have only 5 seconds to make his get-away. It is claimed that a penetration of 20-mm (0.8 inch) armor is obtained with this grenade.

(3) The second type, "kyuchaku bakurai," depends on the accuracy of aim and the magnetized flat surface of the grenade coming in contact with the armor plate. It is not thought that a high percentage would strike the target in this manner.

(4) The weakness in this type of weapon is the necessity of providing the means of remagnetizing in the field at frequent intervals. It seems that almost any form of light skirting to create an air gap next to the armor would defeat the penetrating power of these grenades.

The maintenance of an oily and dirty surface would reduce the magnetic influence of these grenades and further protection would be obtained by festooning the armored force vehicles with branches.

SECTION V

AIRCRAFT

133. Strategic and tactical doctrines.—*a. Strategic doctrines.*— Strategic doctrines are based upon the national policy to secure hegemony over eastern Asia and the western Pacific. The strategic function of arms is to implement the national mission by maintenance of control of the western Pacific theater, expansion to the southward, and prosecution of the China conflict. The role of the air force is the attainment of air superiority by surprise, by determined attacks on airdromes; the accomplishment of attrition of enemy forces by repeated bombing of military installations; the weakening of army resistance by operation from a forward moving fringe of airdromes; and the support of land-naval operations.

b. Tactical doctrines.—(1) Bomber formations operate in multiples of nine aircraft, divided into subflights of three. Station keeping is generally good, though outside flights lose distance on turns. There is evidence that on occasion such formations have been commanded from the extreme outside aircraft. Occasionally one or two aircraft are missing from the formation; a theoretical explanation suggests that the missing aircraft have performed a reconnaissance mission earlier. Over Philippine objectives two or three practice runs were made. On the bombing run, the leader rocked his airplane before the point of bomb release was reached.

(2) Long-distance raids are preceded by reconnaissance, the scouting aircraft communicating with the base by radio. Before the main flight from the base the squadron is given alternate objectives.

(3) Except in cases of low-altitude attack Japanese forces definitely avoid antiaircraft fire. In the Philippines campaign formations of hostile planes were flown over the antiaircraft defenses apparently for the sole purpose of studying the limits of the protective gunfire. Enemy aviators from airplanes brought down admit a respect for antiaircraft fire and some astonishment at its accuracy.

(4) In general, the Japanese efforts to minimize the effects of antiaircraft fire involve—

(*a*) Flying at an altitude above the ceiling of gunfire where possible. This includes automatic weapons as well as 3-inch gunfire.

(*b*) Maneuver. Invariably Japanese bombardment planes start "weaving" when the first antiaircraft burst appears and straighten out for a minimum period before releasing bombs.

(*c*) Planned counterattack against antiaircraft artillery.

(5) Classified as to type, hostile air operations against ground forces may be listed as—

Area bombing.
Precision bombing.
Glide bombing.
Strafing.
"Swing" bombing.
Bomb delivery.

(*a*) *Area bombing.*

1. Against large military objectives and when forced to bombardment ceilings by antiaircraft fire the Japanese resort to area bombing. They fly large formations and release their bombs either in salvo or in train, depending upon dispersion to encompass the objective target.

2. The maximum ceiling of hostile high-altitude bombing in the campaign was 23,000 feet. The formation invariably consisted of successive waves of nine bombers. The total number of bombers in a single attack reached 96. The leading airplane of the formation of nine either dipped a wing or fired a burst of small-arms ammunition as a signal for other airplanes to drop their bombs. This led to the belief that only the leading airplane carried a bombsight. The average speed of bombardment flights when below an altitude of 20,000 feet was 160 miles per hour and when above an altitude of 20,000 feet was 180 miles per hour.

(*b*) *Precision bombing.*—For "spot" bombing operations from horizontal flight Japanese aircraft prefer altitudes between 7,000 and 8,000 feet. This type of attack is used when there is no defending antiaircraft gunfire and is frequently accomplished by flights of three airplanes. The accuracy of this type of bombardment is greater than the area type.

(*c*) *Glide bombing.*

1. A form of precision bombing, frequently referred to as "dive bombing" but actually involving a powered glide only, has been used considerably by the Japanese against airfields, wharves, and artillery. Normally two-motored planes of the light bombardment type are used for these activities. The enemy begins his attack from altitudes of approximately 10,000 feet but instead of going into a vertical power dive, the plane is nosed downward toward the target at an angle of approximately 45°. The airplane is leveled off at from 2,500 to 3,000 feet from the ground and the bombs released from level flight. The tendency in this form of attack is to overshoot the target.

2. During the last stages of the campaign in the Philippines, the enemy sought to prevent antiaircraft from interfering with their bombing by attacking the firing gun battery. The rear airplane of an approaching formation would drop behind the others and dive directly at the antiaircraft battery as soon as it opened fire. This form of attack against antiaircraft positions is not engaged in when the antiaircraft fire is being placed on the attacking formation from several gun batteries.

3. Close study of these tactics in the Bataan campaign revealed that the enemy airplanes engaged in this type of operations present two opportunities for effective antiaireraft fire—once when they are approaching the point where they go into their dives, and once when they have regained altitude and start level flight again. It was noted that the planes invariably lost 10 percent of their initial altitude in the climb.

(*d*) *Strafing.*

1. Strafing is difficult to combat because of the rapid angular travel of the attacking plane. The Japanese employed the Zero fighter, a highly maneuverable airplane, in this form of attack and later used a two-place airplane with appearance characteristics of the 97 type. Late in March, the latter airplane appeared with a tail gun of 7.7-mm size. In the earlier stages of the campaign the strafing airplanes accomplished considerable damage by using incendiary ammunition.

2. The Japanese airmen did not hesitate to employ the so-called strafing tactics against exposed targets when it called for penetrating antiaircraft automatic-weapon fire. However, it was noticeable that they would not linger in the presence of ground fire to seek out a hidden target even though they suspected its presence somewhere in the vicinity. In the later Bataan phase of the Philippines campaign, the United States air forces were restricted to but a few airplanes and but three airdromes. Antiaircraft automatic-weapon fire was concentrated around the airfields and although the enemy made repeated attempts to bomb out the hidden airplanes known to be in camouflaged pens near the field, he did not attempt strafing activities. A combination of antiaircraft automatic weapons and practical dispersion of grounded airplanes proved highly effective.

(*e*) *Swing bombing.*—Under conditions where the limits of defending antiaircraft fire have been established definitely, the enemy engaged in a form of operation referred to as "swing" bombing by observers. In this type of attack the enemy flew directly toward the target until he reached the perimeter of antiaircraft gunfire at which point he made a banked turn and released his bombs with a centrifugal "throw" estimated to deposit them somewhere within the desired area. The inaccuracy of this type of attack was apparent, the distance between exploding bombs dropped from the same airplane at the same time being as great as 300 yards.

(*f*) *Bomb delivery.*—The approach is made in formation; the sound of engines may be audible for several minutes before delivery of bombs, Usually all aircraft release bombs simultaneously. Bombers are believed to be equipped with a mechanical device which opens bomb racks at regularly spaced intervals. The course of flight is changed immediately after delivery of bombs. The accuracy of bombing in the Philippines deteriorated under punishment. Small flare bombs in strings of six to eight were dropped by some Japanese airplanes. These flares have a percussion-striker explosive charge in the nose; and when they burst on impact, they give off a flash and cloud of smoke. On the ground they leave a brown stain.

134. Training, morale, and efficiency.—*a. Schools.*—In July 1940 the military aviation school system included 16 schools. By April 1941 the capacity of the establishment had been increased by the addition of 5 new schools, and provisions were made for general

expansion of courses and research missions. The successes of the Japanese at Pearl Harbor and elsewhere indicate that in air tactics they have adopted the "dress rehearsal" system for specific major objectives. This may be the result of German demonstrations, or it may be through direct coaching by Nazi officers who are numerous in Japan.

(1) *Officer pilots.*—Candidates for commissioned pilotage are trained in the Tokorozawa Aviation Branch School of the Military Academy; naval officers are trained at the Kasumigaura Naval Air Station.

(2) *Noncommissioned pilots.*—The military air cadet system initiated in 1934 has developed progressively, and has been adopted as the preferred method of procurement of noncommissioned officers. With the completion of construction projected in 1940, it was estimated that four schools would fulfill in large measure the requirements of the greatly expanded Air Corps. Naval enlisted pilots are in the proportion of 3 to 1 officer, and receive 2½ years of training. Recent radio reports state that Japanese are accepting applications from boys of 17 to 19 in a 1-year pilot training course. Boys of 13 to 14 are being accepted for a 5-year course which will give them all knowledge necessary for aviators.

(3) *Mechanics.*—Since the establishment of the air cadet and apprentice system, volunteer candidates of the ages of 15 or 16 are accepted for training as mechanics in the military service; naval mechanics receive a 6-month course at Kasumigaura.

(4) *Signalmen.*—Facilities for training specialists in communications have been augmented. The establishment of the Army Air Signal School reflects the importance assigned to the use of radio.

(5) *Crews.*—The Mito Army Flying School devotes its curriculum to research and training in firearms, antiaircraft fire, and nonpilot flying duties.

(6) *Parachutists.*—During the spring of 1941 selected men from infantry units of each Army district were given training in parachute jumping. It is reliably reported that parachute training was initiated under the supervision of German officers.

(7) *Glider operators.*—Following the success of the German operations in Crete, great interest has been shown in training for operation of gliders.

b. Training in units.—Formation flying is much practiced; air gunners attain a reasonable standard; photography is good; observation for artillery purposes is adequate. There are approximately 100 training squadrons in Army and Navy air forces.

c. Maneuvers, demonstrations, and field exercises.—Annual air defense maneuvers were initiated in 1932. Harbor defense maneuvers, field exercises, and demonstrations have been executed, both locally and generally, with increasing frequency and intensity.

d. Staff work.—There is no Air Force Staff College. Air Corps officers attend the Army Staff College.

e. Morale.—The men are eager to endure hardship and discomfort. They take pride in military service and their morale is high.

f. Efficiency.—The combat experience of recent years has raised the standard of operational efficiency.

135. Operations.—*a. General.*—A major factor in initial Japanese successes has been full exploitation of the element of surprise. No nation in modern history has been more successful in maintaining secrecy, which is the key to surprise. Implementation of that policy has been achieved by the skillful use of air forces. The skill is demonstrated by the flexible employment of the air arms: the naval air force in the attack on Hawaii; by joint naval, army, and air forces in Malaya and the South Pacific; by army-air cooperation in the Philippine and Burma theaters; and by independent air action in the raids against Australia. Beyond this capitalization of surprise the Japanese have utilized their air forces as the sustaining, no less than the initial, striking force of all offensive action.

b. High command and staff work.—The flexibility pointed out in *a* above has been achieved through coordination obtained by the Imperial General Headquarters. This high command agency has emphasized coordination in training over a period of years, both in the Chinese theater, where naval air forces have operated over land and in conjunction with ground forces, and presumably in maneuvers. Along with this tactical coordination of sea, land, and air forces may be marked a perfect timing of new offensives; even before one major objective is captured, a new theater is opened or threatened, a strategy made possible by the high mobility of air forces. The success of new offensives, or feints alike, may in turn be attributed to the excellent staff intelligence work, no small part of which is the effectiveness of aerial reconnaissance and communication. It is apparent that staff training in the highest echelons has resulted in an integration of knowledge of the tactical functions of all three arms by staff officers, with full understanding of potentialities and limitations of each, to achieve the coordination repeatedly demonstrated. Thus, members of the air staffs can plan in intelligent harmony with land or naval forces. Beyond this has been demonstrated able specialized staff work in the air arms as illustrated by instructions to crews assigned to the Pearl Harbor attack

not to strike at oil storage installations because the resulting smoke would screen the more vital naval objectives in the harbor.

c. Attack.—(1) All air attacks have been characterized by tenacity of purpose and excellent execution. The latter attests to sound training, some of which, but not all, has been practical war experience in the Chinese theater. Coordination of specialized arms, such as simultaneous attacks by horizontal and dive or torpedo bombers, has been highly efficient, and the same may be said of fighter coordination whether as escort to bombers or to surface convoys. Coordination with ground forces in landings and in land action has been good. In all low-altitude attacks by the various air arms, a complete contempt of antiaircraft artillery fire has been demonstrated. The comparative high cost in airplanes and personnel of this policy has been justified by results.

(2) Over Rangoon and Burma, where the Japanese have repeatedly been worsted by the American Volunteer Group, at no time was lack of courage exhibited by the attackers and it is probable that further offensive missions were halted simply because of prohibitive cost.

d. Defense.—If it is true that for psychological reasons Japanese planning does not encompass plans for retreat or tactical retirements, the application of such a theory to the air arms is difficult to make. All captured airdromes are promptly organized against surprise attacks. Radio detection devices are installed and an apparently efficient warning net becomes operative, allowing fighters advance warning to intercept attackers. Detailed information on ground defense installations on these newly occupied bases is not available at this time. If a Japanese-occupied air base is not first made untenable by air or ground action, offensive resistance by the air arms may be anticipated with typical Japanese fanatical determination. Attempts by disabled Japanese aircraft to crash land on naval vessels have been reported.

e. Combined operations.—Instances of the excellence of air coordination with sea and land forces have been cited elsewhere, and the respective sea, land, and air components of task forces, and pattern of their attack, in the South Pacific area is proof of their ability in executing combined operations. The Malayan campaign, however, provided an example of land force-air tactics of a unique pattern. The principal air mission was to establish progressive "air bridgeheads" down the peninsula, expanding immediately effective offensive air power as the capture of new fields permitted new air strength to be based. Beyond such strafing missions as the army air force was assigned in direct support of the ground offense, Japanese airplanes

first smashed and then denied opportunity to repair all lines of communication. The latter service was additional to continuous bombing of civilian centers. Even in Singapore all other objectives were incidental to keeping air bases continuously untenable. Cooperation is further illustrated by the fact that fighter patrols were kept continually in the air to protect columns of troops in Malaya.

f. Night operations.—The use of night fighters has rarely been reported. In attacks on convoys off Java the night of March 1, 1942, United Nations' pilots reported no fighter opposition. Night bombing operations have been conducted principally only in bright moonlight.

g. Antiaircraft defense.—(1) For active defense there are over 30 antiaircraft defense districts in Japan. The organization of defense measures is usually entrusted to the senior army officer in the district, who coordinates the efforts of the military, naval, and civilian units. The army units include the fortress artillery of fortified zones, individual units of field artillery, and army aircraft. The naval units include the base defense forces, ship-borne antiaircraft guns, and naval aircraft. For equipment in addition to army and naval fighter aircraft, there are available an unknown number of mobile 75-mm guns (M1922 and M1928), mobile 105-mm guns, searchlights (Sperry, copies of Sperry, and later modifications), sound locators, 13-mm Vickers type machine guns, and 7.7-mm heavy machine guns. For passive defense, Japan Proper is divided into four districts. Much emphasis is placed on smoke screens to hide sensitive targets and indoctrination of the civil population centers on fire fighting, rescue, and repair work.

(2) Funds have been appropriated for the air defense of Sakhalin, Formosa, Korea, and Kwantung Leased Territory. Cooperation between the Home and War Offices has resulted in the execution of the following measures: Provision of reserve supplies of water, construction of bomb and gasproof shelters, and construction of road nets.

(3) At newly captured airports, antiaircraft ground defense has been light, and based on reports of United Nations' air attacks on convoys, the antiaircraft defense of naval craft has not been impressive. Naval antiaircraft defense over the Marshalls appeared weak. The United States Navy reported excellent and strong antiaircraft fire at Marcus Island on March 4, 1942, where a United States bomber was shot down. A United States bomber also was lost in a Navy attack on Wake Island February 24, 1942. It may be that anti-

aircraft defense of newly won air bases will be improved as soon as new equipment can be moved in and installed.

h. Employment of Army air force equipment.—(1) *Fighters.*—The backbone of army fighter power is the Mitsubishi and Nakajima Zero aircraft, although the Mitsubishi and Nakajima types 97, and the Kawasaki type 98 are currently used in areas (such as China) where little opposition is encountered. The Zeros are definitely superior to some of the United Nations' fighter aircraft which have been used against them, such as the Hurricanes and Brewsters. Maneuverability is an outstanding characteristic of the Zero aircraft. The P–40's (model A) of the American Volunteer Group have demonstrated definite superiority over the earlier types of Japanese army fighters, and have even held their own against the Zero types, due no doubt to superior training of the American pilots. The later United Nations' fighter types such as late model P–40's, the P–47's, and the British Spitfire, may be regarded as superior to the Zeros; however, consideration must be given to the new type Japanese fighters which have already been reported and which may soon be in action.

(2) *Bombers.*—Army bombers identified have been principally Mitsubishi 97 and 98 twin-engine heavy bombers; some models of Ju 88's and a very few He 111's; Mitsubishi 97 twin-engine light bomber and Mitsubishi 98 single-engine light bomber; and a few Ju 87 model dive bombers and Mitsubishi 103 dive bomber, both single-engine. All have been effective, but under circumstances which do not justify any comparative ratings. In general, the dive bombers have not met fighter opposition or antiaircraft ground defense worthy of those names. In the vast majority of Japanese heavy bomber raids, strong fighter escorts have made it difficult for defensive fighters to get through to attack the larger machines. Where bombers have attacked without fighter escort they have invariably had the advantage of surprise and apparent demoralization of the defenders. The only operations which justify any judgment for the future have been attacks on Rangoon. There, the P–40's of the American Volunteer Group have first destroyed or broken up fighter protective formations and then have shot down bombers with apparent ease. In at least one case 100 percent of the bomber group was reported destroyed. The Japanese practice of maintaining formation for pattern bombing from the horizontal, while effective, also provides excellent targets for antiaircraft artillery fire. Should United States fighters intercept any known type of Japanese bombers in action, in equal strength, it is believed that the enemy can be largely destroyed,

as no advantage appears in speed, protective fire power, or armor. The Japanese bomber has had numerical superiority and the bomber crews have been well trained. Against equal or superior numbers of United States fighters, and pilots with some combat experience, these advantages may be neutralized.

(3) *Reconnaissance.*—The Mitsubishi Kamikaze, the Mitsubishi 103, and fighters used for reconnaissance appear to have sufficient speed, ceiling, and range to perform such missions without interruptions. It is assumed radio communication is good, but again it is pointed out that secrecy and United Nations' lack of protective patrols and fast-climbing interception planes have been factors in Japanese success with these airplanes.

i. Employment of Navy air force equipment.—(1) *Fighters.*—Most effective of all fighters in the South Pacific theaters has been the Mitsubishi Zero. This airplane, apparently available in large numbers, is continuously identified in bomber escorts and in the strafing of airplanes on the ground. Normally rated as a ship-borne fighter, its frequent identification might indicate wide use from land bases. The Mitsubishi 96 with fixed landing gear, the T–97 manufactured by both Mitsubishi and Nakajima, and the Showa 98, are currently being used with less frequency. In addition to the Zero, it is possible that the Mitsubishi 01 may soon appear in numbers. Another Navy fighter, the Mitsubishi Century, Me 109's, and the Showa 98 fighter-bomber are types reported impending quantity production, which well might reverse the conclusions based on evaluation of army type fighters. Against United Nations' airplanes and pilots the Zero has invariably had the better score in combat but again factors already stated of United Nations' handicaps should be considered. Few Zeros have been reported in combat with the American Volunteer Group.

(2) *Horizontal bombers.*—The Navy has operated army type bombers, the Kamikaze and also the trimotored Aichi 104, and the four-engine Kawanishi 97, the latter flying from water. Navy pilots are rated superior to army-trained pilots in accuracy. At Pearl Harbor, in the Philippines, at Singapore, and at Darwin their effectiveness was undeniable. In the South Pacific theater, principally water-based craft have been used, and their accuracy is generally reported of lower average. This may be due to better antiaircraft ground defense. In this category, particularly the slower watercraft should be comparatively easy targets for United States fighters, given equal air strength and combat experience. The Navy has reported destroying 16 or 18 bombers with shipboard fighters.

(3) *Torpedo bombers.*—The Mitsubishi 97 and Kawanishi 97 have proved themselves at Pearl Harbor and against the *Prince of Wales* and the *Repulse.* Disdaining antiaircraft fire they have pressed their attacks with high success. These airplanes have yet to meet real opposition, and against adequate fighter defense their missions could be effectively blocked.

(4) *Dive bombers.*—The Aichi 99 dive bomber also has proved effective but against sufficient fighter defense should meet the same fate as the torpedo bombers.

(5) *Reconnaissance.*—The Aichi Tokei 97, a float biplane, and other types used in reconnaissance, have proved satisfactory in all theaters but as in the case of the army were not subject to patrol interruption or special interception defense.

SECTION VI

NOTES ON JAPANESE OPERATIONS IN MALAYA AND SOUTHWEST PACIFIC AREA

136. Movements.—*a. General.*—The Japanese employ every means available for increasing troop mobility along highways, railways, through jungles, and water areas, never failing to take advantage of local civilian, military, and naval transportation as it is captured.

b. Troop movements.—(1) The speed with which Japanese troops have been able to move through the jungles has been due to the light equipment, simple rations, and minimum weights of clothing, weapons, and ammunition which they carry and the employment of Fifth Columnists in many cases to guide and assist them along the proper trails. Movements of small infantry units, particularly over the rough roads in southern Thailand and northern Malaya, have been greatly assisted by the use of bicycles and occasionally by local horse-drawn vehicles. Motor transport was also used.

(2) The Japanese troops seem to march without the usual discipline, moving along the road in a ragged formation and chattering until actually fired upon. Lights are frequently used at night. Local protection on the move and at halts is very poor.

c. Infiltration.—The Japanese attack by pressing forward small groups which penetrate through and between positions to get behind organized defenses and threaten them from the rear. These infiltration groups may consist of two or three individuals or larger units, for example, companies which have been given definite missions to move to definite points. Such units are allowed to exercise their ingenuity in advancing to their objectives. They possess considerable endurance and constantly employ unorthodox methods. Their advances have not been steady; they have stood in rice-field ditches for hours, up to their waists in water, waiting for targets to appear or have lain concealed until they could advance unobserved. Their objectives have been the attack of larger headquarters, ambush of transport moving along supply routes, or to attack from the flank and rear of organized positions. Frequently but one or two men armed with light machine guns have been the only threat to a position but they have produced a strong psychological effect by their fire from the rear.

d. Movements by small watercraft.—Military or civilian watercraft have been used extensively by the Japanese for moving bodies of tactical troops. In the Malayan operations this was a favorite method for movement of troops in the follow-up of the withdrawal, or for use in the movement of infiltrating forces against the British west (left) flank and rear. In the latter case, swift movements were made either under cover of darkness or with air protection by day.

e. Rail movements.—The accumulation of railroad material in French Indochina prior to the war, while not definitely known to have been used in the repair of railroads, is probably responsible for the quick reconstruction of destroyed railroad bridges in Thailand and northern Malaya and has permitted the early movement of heavy supplies and possibly troops into northern Malaya. Japanese troops appear well equipped and capable of making quick temporary repairs to damaged railroad and highway bridges. In repairing partially damaged highway bridges, the Japanese lay rubber trees lengthwise across the gap and cover them with earth, then with a layer of planks.

f. Motor transport and bicycle movements.—(1) Motor transport movements have been characterized by bunching of trucks and free use of lights, both in movement and at halt. Units moving on bicycles also ride bunched. Such Japanese motor transport and bicycles are particularly vulnerable to ambush or surprise attack; the former offers good targets for aviation.

(2) Bicycle troops are organized separately from the Infantry. Bicycles are used mainly as means of transport. Illustrative of this,

one Japanese battalion in Malaya was transported with the companies, alternately riding on motor transport and bicycles.

g. Air transport.—Although there has been but one indication of air transport being employed for movements of troops or material it is definitely known that air troops have been trained and that the Japanese have considered the possibilities of air transport.

137. Landings.—*a.* Oversea expeditions are usually accompanied by escorts of cruisers, destroyers, and occasionally by an aircraft carrier. Landings have been made from inferior and unescorted watercraft when the Japanese have not been forced to fear any Allied naval strength. The leading transport ships come in close to shore, being guided by lights of Fifth Columnists if approaching at night. It has been a habitual practice for large transport vessels to be among the first ships to approach the shore to disembark troops. Engineers landing with the first waves set up guide lights for boats which follow.

b. Landings are directed against fixed objectives or in localities which will permit turning of a flank. On isolated beaches where no resistance was expected, landings were made boldly during the day. Against well-organized beaches, landings have been made at night permitting concealed infiltration of individuals behind pillbox positions which they have quickly neutralized.

c. Losses in attacks against organized beach positions have been great but the continued stream of reinforcements from the transports combined with the infiltration by flanking action of such troops as have reached the beaches, has usually forced the defending troops to withdraw. Once the beach has been secured it has been quickly reinforced by reserves ferried in from the main body which usually lies at considerable distance offshore. Landing operations against organized defenses have been almost invariably protected by bomber and fighter aviation.

138. Tactics.—*a. Attack.*—(1) *General.*—(*a*) Japanese tactics are characterized by speed, deception, and the use of modern automatic weapons particularly in operations through jungle areas. Except in open country they have rarely used their artillery, relying to a great extent on the use of mortars and occasional heavy machine guns for the support of infantry troops. The forward attacking elements of infantry units are usually armed with a considerable number of light machine guns. Frontal attacks either by small or large units have been rarely employed except by tank units.

(*b*) Their basic principle of attack is to dispose a small force against an organized locality and envelop it from the flank and rear. This has been particularly effective against troops which have been

established in an organized position with supplies of food and ammunition at a distance in the rear. The Japanese attack against the flanks and rear of such a position has forced units to withdraw and occasionally fight their way back to regain connection with their ammunition and food supplies. Great speed has characterized the development of such flanking movements which have at times struck 4 or 5 miles in rear of the front line. The encirclement at times has been so rapid that the Japanese may have already placed a force to the flank in anticipation of the forced withdrawal. Frequently, in the initial stage of the attack, the Japanese soundlessly infiltrate a few men to points well within the combat area. These men are armed with light machine guns and lie quiet until the attack starts. Then they commence firing within the lines in order to effect surprise and demoralization by making troops believe they are surrounded. They move around continually, firing at different targets with their automatic weapons.

(*c*) At Tarakan, Borneo, the Japanese activity during the day was devoted to inducing the Dutch to give away their machine-gun positions by apparently deliberately exposing troops to fire; at night they silenced these positions by cutting wire and using bayonets or knives. They also approached the Dutch positions and made noises to imitate machine-gun fire at a distance. This caused panic among the native troops.

(*d*) The infiltration tactics mentioned in paragraph 136*c* have been particularly effective against troops disposed on single lines of defense.

(*e*) Apart from the noise produced, on which the Japanese apparently concentrate, and a fair number of casualties, the effect of infantry weapons, with the exception of mortars, has not been up to Allied standards. Mortar fire has been unusually accurate. The Japanese make a practice of infiltrating snipers behind the lines who occupy trees and from these elevated positions they have been able to pick off occupants of British Bren gun carriers and officers. They apparently tie themselves into the trees and do not fall out when shot. The snipers occasionally throw grenades into passing carriers or trucks.

(*f*) The following quotation from a report from the United States Army forces in the Philippines indicates a typical Japanese action:

"In one instance the Japanese pushed forward in approach formation. On encountering our outposts, they deployed, and at once began to find holes through which they filtered without hesitation, and after penetrating the outpost line, went around our main body, later firing on it from the rear. The hostile main body apparently lost contact with the connecting files, for they marched directly into a machine gun, which they probably knew of, but thought had been put out of action.

"After a firing line had been established by the enemy, they fired in deafening bursts, apparently upon command. There were long intervals between bursts; at times approximately 30 minutes. The fire was very inaccurate. The Japs fell back readily upon pressure from our troops. As soon as a Jap was hit, comrades rapidly dragged his body back to shelter. The Japanese Infantry is poorly trained in marksmanship, usually firing from the standing and kneeling positions, seldom from the prone, but are imbued with offensive spirit. In this instance a detachment of about 20 Japanese soldiers advanced across an open rice field, which shows lack of training; however they are very well trained in infiltration and camouflage.

"Note: The best counter to infiltration tactics seems to be a system of self-contained posts, with all round defense as pivots of maneuver for aggressive reserves."

(2) *Types of formations.*—(*a*) A rifle platoon consists of 42 men. There are three rifle squads, each with a light machine gun, and one grenade discharger squad with four dischargers. The platoon tactics employed by the Japanese indicate their habitual tactics with regard to enveloping action. According to prisoners of war, figure 102 illustrates the most frequently adopted platoon formation used by the Japanese Army in Malaya.

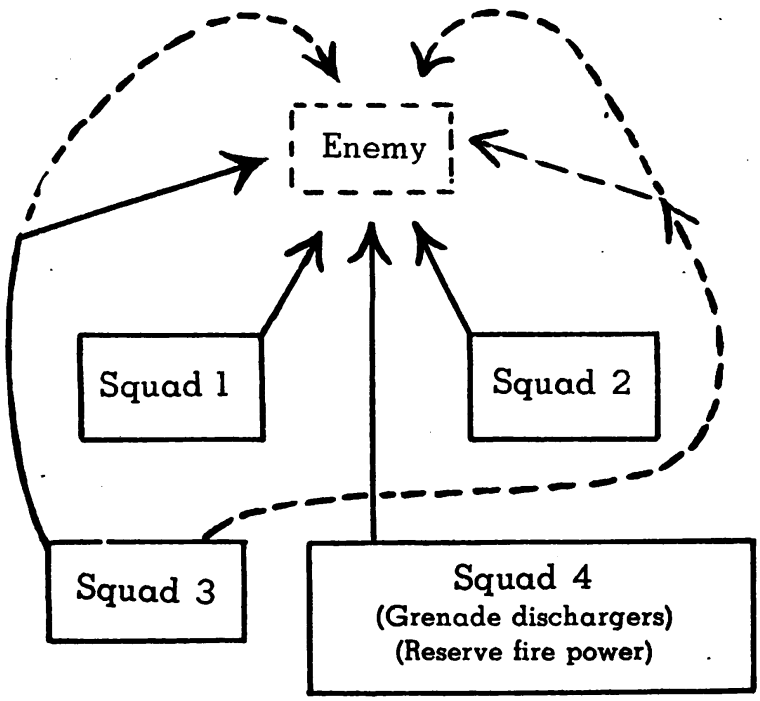


FIGURE 102.—Platoon tactics, formation "A."

Squad 1 and Squad 2____ Make frontal assault on the enemy and keep the enemy down with light machine-gun fire.

Squad 4 (Grenade discharger squad).	Assists Squad 1 and Squad 2 in pinning the enemy to the ground by fire from its four grenade dischargers. Usually operates between and a little to the rear of Squads 1 and 2.
Squad 3	Attacks the enemy's right or left flank or rear.

(*b*) Figure 103 illustrates a modification of formation "A" which is sometimes used. The flank light machine-gun squads support Squad

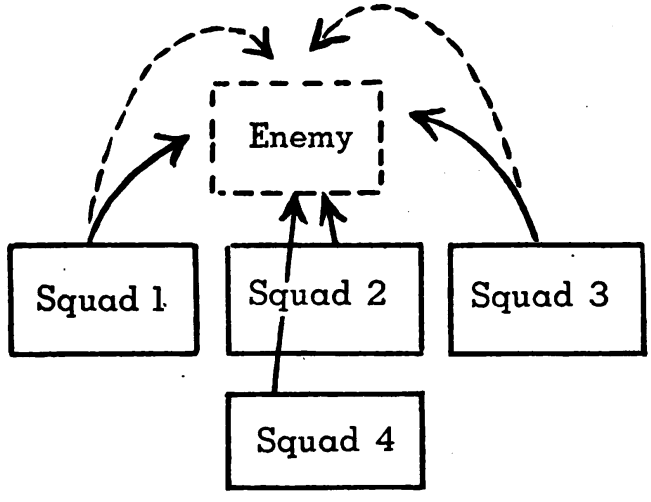


FIGURE 103.—Platoon tactics, formation "B."

2 and pin the enemy down with light machine-gun fire. The three grenade dischargers (Squad 4) assist the fixing action with a barrage. The two flank squads (1 and 3) envelop. The envelopment may be of both flanks or of only one flank, in which case the squad not making the envelopment assists Squad 2.

(*c*) The company in approach march uses the roads until contact is gained, in the following orthodox manner:

Six scouts, 300 meters.
No. 2 Platoon, 200 to 300 meters.
Company headquarters.
No. 3 Platoon.
No. 1 Platoon.

The platoon in advancing also uses the roads if available even up to the attack, with one squad on the road edges and a squad moving along under cover on each flank. Scouts are used to locate the enemy position but, according to one prisoner, they rejoin the squad for the attack.

(3) *Use of tanks.*—The Japanese are using a light armored vehicle (baby tank) weighing from 3 to 5 tons, a light tank weighing 10 to 12 tons, and a medium tank weighing from 15 to 18 tons. These tanks have been used principally to assist the forward advance of the infantry in direct frontal attacks, after which they have been withdrawn when the infantry has reached its objective. They have usually attacked directly down roads followed by infantry in trucks. The usual employment has been on roads only. In one case at least, tanks have been able to push down the road from 8 to 10 miles because of the absence of road blocks and lack of fire covering land mines, and destroy artillery in rear of the front lines. Tanks have also been used in open country to outflank and harass organized linear positions and road blocks.

(4) *Employment of watercraft.*—The Japanese successfully employed small watercraft secured locally for extension, by water, of their enveloping action against the British western flank in Malaya. Their success was due partly to the air superiority which they maintained over the area of employment. The many inlets leading inland from the Malacca Straits afforded opportunity for Japanese infiltrations for several miles in rear of the British lines. Landings were made at several points on the western shore of the Malay Peninsula; others were directed up several of the large rivers. Defenses against such attacks were difficult due to the air situation, the concealment of movements which the mangrove swamps and jungle afforded, and the difficulty of outposting such extensive areas.

(5) *Night operations.*—These are considered the "specialty" of the Japanese. When undertaken, the formation of the squads is much closer than in day battle for fear of losing contact. The stress in these operations is surprise by outflanking, and silence. Weapons are of minor importance compared with the approach crawl until the enemy can be leaped upon. In the attack on the Kota Bharu airdrome, for instance, the whole area was surrounded by soldiers crawling through rice fields up to the actual perimeter of the airdrome and attacking the posts, some of which were overpowered with scarcely any shooting. At Tarakan, unarmed men slipped forward at night and cut wire while others followed and captured machine-gun positions located by day. Dutch commanders were shot when they gave orders in the dark.

b. Defense.—(1) *General.*—Little information has been developed to date with regard to Japanese methods of defense. The Japanese teachings and training regulations indicate, however, that defensive operations using position defenses, withdrawals, or retirements will

be conducted generally along orthodox lines. Local attacks must always be expected inasmuch as the Japanese consider defensive operations as "inglorious" and that attack is one of the best means of defense.

(2) *Antitank defense.*—A variety of antitank bombs (Hako bakurai, Kyūchaku bakurai, and Kaenbjn) is carried. There has been no mention of the use of antitank rifles. In such limited operations where the Japanese have been forced to defend against tanks, road blocks have been established covered by fire. The Japanese have two types of magnetic bombs which contain magnets for attachment to steel surfaces. One type must be placed against the tank by hand; the other can be thrown from 10 meters and it will adhere. Both bombs explode after 5 seconds' contact.

c. Use of deceptive measures.—The Japanese use deceptive methods extensively. The following methods were used in Malaya:

(1) Malay disguises.

(2) Use of British uniforms and steel helmets.

(3) Use of civilian cars to rush bridges prepared for demolition; Japanese inside the cars shot the covering units.

(4) Captured Indians were forced to move in front of the Japanese and call out to the Indian troops to hold their fire.

(5) Intelligence personnel with advance guards spoke Malay, Tamil, Hindustani, and Gurkhali.

(6) Firecrackers were exploded in the rear of units to give them the impression that they were being heavily attacked from that direction.

d. Fifth Column activities.—Reports of Fifth Column activities throughout the fighting in Malaya to date disclose the following main methods:

(1) Use of lights to guide landing parties or raiding parties.

(2) Use of scarecrows covered with red cloth and arms pointing to British defenses.

(3) Arrows trampled in rice fields or cut by grass cutters in direction of targets.

(4) Banana leaves, washing, or planks laid to indicate motor transport parks or headquarters.

(5) Civilians from enemy occupied areas who knew names of troops previously stationed there called out telling the British troops not to shoot.

e. Air tactics.—(1) The Japanese escort their bombers, even on long-distance raids, by equipping fighters with extra gasoline tanks which are dropped before enemy contact. Bombing and strafing operations are controlled to a great extent by visual signals. Examin-

ation of captured planes shows they also are in possession of excellent signal equipment. There has been no indication that the Japanese are well trained for night flying. Practically all their night operations are being conducted in the light of a full moon. Their flying tactics are aggressive and their bombing quite accurate and extremely effective particularly against naval craft.

(2) The policy in the southward advance through the southwest Pacific island area as a whole has been apparently to capture airdromes by successive advances of approximately 300 miles, permitting them to be used as stepping stones for movement of fighter aviation.

(3) The Japanese method with regard to movement of air forces through a theater of operations has been, after the capture of airdromes in beach-head areas, for example, Singora and Kota Bharu airdromes in Malaya, to support ground troops during their advance to the capture of the next airdromes, to which they send fighters for continuing the ground support and escorting bombers to distant objectives.

(4) Should new airdromes be constructed it will be desirable, if practicable, to locate them at a distance from beaches to increase the difficulty of sea-borne operations against them.

(5) An airdrome which has just been occupied by the Japanese usually has airplanes at first closely packed and arranged in rows with a little dispersion although the space for such dispersion is readily available. At this stage of occupation of the airdrome, the airplanes present an unusually favorable air target.

f. Bivouac.—Front-line troops frequently dig small trenches for the night consisting of boxlike affairs with space for only one person. Local shelters as they exist in the theater of operations are also used and if not present, improvised overhead shelters are constructed from native materials. Such bivouacs as have been attacked appear to have been carelessly protected by outposts. Small bivouacs have not had sentries more than 50 to 100 yards from the bivouac area.

g. Signal communication.—Signal communication from the division downward follows the general orthodox system of using radio, motorcycle, and bicycle messengers and occasionally visual signaling. The operation of the system is characterized by extreme simplicity—short mission orders, direct verbal orders by commanders, and flag signals. The regimental radio communication system usually goes down as far as the company headquarters. Bicycles are used extensively. Each company commander has a pool of runners for communication down to platoon. In addition, many are equipped with small portable radio sets for direct communication with air and lateral or subordinate

units. Within the platoon a communication noncommissioned officer (renrakukashi) maintains communication between sections either verbally or by using ordinary soldiers as runners.

h. Air-ground communication.—(1) A high state of cooperation exists between ground and air forces during the forward movements of the infantry. In the Malayan campaign the Japanese were able to maintain intercommunication almost constantly due to the fact that they had air superiority.

(2) Company commanders carry sets of headphones and portable radio sets strapped to their chests and use these for maintaining contact both with each other and with supporting aircraft. The sets are strapped on like gas masks in the alert position. Supporting aircraft notify the companies when they should advance and the company commander waves a flag, then the company moves forward. This method is also used on the halt.

i. Miscellaneous combat observations.—(1) Aside from strategical considerations, the Japanese were successful in their operations in the heavily-wooded areas in Malaya and the Southwest Pacific principally because of their air superiority, excellent physical condition, and adaptation of equipment, training, and tactics to suit conditions in an unusual theater of operations.

(2) In Malaya the Japanese usually carried small amounts of ammunition.

(3) In a meeting engagement it can be expected the Japanese will attack very aggressively.

(4) Japanese troops tend to bunch on roads.

(5) The Japanese often use a double envelopment, one shallow, the other deep.

(6) Allied artillery is superior to that of the Japanese.

(7) Japanese use snipers to pick off commanders.

(8) The Japanese often purposely expose troops in an effort to locate positions by drawing fire.

(9) The Japanese succeeded in making many Allied vehicles serviceable by replacing missing or broken distributors or other parts removed or destroyed.

139. Miscellaneous.—*a. Messing arrangements.*—Some of the independent mobility of Japanese troops is derived from the simplicity of their messing arrangements. Each man carries 1 day's iron rations and 5 days' supply of rice in a sack on his back. Each man is responsible for his own cooking so there is no waiting for hot meals to be brought up. Generally the cooking is done by the squad cooperatively. In any lull, guards are posted and a fire made. No

special cooking stove or apparatus is carried. Often a fire is made only once a day, in the morning, when enough is cooked to last for the day. The soldiers live on the country to a considerable extent. The quality of rations deteriorates as operations grow in intensity and often rice and salt are the only foods. Sugar procured locally is a luxury for the Japanese Army.

b. Looting.—Looting in Malaya was well organized. Shops owned by Japanese were the only ones not looted. Guards were placed outside the Japanese shops but others were freely plundered.

140. Personal equipment.—Personal equipment of the Japanese is very light. The uniform is varied and often nonmilitary. Men dress in shorts and often wear tennis shoes. Some have appeared in native Malayan dress. Commanders wear crossed or single white sashes at night and noncommissioned officers wear white arm bands. For night operations men on patrols strip except for shorts or a loin cloth.

SECTION VII

COMBINED OPERATIONS

141. General.—In operations in the Southwest Pacific area, the following pattern of combined task force attacks is reported.

a. Composition.—Two standard types of task forces, composed somewhat as follows, are used.

(1) *Division group.*

(*a*) *Army.*

1 division (about 15,000 men).
1 battalion of parachute troops.

(*b*) *Navy.*

1 to 2 aircraft carriers.
6 cruisers.
10 to 14 destroyers.
12 to 20 transports.
8 to 10 submarines.

(*c*) *Air.*

Shore base group.
Flying boats—2 squadrons.
Fighters—2 to 3 squadrons.
Heavy bombers—3 to 4 squadrons.
(Total—85 to 100 aircraft plus 50 to 100 carrier-borne aircraft.)

(2) *Brigade group.*

(*a*) *Army.*

About 5,000 men.

(*b*) *Navy.*

1 aircraft carrier.
3 to 4 cruisers.
6 to 8 destroyers.
8 to 10 transports.
6 to 8 submarines.

(*c*) *Air.*

Shore base group.
Flying boats—2 squadrons.
Fighters—1 to 2 squadrons.
Heavy bombers—2 to 3 squadrons.
(Total—60 aircraft plus 50 carrier-borne aircraft or a total of 100 to 110 aircraft.)

b. Procedure.—(1) Regular submarine and air reconnaissance of inward shipping 14 to 30 days before D-day.

(2) Increasing scale of air attack by air component of task forces, as follows:

(*a*) Reconnaissance and occasional day attacks by flying boats.

(*b*) Day attacks by heavy bombers from a shore base 400 to 600 miles away. Attack continues intermittently, usually without fighter protection, against airdrome installations, with the object of damaging runways, etc. Toward the end of this period a meteorological ship moves into the vicinity of the objective to obtain and report weather data.

(*c*) Heavier bomber attacks, with fighter support either from shore bases or from carriers, with the object of destroying aircraft on the ground.

(*d*) Two days before D-day comes the all-out air assault employing from 50 to 150 aircraft which includes the dive bombing of antiaircraft and coast defense guns, and the general destruction of communications.

(*e*) One day before D-day, repeated attacks on any air bases which may be protecting the objective are made by both shore-based and ship-borne aircraft. These attacks cover the approach of the Japanese convoy.

(*f*) In the early hours of D-day an overwhelming force, consisting of a naval landing party and army formations in motorized landing craft, is launched at one or more localities in the vicinity of the objective. This attack is protected by aircraft which are directed against ground defenses, and in some cases these aircraft appear to be controlled by radiotelephone communication from the leading ground

troops. The major part of the air force is held in reserve to attack any enemy base which has not been neutralized by the air attack of the preceding day. In all cases the purpose is to seize at least one airdrome for the use of fighters. In case this airdrome is not close to the point of attack, parachute troops may be employed to disrupt the defense in the vicinity of the airdrome.

(*g*) After occupying enemy airdromes, fighter aircraft are installed at once. After the arrival of fighters, usually 1 or 2 days after D-day, the aircraft carrier may be withdrawn.

(*h*) The repair and extension of airfields is immediately undertaken in order to receive the heavy bomber section of the air component of the task force. As soon as the runways are repaired and extended, at least one squadron of heavy bombers moves in. Heavy bombers usually move in from 2 to 5 days after D-day.

(*i*) Invariably advance submarine bases are constructed in addition to airfields.

(*j*) While the repair of the airfields is going on, small boats equipped with radio are scattered within a 60- to 100-mile range in order to give warning of the approach of hostile aircraft.

(*k*) It is believed that following occupation, harbors of seized areas open to enemy attack are mined.

(3) After occupation, the special naval landing forces are withdrawn. After 2 or 3 weeks of consolidation, supplies will have been built up, one or more tankers will have arrived with fuel, and the task forces will again be ready to move forward.

SECTION VIII

CONCLUSIONS

142. Characteristics of Japanese tactics.—To the exclusion of matters of minor technique, the general characteristics of Japanese tactics may be summarized as follows:

a. The continuous offensive is the basis of Japanese tactical and spiritual training. The offensive is sought under conditions of combat inferiority, which indicates a lack of appreciation of modern fire power and an overconfidence in the mystic virtue of Japanese spirit (seishin) to overcome material obstacles.

b. The meeting engagement is the preferred form of offensive action. Its conduct is energetic and rapid but is apt to be uncoordinated with a piecemeal commitment of troops.

c. The envelopment is the preferred type of maneuver, although frontal attacks are common in practice. As executed, most envelopments are flat and close-in with little or no interval between frontal and enveloping attacks.

d. The effect of envelopment is usually sought by an advance in parallel columns with a view to overlapping one or both of the hostile flanks. The desire to stage a preconceived maneuver often leads to premature development.

e. Japanese advance guards are unusually strong in infantry, particularly in approaching a meeting engagement.

f. The Japanese Army does not appreciate the difficulties of the attack of a position and does not have the necessary weapons to undertake such attacks except on a narrow front.

g. The Japanese artillery is deficient in caliber and technical training. It is untrained in modern gunnery methods such as use of air photographs, night registration, and fire of unobserved concentrations. It has no carefully thought-out plan for liaison with the infantry.

h. The Japanese division is carefully trained in night attacks, believes in them, and can be expected to execute them frequently in war.

i. The Japanese division frequently sends forward an advance detachment amounting to from a third to a half of its strength to precede the main body and facilitate the mission of the division, whether this be offensive or defensive.

j. The Japanese dislike the defensive. When forced to assume it, commanders retain the idea of a quick return to the offensive. They will counterattack on the slightest provocation at all echelons of command.

k. A Japanese defensive position tends to lack depth. The systems of fire in front of and within the position are often imperfectly organized.

l. The Japanese appreciate the importance of secrecy and deception. No maneuver is ever attempted without including in the plan some device to deceive the enemy and conceal the true intention of the commander.

143. Weak points.—Many of the weak points of Japanese tactics noted result from the fact that the division is under-armed by Western standards of comparison, but the Japanese have made great efforts to correct this deficiency. They have spent large sums on aviation, mechanization, and motorization. They have increased the strength of division artillery, and have organized divisional, regimental, and battalion antitank units. The division which started the China

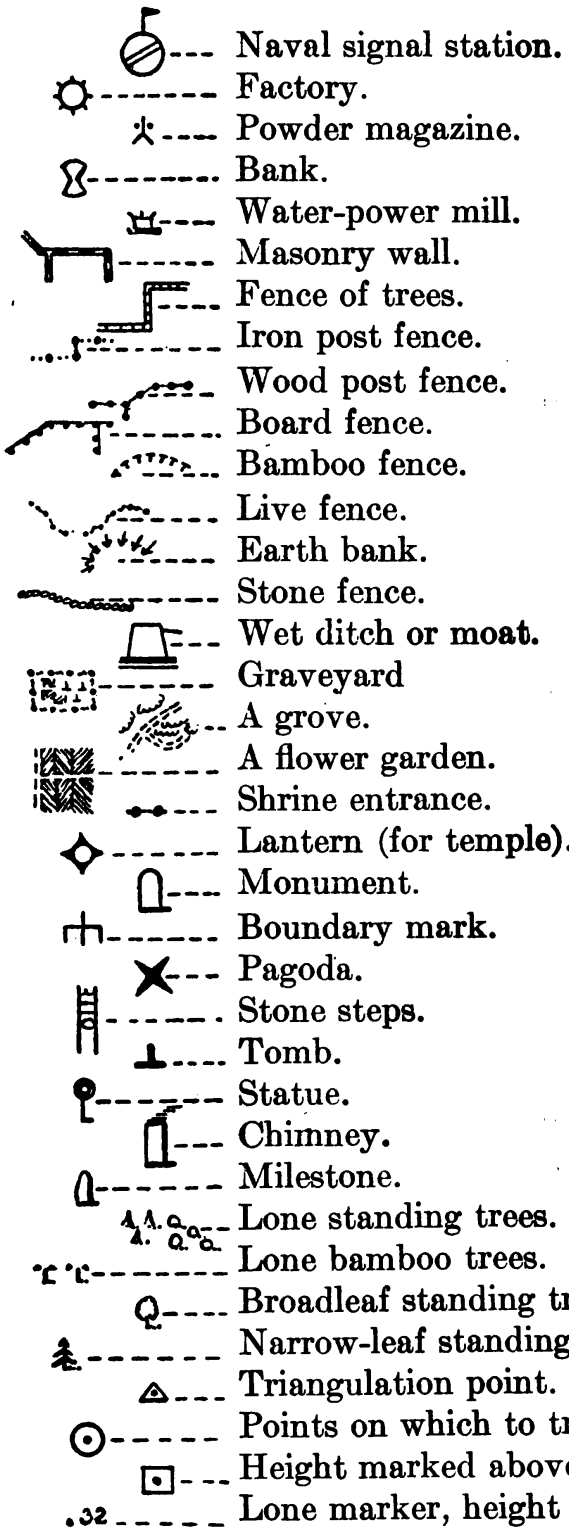
incident has been greatly strengthened in fire power. Increased material means already furnished a considerable part of the army will facilitate the task of Japanese tactics.

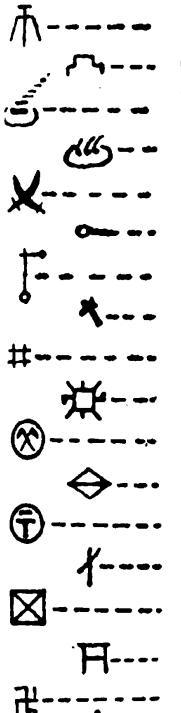
144. Fighting efficiency.—Tactics are without meaning unless studied in relation to the human agent who will apply them in battle. This manual has avoided excursions into the field of Japanese military psychology and national characteristics; however, it should be read with a constant eye to the nature of the Japanese Army for which these tactics are designed. It is an army easily misjudged by the foreign officer who sees first of all its straggling columns, slovenly dress, and unmilitary bearing. Just as there is no glitter to its accouterments, there is little theoretical excellence to recommend its tactics; but it is an army which excels in durability and performance. In the same way that its infantry "straggles" 30 miles a day and arrives at the destination on time and with surprisingly few casualties, its command and staff can be counted on to evolve plans and orders which, without being brilliant tactical combinations, are practical and workable schemes for getting a maximum performance from the Japanese soldier. Furthermore, the Japanese Army which fought with bows and arrows in 1870 is thoroughly capable of learning from its mistakes and advancing with the new developments of warfare. While its swaggering self-confidence may receive some rude jolts in a major war, it is a rugged army fired with a devotion to duty and a narrow patriotism which make it a dangerous foe on a field of its own choosing.

CHAPTER 9

CONVENTIONAL SIGNS AND ABBREVIATIONS

145. Conventional signs.—*a. Conventional signs.*

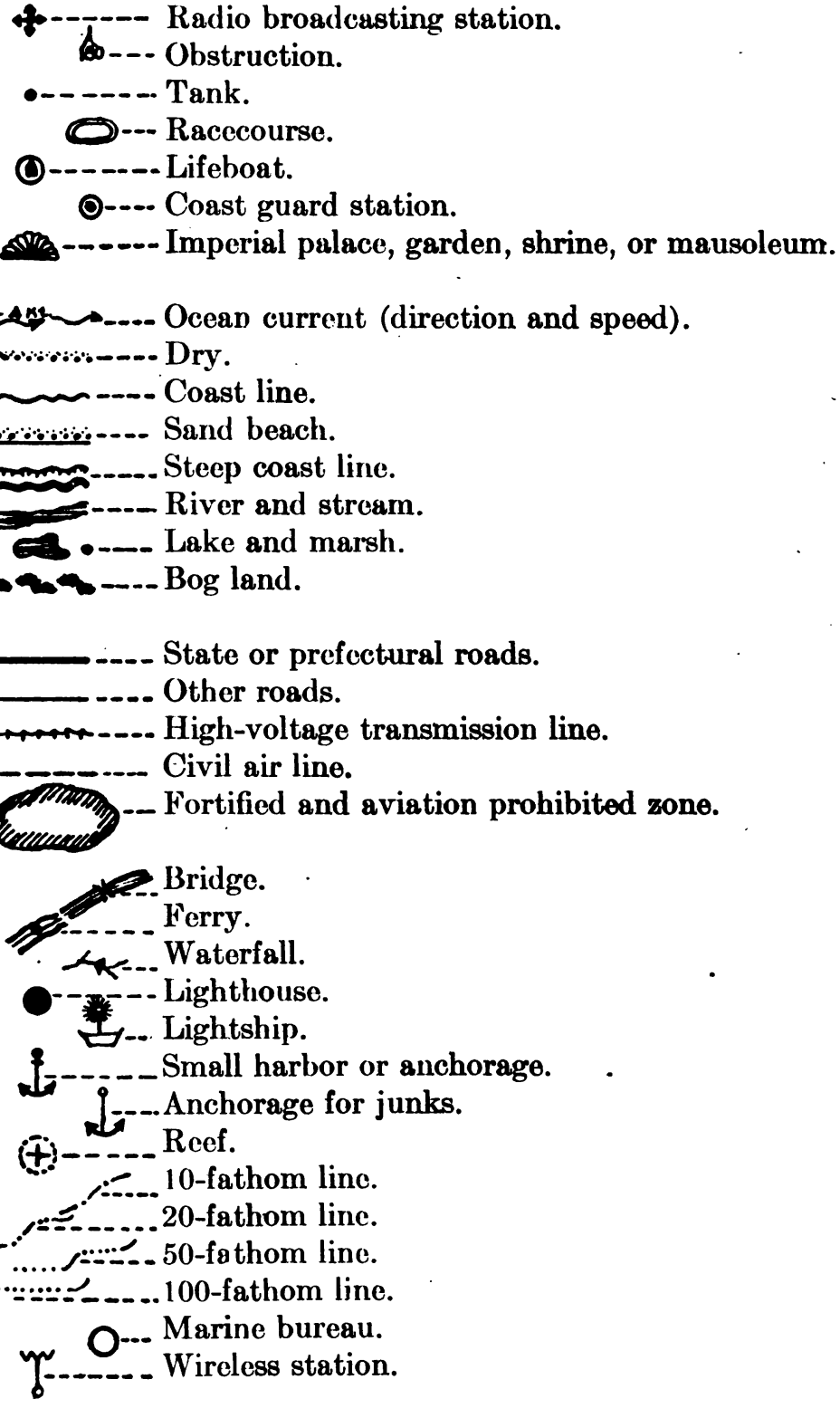


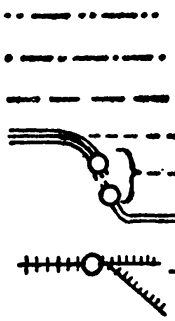


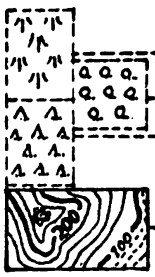
Imperial tomb.
Old castle.
Volcano.
Mineral spring.
Ancient battlefield.
Hot spring.
Wireless tower.
Material storage.
Oil well.
Power station.
Mine administration office.
Monopoly bureau factory.
Post, telegraph, and telephone office.
Telegraph office.
Local government.
Shinto temple.
Buddhist temple.
Japanese Government office.
Foreign government office.
Military jurisdiction.
Naval jurisdiction.
Division headquarters.
Brigade headquarters.
Fort district headquarters.
Regiment district headquarters.
Naval station.
Army barracks.
Navy barracks.
Prefectural government office.
Local or district government office.
Municipal office.
Village or district office.
School.
Hospital.
Isolation or detention hospital.
Military police detachment.
Police headquarters.
Courthouse.
Prison.

Customhouse.
Revenue office.
Forestry office.
Monopoly bureau.
Post and telegraph office.
Post office.
Telegraph office.
Telephone office.
Meteorological station.
Ship-building way.
Lumber yard.
Mine.
Church.
Lighthouse
Fixed signal.
Fixed signal.
Buoy.
Buoy.
Buoy.
Buoy.
Warning signal.
Large harbor or anchorage.

Steamboat ferry.
Ferry, both banks, men and horses.
Ferry for men, one bank only.
Ford for vehicles.
Ford for foot soldiers.
Water depth and bank height shown.
Seaplane anchorage.
Government landing field.
Commercial landing field.
Emergency landing field.
Beacon, fixed.
Beacon, flashing:
W White.
R Red.
G Green.
A Amber.
Lighting facilities.



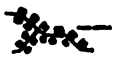

Municipal or district boundary.
Town or village boundary.
Boundary of government land.
Double-track railroad.
Railroad stations.
Single-track railroad.
Special railway lines (single-track right, double-track left).


Bamboo grove.
Broadleaf trees.
Narrow-leaf trees.

Section of contour map.


Town.

Village.


Group of houses.


Municipal or district office.


Island administration office.


Old castle.


Buddhist temple.

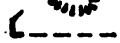

Marshy ground.


Rock cliffs.

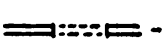

Hill.

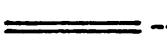

Terrace.


Crater.


Lone dead or burned tree.


Boundary mark.

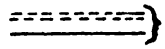

Tunnel.


National highway.


Provincial highway.

Country road.

Connecting country road.


Connecting path.

Trail.


Road over 12 feet wide.

---- Road over 6 feet wide.
---- Road less than 6 feet wide.
---- Road impassable to carts.
---- Avenue with trees.
---- Telegraph line.

---- Grassland.
---- Mulberry field.
---- Orchard.
---- Rice field.
---- Tea plantation.
---- Wasteland.

b. Character groups.—In order to assist in understanding Japanese conventional signs, the following Japanese character groups are given:

c. General instructions.—(1) Conventional signs of both Armies are usually colored. The enemy is usually shown in red and Japanese forces in indigo.

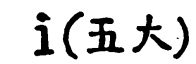
(2) Abbreviations other than these signs are used where the meaning is clear and known. Explanations or special signs may supplement them.

(3) The letter *G* is attached to the symbol for units of the Guards Division. For an independent unit, the letter *S* is added on the end of the name of the unit. Reserves are shown with one line — drawn below the abbreviated sign. National Army troops are shown with two lines ═ drawn below the abbreviated sign.

(4) To show boundaries of districts or limits of fortified places a line is used. Directions of shooting, points of attacks, or changes of direction of troops are shown by an arrow→.

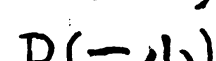
(5) Roman numerals are used for the battalions of a regiment only. Arabic numerals for all the other units, thus: III 2 i—the 3d battalion, 2d Infantry; 18 P—the 18th Engineers.

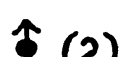
(6) The number in parentheses following the sign of a detachment, machine gun, cannon, airplane, etc., shows the number thereof, thus:

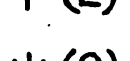

5 battalions of Infantry.

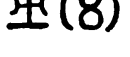

4 squadrons of Cavalry.


3 battalions of Artillery.


1 platoon of Engineers.


2 machine guns.


8 cannons.


2 airplanes.

(7) The slanting line indicates that the units to the left are part of the units to the right, thus: III/2i, 3d Battalion of the 2d Infantry Regiment.

(8) Platoons and squads are usually shown as a fraction of a company or squadron, thus:

1/16 2/5K, 1 squad of the 2d Squadron of the 5th Cavalry Regiment.

(9) If a few units of larger organizations are missing, those missing may be written with a minus sign in parentheses, thus: 2i (—8.12), 2d Infantry Regiment less 8th and 12th Companies.

146. List of common Japanese military abbreviations.

Abbreviation	Japanese	English	German[5]
A	Rikugun	Army	Armee.
A	Yahōhei	Field artillery	Feldartillerie.
AA	Kōshahōtai	Antiaircraft artillery unit.	
AMT	Hōhei dan-yaku chūtai.	Artillery ammunition train (column).	Artilleriemunitionstrupp.
AP	Keikyū shūgōjō	Alarm post (assembly point).	Alarmplatz.
B	Ryodan	Brigade	Brigade.
BA	Sampōhei	Pack (mountain) artillery.	Bergsartillerie.
BK	Gakyōzairyōchūtai	Bridging train (company).	Brückenbaukompagnie.
BM	Ryodan dan-yaku chūtai.	Artillery brigade ammunition column (train).	Brigademunitionstrupp.
BSt	Chūtai danretsu	Battery wagon line	Batteriestaffel.
C	Gundan	Corps	Korps.
D	Shidan	Division	Division.
DK	Shidan kihei	Divisional cavalry	Divisionskavallerie.
DLT	Musen denshintai	Radio (wireless) unit	Drahtlose Telegraphentruppe
DTL	Shidan tsūshintai	Divisional signal unit	Divisionstelegraphenleitung.
E	Tetsudōtai	Railway unit	Eisenbahntruppe.
EB	Tetsudō ryodan	Railway brigade	Eisenbahnbrigade.
f	Hikōki	Airplane; flying machine.	Flugzeug; Flugmaschine.
F	Teki	Enemy	Feind.
FA	Kōjō jūhōhei(yōsai hōhei).	Siege artillery (fortress artillery).	Festungsartillerie.
FB	Kikyūtai	Balloon unit	Feldballontruppe.
FL	Yasen byōin	Field hospital	Feldlazarett.
FM	Hikōtai	Flying (air) unit	Flugmaschinentruppe.
FT	Yasen denshintai	Field telegraph unit	Feldtelegraphentruppe.
FTL	Kōkū tsūshintai	Air service signal unit	Fliegertelegraphenleitung.
G	Konoe	Guards	Garde.

[5] The German words are listed to explain the origin of the Japanese abbreviations. The terms are not necessarily those used in the German Army today.

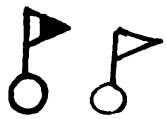
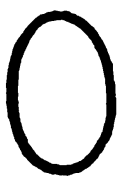
Abbreviation	Japanese	English	German
GAP	Keikyū daishūgōjo	Large alarm post (assembly point).	Grosser Alarmplatz.
H	Ryūdampō	Howitzer	Haubitze.
i	Hohei	Infantry	Infanterie.
iA	Hohei hōtai	Infantry gun unit	Infanterieartillerietruppe.
iMT	Hohei dan-yaku chūtai.	Infantry ammunition unit.	Infanteriemunitionstruppe
iTL	Hohei tsūshintai	Infantry signal unit	Infanterietelegraphenleitung.
K	Kanon	Cannon	Kanone.
K	Kihei	Cavalry	Kavallerie.
KA	Kihōhei	Horse artillery	Kavallerieartillerie (reitende Artillerie).
KB	Kihei ryodan	Cavalry brigade	Kavalleriebrigade.
KK	Kihei shūdan	Cavalry group	Kavalleriekorps.
KTL	Kihei tsūshinhan	Cavalry signal unit	Kavallerietelegraphenleitung.
------	Kei-kikanjū	Automatic rifle (light machine gun).	
LM	Kei-hakugekihō	Light trench mortar	Leichter Minenwerfer.
M	Dan-yaku chūtai	Ammunition column (train).	Munitionstrupp.
M	Kyūhō	Mortar	Mörser.
MG	Kikanjū (chū) tai	Machine-gun company	Mashinengewehr.
P	Kōhei	Engineer	Pionier.
PD	Bashō	Horse depot	Pferdedepot.
PrT	Ryōshoku chūtai	Commissariat train (provision unit).	Provisionstransport.
PT	Shikyūtai	Carrier pigeon troops	
R	Rentai	Regiment	Regiment.
RSt	Rentai danretsu	Regimental wagon train.	Regimentstaffel.
S	Dokuritsu	Independent	Selbständig.
S	Eiseitai	Medical troops	Sanitätstruppen.
SA	Yasen jūhōhei	Heavy field artillery	Schwere Artillerie.
SM	Jū-hakugekihō	Heavy trench mortar	Schwerer Minenwerfer.
St	Danretsu	Ammunition train	Staffel.
SW	Yasen shōmeitai	Field searchlight unit	Scheinwerferverband.
T	Shichō	Transport	Transport.
Tg	Yusō sentai	Transport unit (convoy).	Transportsgruppe.
TK	Sensha	Tank	Tank.
TL	Denshintai	Telegraph unit	Telegraphenleitung.

147. Signs for field detachments.—*a. Instructions for unit designation.*—(1) Battalions will be designated by roman numerals; other units by arabic numbers. To show that a certain unit organic to a larger unit is indicated, designations should be written in the following manner: as $III/_{21}$ for the 3d Battalion of the 2d Infantry Regiment; $1/_{IIIK}$ for the 1st Troop of the 3d Cavalry Squadron.

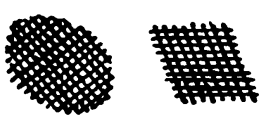
(2) To designate the platoon number put the number of the platoon, in question over 4, the number of platoons in a company; as $¾\ 1/_{IIA}$= 3d Platoon, 1st Battery, 2d Battalion of Artillery.

b. General terms.

Abbreviation	Symbol	Japanese	English
A		Gun	Army.
C		Gundan	Corps.
D		Shidan	Division.
B		Ryodan	Brigade.
R		Rentai	Regiment.
b		Daitai	Battalion.
c		Chūtai	Company (troop, battery).
St		Danretsu	Ammunition train.
F		Teki	Enemy.
		Hōmen gunshireibu	Army group headquarters.
		Gunshireibu	Army headquarters.
		Gundanshireibu	Corps headquarters.

Abbreviation	Symbol	Japanese	English
		Shidan shireibu	Division headquarters.
	If ⚠ is used instead of ⊙ or ○ in above symbols the unit is engaged in active operations.		
		Jōhōjo	Message center.
		Chūtaichō	Company (battery, troop) commanding officer.
		Shōkō, Shōtaichō	Officer platoon leader.
		Kashikan, Buntaichō	Noncommissioned officer (section or squad leader).
		Hei	Private.
		Kihei no hei	Cavalry private.
		Butai no shūdan chieki.	Area occupied by unit.
MW		Tekidantō, Tekidanjū.	Grenade discharger.
LG		Keikikanjū	Light machine gun.
MG		Kikanjūtai	Machine-gun unit.
		Kikanjū	Machine gun.

Abbreviation	Symbol	Japanese	English
MA---		Kikanhōtai---------	Machine cannon unit.
		Kikanhō----------	Machine cannon.
Zid---		Jidōhōtai----------	Automatic (antitank or antiaircraft(?))gun unit.
		Jidōhō----------	Automatic (antitank or antiaircraft(?)) gun.
TA---		Sokushahōtai -------	Rapid-firing gun unit.
		Sokushahō----------	Rapid-firing gun.
LM---		Keihakugeki hōtai---	Light trench mortar unit.
		Keihakugekihō------	Light trench mortar.
MM---		Chūhakugeki hōtai--	Medium trench mortar unit.
		Chūhakugekihō-----	Medium trench mortar.
SM---		Jūhakugeki hōtai----	Heavy trench mortar unit.
		Jūhakugekihō-------	Heavy trench mortar.

Symbol	Japanese	English
	Shōmeitō	Ground flare (aero).
	Kamō	Area covered by fire.
	Kōgeki no jūten, Shagėki hōkō (Mokuhyō) Zenshin hōkō tō.	Direction of main effort, fire, objective, advance, etc.
	Gasu butai hombu	Headquarters of a chemical warfare unit.
	Gasu butai	Chemical warfare unit.
	Sandoku butai	Chemical propagation unit.
	Shōdoku butai	Chemical neutralizing unit.
	Jodoku butai	Chemical decontaminating unit.
	Sandoku chieki	Gassed area.
	Embaku	Smoke screen.
	Gasu kumo, dokuen	Gas cloud, toxic smoke.

Abbreviation	Symbol	Japanese	English
		Shukuei butai	Billeted troops. (*Example:* 2d Battalion of 4th Infantry.)
		Chūgun butai	Garrison troops. (*Example:* 2d Company of 1st Infantry. 2d Battalion of 1st Artillery.)
		Keikyū shūgōjō	Alarm post.
		Keikyū daishūgōjō	Central alarm post.
		Suikō fusho	Water distributing point.
		Imbajō	Watering point for horses.
		Bakeijō	Picket line.
		Kikanjūshō	Machine-gun park.
		Hōshō (Yahō)	Artillery park (field).
		Shashō	Vehicle park.
		Jidōshashō	Motor park.
		Tembōshō	Observation post.

Abbreviation	Symbol	Japanese	English
		Taikū kanshishō	Aerial observation post.
		Kōtsū seirihan	Traffic control squad.

c. Infantry.

i		Hohei	Infantry.
		Hohei ryodan shireibu.	Infantry brigade headquarters.
		Hohei rentai hombu	Infantry regimental headquarters.
		Hohei daitai hombu	Infantry battalion headquarters.
		Hohei butai	Infantry unit.
		Hohei butai no sokai	Infantry development (deployment).
		Daiissen	Front line.
iA		Hohei hōtai	Infantry gun unit.
RiA		Rentai hōtai	Infantry regimental cannon unit.
		Rentaihō	Infantry regimental cannon.
biA		Daitai hōtai	Infantry battalion cannon unit.

Abbreviation	Symbol	Japanese	English
		Daitaihō	Infantry battalion cannon.
iK		Heisha hoheihō	Infantry cannon.
iH		Kyokusha hoheihō	Infantry howitzer.
iP		Sagyōtai	Pioneer unit.
iTL		Hohei rentai tsūshintai(han).	Infantry regimental communication unit.
BTL		Hohei ryodan tsūshintai(han).	Infantry brigade communication unit.

d. Cavalry.

K		Kihei	Cavalry.
KD		Kihei shidan	Cavalry division.
KK		Kihei shūdan	Cavalry group.
KB		Kihei ryodan	Cavalry brigade.
		Kihei shū (shi) dan shireibu.	Cavalry group (division) headquarters.
		Kihei ryodan shireibu.	Cavalry brigade headquarters.
		Kihei rentai hombu	Cavalry regimental headquarters.

Abbreviation	Symbol	Japanese	English
		Kihei butai	Cavalry unit.
		Kihei butai no sokai	Development (deployment) of cavalry unit.
		Daiissen	Front line (cavalry).
		Joba sankai butai	Cavalry engaged in mounted combat.
		Toho butai	Dismounted cavalry.
		Teuma	Led horses.
KTL		Kihei rentai tsūshinhan (tai).	Cavalry regimental communication unit.
KBTL		Kihei ryodan tsūshinhan (tai).	Cavalry brigade communication unit.
KKTL		Kihei shūdan tsūshinhan (tai).	Cavalry group communication unit.

e. Artillery.

A		Yahōhei	Field artillery.
KA		Kihōhei	Horse artillery.
BA		Sampōhei	Mountain artillery.
SA		Yasen jūhōhei	Heavy field artillery.

Abbreviation	Symbol	Japanese	English
FeA		Jūhōhei	Heavy artillery.
K		Kanon	Cannon.
H		Ryūdampō	Howitzer.
M		Kyūhō	Mortar.
		Hōheidan shireibu	Artillery group headquarters.
		Hōhei shireibu	Artillery headquarters.
		Yahōhei rentai hombu.	Field artillery regimental headquarters.
		Yahōhei daitai hombu.	Field artillery battalion headquarters.
		Yahōhei butai	Field artillery unit.
		Yahōhei no danretsu	Field artillery ammunition train.
		Yahōhei no hōretsu	Field artillery gun position.
		Yahōhei no renrakuhan.	Field artillery liaison unit.
		Chōshatei yahō	Long-range field gun.

Abbreviation	Symbol	Japanese	English
		Jūryū	10-cm howitzer.
		Jūka	10-cm gun.
		Jūgoryū	15-cm howitzer.
Ki		Kikyūtai	Balloon unit.
		Kikyū jiṅchi	Balloon ascension point.
		Shikihan	Command section.
		Shikishōtai	Command platoon.
		Hōheidan kansokujo	Artillery group observation post.
		Hōheidan hojo kansokujo	Artillery group auxiliary observation post.
		Rentai kansokujo	Artillery regimental observation post.
		Rentai hojo kansokujo	Artillery auxiliary regimental observation post.
		Daitai kansokujo	Artillery battalion observation post.
		Daitai hojo kansokujo	Artillery auxiliary battalion observation post.

Abbreviation	Symbol	Japanese	English
		Chūtai kansokujo	Artillery battery observation post.
		Chūtai hojo kansokujo	Artillery auxiliary battery observation post.
		Hyōtei no tame no hojo kansokujo	Auxiliary observation point for plotting.
		Hyōtei shikijo	Auxiliary command post for plotting.
		Hōhei jōhōtai hombu	Headquarters artillery intelligence unit.
AN		Hōhei jōhōtai	Artillery intelligence unit.
AL		Hyōteitai	Plotting unit.
		Hyōteijo	Plotting station.
		Shōtai hyōteijo	Platoon plotting station.
		Chūtaihyōteijo	Battery plotting station.
AS		Ongentai	Sound locator unit.
		Chōonshō	Sound locator post.
		Chōon shushō	Main locator post.

Abbreviation	Symbol	Japanese	English
		Chōon zenshinshō	Advanced locator post.
AT		Sokuchitai	Surveying unit.
	 or 	Kiso sokuchi no kijunten.	Triangulation point.
		Jinchi oyobi zenchi no sokuchi no kijunten.	Triangulation point used for military purposes.
		Kisen	Base line.
		Hōkōkisen	Directional base line.

f. Engineer.

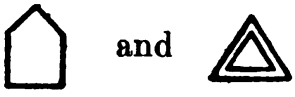
P	----------	Kōhei	Engineer.
		Kōhei shireibu	Engineer headquarters.
		Kōhei rentai hombu	Engineer regimental headquarters.
		Kōhei butai	Engineer unit.
BK		Kakyō zairyō chūtai	Bridging material company.
LBK		Toka zairyō chūtai	River crossing material company.

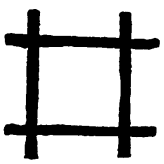
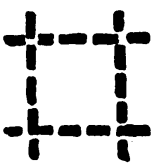
Abbreviation	Symbol	Japanese	English
V		Yasen sokuryōtai	Field surveying unit.

g. Aviation.

		Kōkūheidan (Hikōgundan) shireibu.	Air Corps headquarters (tactical).
FA		Kōkūheidan (Hikōgundan).	Air Corps (tactical).
		Hikōshūdan (shidan) shireibu.	Air division headquarters.
FD		Hikōshūdan (shidan)	Air division.
		Hikō(ryo)dan shireibu.	Air brigade headquarters.
FB		Hikō(ryo)dan	Air brigade.
		Hikōsentai (rentai) hombu.	Air unit (regimental) headquarters.
FR		Hikōsentai (rentai)	Air unit (regiment).
		Type plane is indicated by the symbols O, C, and B for observation, pursuit, and bombardment, respectively. L, S, and T, respectively, mean light, heavy, and long-distance. These symbols should be written slightly to the right and below the basic initial. Examples follow:	
FR_O			Air reconnaissance regiment.
FR_C			Pursuit regiment.

Abbreviation	Symbol	Japanese	English
FR_b			Bomber regiment.
FR_{lb}			Light bomber regiment.
FR_{ab}			Heavy bomber regiment.
FR_{tb}			Long-distance bombing regiment.
		Hikōchūtaichō	Commanding officer air squadron.
Fc		Hikōchūtai	Air squadron.
FM		Hikōbutai	Air unit.
		Hikōki	Airplane.
		Teisatsuki	Observation plane.
		Teisatsuki (shireibu)	Headquarters reconnaissance plane.
		Teisatsuki (gun)	Army observation plane.
		Teisatsuki (chokkyō)	Cooperating (or supporting) observation plane.
		Sentōki	Pursuit (fighter or interceptor) plane.
		Bakugekki	Bomber.

Abbreviation	Symbol	Japanese	English
		Keibaku	Light bomber.
		Jūbaku	Heavy bomber.
		Embaku	Long-range bomber.
		Hikōsentai ijō no kūchūtaikei.	Formations of larger size than a regiment.
		Hikōchūtai no kūchūtaikei.	Air squadron in aerial formation.
		Hikōhentai no hyōmenzu.	Plan of aerial formation.
		Hikōhentai no sokumenzu.	Side view aerial formation.
		Kōkūchiku shireibu	Aerial district headquarters.
		Hikōjō daitai hombu	Air base battalion headquarters.
ab		Hikōjō daitai	Air base battalion.
		Hikōjō chūtaichō	Air base squadron commander.
ac		Hikōjō chūtai	Air base squadron.
		Kōkū chiku butai	Aviation district unit.

Symbol	Japanese	English
	Kōkū tsūshintai hombu.	Aviation signal unit headquarters.
	Kōkū tsūshintai	Aviation signal unit.
	Kōkū jōhōtai hombu	Aviation intelligence unit headquarters.
	Kōkū jōhōtai	Aviation intelligence unit.
	Kōsokutai	Aircraft detection unit.
	Kōhōyō hōkō tanchiki.	Aerial direction finder.
	Yakan kōro hyōshiki	Light beacon.
	Musen kōro hyōshiki	Radio beacon.
	Hikōjō	Airfield.
	Chakurikujō	Landing field.
	Yasen kōkū hokyūshō	Aviation supply park.

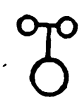
Abbreviation	Symbol	Japanese	English
		Yasen kōkū shutchōjo.	Aviation branch supply park.
		Yasen kōkū shūrishō.	Aviation repair base.
		Yasen kōkū shūri shutchōjo.	Aviation branch repair base.

h. Antiaircraft.

		Bōkū butai shireibu..	Antiaircraft defense unit headquarters.
		Kōshahō rentai hombu.	Antiaircraft artillery regimental headquarters.
		Kōshahō daitai hombu.	Antiaircraft artillery battalion headquarters.
AA----		Kōsha hōtai.....	Antiaircraft artillery unit.
AA----		Kōshahō jinchi.....	Antiaircraft artillery position.
		Shōkū butai hombu..	Headquarters searchlight unit.
AQ----		Shōkūtai.....	Searchlight unit.
		Shōkūtō.....	Searchlight.

Abbreviation	Symbol	Japanese	English
		Kūchū chōonki	Aircraft sound locator.
		Bōkūkikyū	Barrage balloon.
HMG		Kōsha kikanjū	Antiaircraft machine gun.
HMA		Kōsha kikanhō	Antiaircraft machine cannon.

i. Meteorological.

		Yasen kishō tōkatsu kikan.	Field meteorological control agency.
AE		Yasen kishō butai	Field meteorological unit.
		Kishō hōsōsho	Weather broadcasting station.
		Kishō chūtai	Meteorological company.
		Kishō kansokuhan	Meteorological observation party.
		Kishō hojo kansokusho.	Auxiliary meteorological observation post.

Abbreviation	Symbol	Japanese	English
		Kōsō kishō hojo kansokuhan.	Stratospheric meteorological observation party.
		Kōsō kishō hojo kansokusho.	Auxiliary stratospheric meteorological observation post.

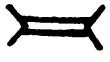
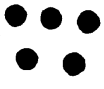
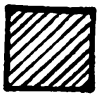
j. Tanks.

TP		Kikaika butai	Mechanized unit.
		Sensha ryodan shireibu.	Tank brigade headquarters.
		Sensha (ren) tai hombu.	Headquarters tank regiment.
		Sensha chūtaichō	Commanding officer tank company.
		Sensha shōtaichō	Commanding officer tank platoon.
TK		Senshatai	Tank unit.
LTK		Keisenshatai	Light tank unit.
MTK		Chūsenshatai	Medium tank unit.
STK		Jūsenshatia	Heavy tank unit.

Abbreviation	Symbol	Japanese	English
PW---		Sōkōshatai----------	Armored (scout) car unit.
		----------	Radio equipped tank.
KTK--		----------	Cavalry combat vehicle.
		Senshatai no danretsu.	Tank unit ammunition train.
TZ----		Senshatai no seibibutai.	Tank equipment unit.
		Jōyōsha----------	Passenger vehicle.
		Sokusha----------	Side car.
		Jidōkasha----------	Truck (loaded).
		Jidōkasha (kūsha)---	Truck (empty).
		Sōkikasha----------	Baggage car (RR).

k. Engineers.

		Sampeigō, kōtsūgō---	Firing, communication trench.

Abbreviation	Symbol	Japanese	English
		Keikikanjūza	Light machine-gun emplacement.
		Kikanjūza	Machine-gun emplacement.
		----------	Light machine-gun in position.
		Yasen hōhei no entai	Field artillery protective works.
		Jūhōhei no entai	Heavy artillery protective works.
		Tetsujōmō	Barbed wire entanglement.
		Idō tetsujōmō	Movable wire entanglement.
		Rokusai	Abatis.
		Jirai	Land mines.
		Taisenshagō	Antitank ditch.
		----------	Gap in artificial obstacles or cleared area in woods.
		Dōro, Kyōryō tō no sozetsubu.	Barriers on roads, bridges, etc.
		----------	Passage through obstacles, gassed areas, etc.
		Empeibu	Defilade, dugout, shelter.

Symbol	Japanese	English
	Engai	Cover.
	Konkuriitosei engai	Concrete shelter.
		Occupied position, limit of advance.

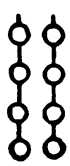
ilway communication.

	Tetsudō yūsō shireibu.	Railway transport headquarters.
	Tetsudō yūsōshibu	Railway transport branch office.
	Teishaba shireibu	Railway transport office.
	Teishaba shibu	Railway transport branch office detachment.
	Yasen tetsudō shireibu.	Field railway headquarters.
	Yasen tetsudōshibu	Field railway branch office.
	Tetsudō kambu	Railway inspection department.
	Tetsudō rentai hombu.	Headquarters railway regiment.
	Tesudō daitai hombu	Headquarters railway battalion.
	Tetsudō tai	Railway unit.

Abbreviation	Symbol	Japanese	English
		Sōkō resshatai	Armored train unit.
		Tetsudō zairyōshō	Railway material park.
		Tetsudō rentai zairyōshō.	Railway regiment material park.
		Teoshi keiben tetsudōtai.	Railway handcar unit.
		Yasen tetsudōshō	Field railway yard (depot).
		Fukusen Teishaba Tansen	Double-track railroad. Station. Single track.

m. Marine communication.

		Sempaku yūsō shireibu.	Sea transport headquarters.
		Sempaku yūsō shibu	Sea transport branch office.
		Teihakujō kambu	Embarkation inspectorate.
		Teihakujō shireibu	Embarkation headquarters.
		Teihakujō shibu	Embarkation branch office.
		Yusōsen	Transport.

Abbreviation	Symbol	Japanese	English
TG----		Yusōsentai--------	Transport convoy.
		Shūtei----------	Small boat.
		Shikitei----------	Flagship.
		Kijuntei----------	Base (or pilot) vessel.
		Kaiun kichi--------	Sea transport base.
		Kaiun shuchi------	Secondary sea transport base.
		Kaiun hojochi------	Auxiliary sea transport base.
		Yusōsen no byōchi--	Transport anchorage.
		Fuhyō----------	Buoy.
		Kaichū tōka-------	Light buoy.
		Kirai fusetsusen----	Mined area boundary line.

Abbreviation	Symbol	Japanese	English
		Fuyū shōgaibutsu	Floating obstacles.
		Shingōsho, miharijo	Signal station, observation station.

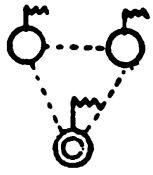
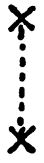
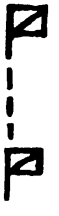
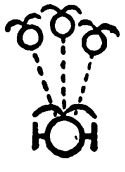
n. Communications.

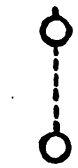
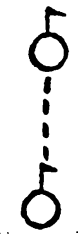
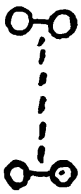
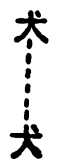
ATL		Tsūshintai hombu	Headquarters communication unit.
TL		Tsūshin chūtai, yūsentai.	Communication company, (wire unit).
SF		Musentai	Radio unit.
NSF		Kotei musentai	Fixed radio unit.
RD		Tokushu musentai	Special radio unit.
DTL		Shidan tsūshintai	Division communication unit.
		Denshin tsūshinjo	Telegraph station.
		Denwaki	Telephone instrument.
		Denwa kōkanki	Telephone switchboard.
		Tenkanki	Transformer.

Abbreviation	Symbol	Japanese	English
		Denshinki	Telegraph instrument.
		Tajū denshinki	Multiplex telegraph instrument.
		Gempaki	Undulator.
		Jidōki	Automatic telegraph instrument.
		Insatsu denshinki	Teletype.
		Shashin densōki (yūsen).	Telephoto instrument (wire).
		Shashin densōki (musen).	Telephoto instrument (radio).
		Rensetsu tsūshinsho	Communication center (junction).
		Tsūshinsen	Communication line.
		Suiteisen	Subaqueous communication line.
		Kisetsu tsūshinsen	Existing communication line.

Abbreviation	Symbol	Japanese	English
		Ōfukusen	Duplex circuit.
		Fukusen	Twisted (or parallel) pair.
		Tenkasen	Supplementary line.
		Hansōsen	Carrier circuit.
		In the preceding symbols, if ○ is substituted for ⧖, telegraph replaces telephone.	
		Denshin denwa sōshimpō.	Line using both telegraph and telephone (simplexed).
		Idōshiki chijō musen tsūshinjo.	Portable ground radio station.
		Idōshiki taikū musen tsūshinjo.	Mobile air-ground radio station.
		----------	Radio mounted in car.

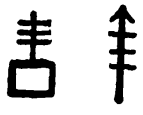
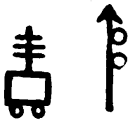
Symbol	Japanese	English
	----------	Radio mounted in vehicle.
	----------	Radio pack set.
	Kotei musen tsūshin-sho.	Fixed radio station.
	Power of set may be indicated as in following example: 	
	Idōshiki hyōteiki----	Mobile direction finder.
	Koteishiki hyōteiki--	Fixed direction finder.
	Idōshiki chōchiki----	Mobile sound-detecting set.
	Koteishiki chōchiki--	Fixed sound-detecting set.
	Ensōki----------	Instrument operated by remote control.
	Shikōsei musen sō-shinki.	Transmitter provided with directional antenna.
	Kaigun musen den-shinsho.	Naval radio station.
	Musenki wo sōbiseru shūtei.	Vessel equipped with radio.

Abbreviation	Symbol	Japanese	English
		Musen tsūshinkei	Radio net.
		Shigō tsūshinkei	Visual signaling net.
		Kaikō	Heliograph.
		Jigō fuhan	Panels.
		Tebata	Semaphore.
PT		Kyūtai	Pigeon unit.
		Hato tsūshinsho	Carrier pigeon station.
		Kyūsho	Pigeon loft.
		Hato tsūshimmō	Pigeon net.

Abbreviation	Symbol	Japanese	English
		Teidenshō	Relay post (dismounted).
		Jōba denshō	Relay post (mounted).
		Jitensha denshō	Relay post (bicycle).
		Inu no renrakuro	Dog messenger route.
		Fuhan shingōsho	Panel post.

o. Transport, supply, and sanitary.

M		Danyakuhan (shōtai)	Ammunition section (platoon).
N		Kōri	Baggage trains.
T		Shichō	Transport; trains.

Abbreviation	Symbol	Japanese	English
		Shichōhei rentai hombu.	Headquarters transport regiment.
		Shichōhei daitai hombu.	Headquarters transport battalion.
		Shichōhei dokuritsu daitai hombu.	Headquarters separate transport battalion.
		Bamba hensei shichōhei butai.	Horse-drawn transport unit.
		Daba hensei shichōhei butai.	Pack transport unit.
		Jidōsha hensei shichōhei butai.	Truck transport uñit.
Pr		Ryōmatsu	Provisions and forage.
iM		Hohei danyaku	Infantry ammunition.
		Type of ammunition may be indicated by placing type abbreviation to right of above abbreviation as iM(MG) for infantry machine-gun ammunition.	
AM		Hōhei danyaku	Artillery ammunition.
BAM		Sampōhei danyaku	Mountain artillery ammunition.
SAM		Yasen jūhō danyaku	Heavy field artillery ammunition.

Abbreviation	Symbol	Japanese	English
Zr		Kagakusen shizai	Chemical warfare matériel.
Gr		Jidōsha (Hikōki) nenryō.	Automobile and aviation fuel.
Hr		Eisei zairyō	Medical matériel.
Vr		Jūi zairyō	Veterinary matériel.
		Heiki kimmutai	Ordnance service unit.
		Keiri kimmuhan	Intendance service unit.
Bo		Bōeki kyūsuibu	Water supply and purification unit.
		Eiseitai hombu	Headquarters, sanitary unit.
FL		Yasen byōin	Field hospital.
PD		Shidan byōbashō	Division veterinary hospital.
S		Kanja shūyōtai	Collection detachment for march casualties.
		Hōtaisho	Dressing station.
		Byōba shūgōsho	Veterinary collecting station.
		Byōba kyūgosho	Veterinary first-aid station.

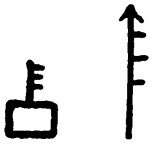
Abbreviation	Symbol	Japanese	English
		Yasen sōko	Field depot (field storehouse).
		Ryōmatsu kōfusho	Ration distributing point.
		Danyaku kōfusho	Ammunition distribution point.
		Nenryō kōfusho	Fuel distributing point.
		Kagakusen shizai kōfusho.	Chemical warfare distributing point.
		Heiki, hifuku tō no shūrisho.	Ordnance, clothing, etc., repair shop.
		Gunjuhin no sekisai	Munitions loading.
		Gunjuhin no shaka	Munitions unloading.
		Gunjuhin no sekkan	Munitions transfer.

p. Line of communication.

		Heitan shuchi	Main advanced depot, line of communication.
		Heitan chiku shireibu	Section headquarters, line of communication.
		Heitanchi	Relay point, line of communication.

Abbreviation	Symbol	Japanese	English
		Yotei heitanchi_____	Projected relay point, line of communication.
		Heitanchi igai no hokyūten.	Auxiliary supply point, line of communication.
		Yasen heiki honshō__	Main field ordnance depot.
		Yasen heikishō_____	Field ordnance depot.
		Yasen heikishishō____	Branch field ordnance depot.
		Yasen kōkū honshō _	Main field air depot.
		Yasen jidōsha honshō_	Main field motor transport depot.
		Yasen jidōshashō____	Field motor transport depot.
		Yasen jidoshashishō _	Branch field motor transport depot.
		Yasen kamotsu honshō.	Main field freight depot.
		Yasen kamotsushō___	Field freight depot.
		Yasen kamotsushishō_	Branch field freight depot.

Type materials stored in dump may be indicated as follows:  for dump containing artillery munitions, etc.

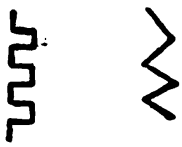
Abbreviation	Symbol	Japanese	English
		Yasen yusōtai shireibu	Headquarters, field transport unit.
		Jidōsha daitai hombu	Headquarters, motor transport battalion.
		Heitan shichōhei butai	Transport unit, line of communication.
		Ken-in jidōshatai----	Tractor-drawn unit.
		Yasen hojū bashō----	Field remount depot.
		Heitan byōbashō----	Veterinary depot, line of communication.
		Gumba bōekishō----	Veterinary quarantine hospital.
		Heitan eiseitai hombu	Headquarters sanitary unit, line of communication.
		Heitan byōin-------	Hospital, line of communication.
		Heitan eiseitai idō chiryōhan	Sanitary unit mobile dressing station, line of communication.
		Yasen bōeki kyūsuibu	Field water supply and purification section.
		Kanja yusōtai------	Sick transport unit.

Abbreviation	Symbol	Japanese	English
		Kanja ryōyōjo	Infirmary.
		Kanja shūgōsho	Collecting station.
		Yasen sakuitai hombu	Headquarters field well-drilling unit.
BG		Yasen sakuitai	Well-drilling unit.
		Yasen kimmutai hombu	Headquarters field service unit.
		The type of unit is indicated by placing the "Kana" initial within the square as "yasen kenchikutai hombu" for headquarters of field construction unit.	
		Rikujō kimmu chūtai	Ground service company.
		Yasen yūbintai	Field post office unit.
		Yasen yūbinkyoku	Field post office.

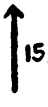
q. Fortifications.

NA	----------	Kaigunhō	Naval gun.
		Yōsai shireibu	Fortress headquarters.
		Yōsai jūhōhei rentai hombu.	Headquarters siege artillery regiment.
		Yōsai hōhei shikikan	Commanding officer siege artillery.

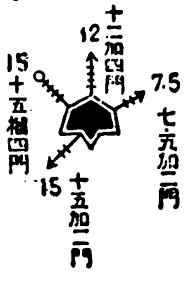
Abbreviation	Symbol	Japanese	English
		Yōsai jūhōhei daitai hombu.	Headquarters siege artillery battalion.
		Chikutai hombu_____	Sector headquarters.
		Yōsai byōin_____	Fortress hospital.
		Yōsai bunin_____	Branch fortress hospital.
		Yōsai shinshōtō_____	Fortress searchlight.
		Suichū chōsokki_____	Subaqueous sounding apparatus.
		Kyūryū yahō_____	Field gun under shelter.
		Eikyū horui_____	Permanent fort.
		Haneikyū horui_____	Semipermanent fort.
		Rinji horui_____	Temporary fort.
		Heisha eikyū hōdai__	Permanent gun emplacement.
		Heisha haneikyū hōdai.	Semipermanent gun emplacement.
		Heisha rinji hōdai___	Temporary gun emplacement.
		Kyokusha eikyū hōdai.	Permanent mortar emplacement.
		Kyokusha haneikyū hōdai.	Semipermanent mortar emplacement.
		Kyokusha rinji hōdai_	Temporary mortar emplacement.

Symbol	Japanese	English
	Hōtō	Turret.
	Eikyū kyōsha	Permanent pillbox.
	Rinji kyōsha	Temporary pillbox.
	Heisha	Barracks.
	Shōsha, makuei	Barracks, tent camp.
	Kōdō	Gallery, underground passage.
	Kōro	Approach trenches, saps.
	Danganshō, danganhonko.	Main shell magazine.
	Danshō	Branch shell magazine.
	Kayakushō, kayakuhonko.	Main powder magazine.
	Kayaku shishō	Branch powder magazine.
	Danyakushō, danyakuhonko.	Main ammunition depot.
	Danyaku chūkanshō, danyakushiko.	Intermediate ammunition depot.
	Kōheikizai kōfusho	Engineer distributing point.

Abbreviation	Symbol	Japanese	English
		Yusō zairyōshō	Transport supply depot (park).
		Heiki shūri kōjō	Ordnance main repair shop.
		Heiki shūrijō	Ordnance repair shop.
		Kanō	Gun (cannon).
		Ryūdampō	Howitzer.
		Kyūhō	Mortar.

Number of guns is indicated as follows:  equals 4 guns; caliber is shown by writing to right of symbol as  , thus  would mean 4 15-cm guns.

Examples



Fortress having 4 12-cm guns, 2 7.5-cm guns, 2 15-cm guns, and 4 15-cm howitzers.

Abbreviation	Symbol	English
		Four 30-cm guns in No. 1 Permanent Battery.
		Four 24-cm howitzers in No. 2 Temporary Battery.
		Two 40-cm guns in a turret.

148. Navy symbols.

Abbreviation	Symbol	Japanese	English
		Kansen	Naval vessel.
B		Senkan	Battleship.
C		Junyōkan	Cruiser.
CD		Kaibōkan	Coast defense ship.
G		Hōkan	Gunboat.
RG		Kayō hōkan	River gunboat.
d		Kuchikukan	Destroyer.
s		Sensuikan	Submarine.
t		Suiraitei	Torpedo boat.
w		Sōkaitei (sōkaisen)	Mine sweeper.
Dpd		Suirai bokan	Torpedo depot ship.
Dpw		Sōkai bokan	Mine sweeper depot ship.
D-f		Kōkū bokan	Aircraft carrier or tender.

Abbreviation	Symbol	Japanese	English
		Tai (Shuryokukan)	Fleet (capital ships).
		Tai (Shuryokukan igai).	Fleet (other than capital ships).
GF		Rengō kantai	Combined fleet.
F		Kantai	Fleet.
S		Sentai	Squadron.
D		Shōtai	Division.
wg		Sōkaitai	Mine sweeper flotilla (group).
Sd		Suirai sentai	Destroyer squadron.
cwg		Sōkai rentai	Combined mine sweeper group.
Ss		Sensui sentai	Submarine squadron.
Sf		Kōkū sentai	Aircraft squadron.
Gg		Hōkantai	Gunboat flotilla (group).
dg		Kuchikutai	Destroyer flotilla (group).
cdg		Kuchiku rentai	Combined destroyer group.
sg		Sensuitai	Submarine flotilla (group).
		Rengōkantai shirei-chōkan.	Commander in chief of grand fleet.
		Shireichōkan	Fleet commander.
		Shireikan	Commander of a division (squadron).

Abbreviation	Symbol	Japanese	English
		Shirei	Ship commander.
f		Hikōki	Airplane.
fw		Suijō hikōki	Seaplane.
fL		Rikujō hikōki	Landplane.
		Miharijo, shingōjo	Lookout station, signal station.
		Bōrō	Signaling station.
		Kōkūkichi	Air base.

149. List of common Japanese naval abbreviations.

Abbreviation	Japanese	English
AG	Tokusetsu hōkan	Auxiliary gunboat.
B	Senkan	Battleship.
BC	Junyō senkan	Battle cruiser.
C	Junyōkan	Cruiser.
CD	Kaibōkan	Coast defense vessel.
cdg	Kuchiku rentai	Combined destroyer group.
cwg	Sōkai rentai	Combined mine sweeper group.
d	Kuchikukan	Destroyer.
D	Shōtai	Division.
dg	Kuchikutai	Destroyer unit.
Dp	Bokan	Mother ship.
Dpf	Kōkū bokan	Aircraft tender or carrier.
Dpd	Suirai bokan	Destroyer mother ship.
Dpw	Sōkai bokan	Mine sweeper mother ship.
f	Hikōki	Airplane; flying machine.
F	Kantai	Fleet.
fL	Rikujō hikōki	Land airplane.
fw	Suijō hikōki	Seaplane.
G	Hōkan	Gunboat.
GF	Rengō kantai	Combined fleet.
Gg	Hōkantai	Gunboat unit.
NA	Kaigunhō	Naval gun.
RG	Kayō hōkan	River gunboat.
s	Sensuikan	Submarine.
S	Sentai	Squadron; flotilla.
Sd	Suirai sentai	Destroyer squadron.
Sf	Kōkū sentai	An air fleet.
sg	Sensuitai	Submarine unit.
Ss	Sensui sentai	Submarine squadron.
Sv	Kyūnansen	Salvage ship.
t	Suiraitei	Torpedo boat.
w	Sōkaitei (sen)	Mine sweeper.
wg	Sōkaitai	Mine sweeper unit.

150. Typical operations map of meeting engagement.— Figure 104 illustrates use of Japanese abbreviations. The advance guard of the right column will attack the enemy force on the high ground north of *E*; seize the position and occupy it; commit the main force of that column gradually to the fight; and, making the main effort against the high ground, attack and drive the enemy to the northwest. The artillery will be advanced to the vicinity of *G* and assist the fight of the advance guard. The left column will attack

the enemy to the front immediately. A part of the artillery of the left column will bring fire to bear on the enemy in front of the right column and assist its advance.

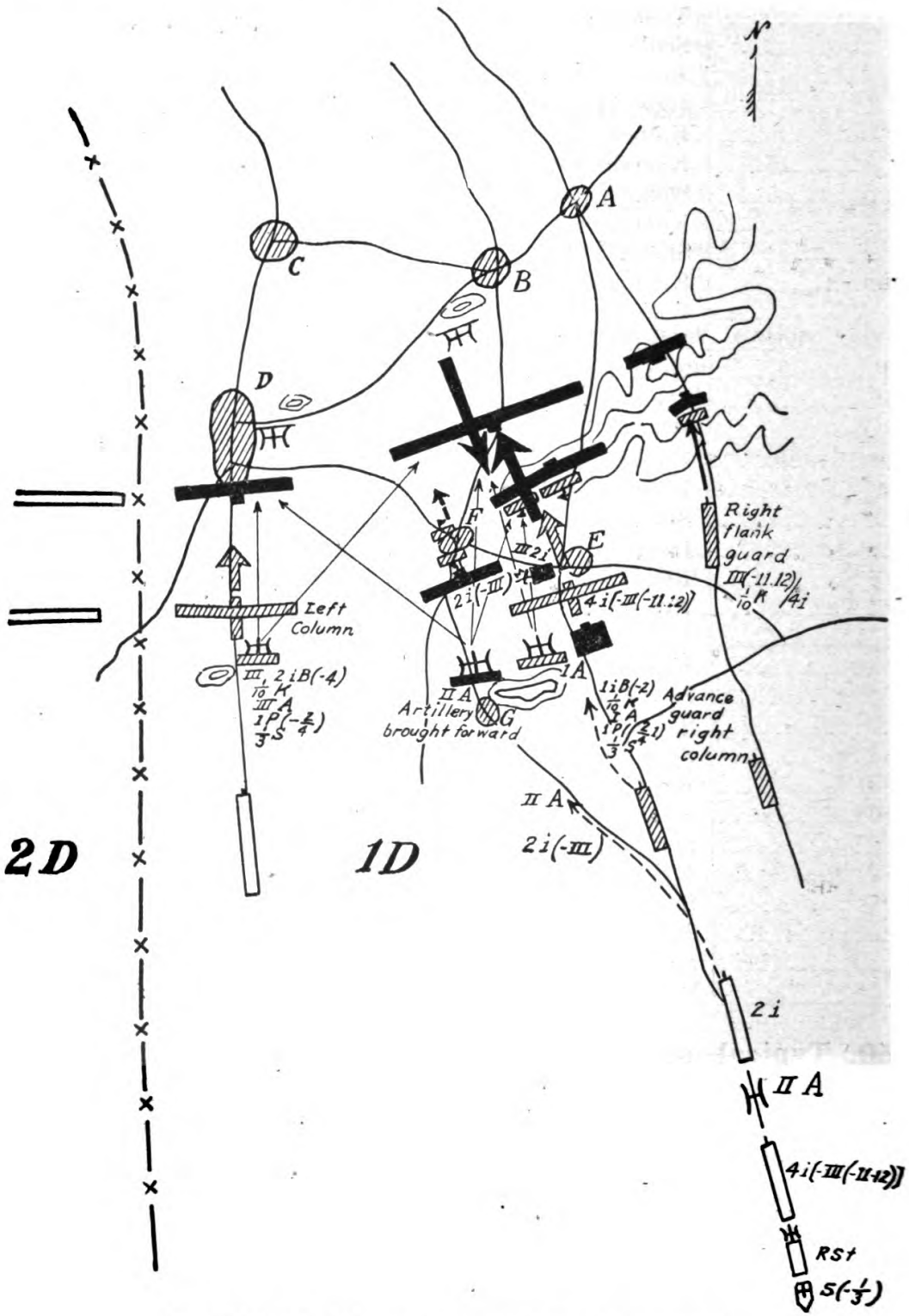


FIGURE 104.—Typical operations map of a meeting engagement.

CHAPTER 10

MILITARY TERMS AND CHARACTERS

151. Military terms.—Following is a list of military terms and their Japanese equivalents which may be useful to unit intelligence officers:

Military term	Japanese equivalent
Army	Rikugun.
General staff	Sambō hombu.
Chief of general staff	Sambō sōchō.
Navy	Kaigun.
Navy Department	Kaigun shō.
Grade	Kaikyū.
Field marshal	Gensui.
General officer	Shōkan.
General	Taishō.
Lieutenant general	Chūjō.
Major general	Shōshō.
Field officer	Sakan.
Colonel	Taisa.
Lieutenant colonel	Chūsa.
Major	Shōsa.
Company officer	Ikan.
Captain	Tai-i.
First lieutenant	Chū-i.
Second lieutenant	Shō-i.
Warrant officer (administrative)	Junshikan.
Noncommissioned officer	Kashikan.
Warrant officer (with troops) or special duty sergeant major.	Tokumu sōchō.
Sergeant major	Sōchō.
Sergeant	Gunsō.
Corporal	Gochō.
Lance corporal	Heichō.
Soldier	Hei, heitai.
Superior private	Jōtōhei.
First-class private	Ittōhei (ittōsotsu).
Second-class private	Nitōhei (nitōsotsu).
Recruit	Shimpei.

Military term	Japanese equivalent
Army (unit)	Gun.
Army headquarters	Gun shireibu.
Army commander	Gun shireikan.
Division	Shidan.
Division headquarters	Shidan shireibu.
Division, major general attached to	Shidan shireibuzuki shōshō.
Division commander	Shidan chō (chūjō).
Division artillery	Shidan hōhei.
Division cavalry	Shidan kihei.
Two brigades of infantry	Hohei niko ryodan.
One regiment of cavalry	Kihei ikko rentai.
One regiment of field or mountain artillery.	Yahōhei, moshiku wa sampōhei, ikko rentai.
One battalion of engineers	Kōhei ikko daitai.
One battalion of transport troops	Shichōhei ikko daitai.
Brigade	Ryodan.
Reinforced brigade	Konsei ryodan.
Composite brigade	Shūsei ryodan.
Brigade cavalry	Ryodan kihei.
Infantry brigade	Hohei ryodan.
Cavalry brigade	Kihei ryodan.
Heavy field artillery brigade (There is no light artillery brigade organization.)	Yasen jūhōhei ryodan.
Regiment	Rentai.
Regiment headquarters	Rentai hombu (not shireibu).
Regiment commander	Rentaichō.
Regiment adjutant	Rentai fukkan.
Battalion	Daitai.
Battalion headquarters	Daitai hombu.
Battalion commander	Daitaichō.
Battalion adjutant	Daitai fukkan.
Company, troop, battery	Chūtai.
Company (troop, battery) headquarters.	Chūtai jimushitsu (not hombu).
Company (troop, battery) commander	Chūtaichō.
Platoon	Shōtai.
Platoon commander	Shōtaichō.
Squad	Buntai.
Squad commander	Buntaichō.
Detachment	Butai.
Arms or services	Heika.
Arms (combatant branches)	Honka.
Infantry	Hohei (aka) (really hi) (red).
Cavalry	Kihei (midori) (green).
Artillery	Hōhei (kiiro) (yellow).
Light field artillery	Yahōhei.
Mountain artillery	Sampōhei.

Military term	Japanese equivalent
Heavy field artillery	Yasen jūhōhei.
Antiaircraft artillery	Kōsha hōhei.
Heavy artillery	Jūhōhei.
Engineers	Kōhei.
Transport Corps	Shichō hei.
Air	Kōkū hei (sorairo) (really usu konjō) (sky blue).
Military police	Kempei (kuro) (black).
Staff services	Kakubu.
Medical	Eiseibu (fuka midori) (dark green).
Veterinary	Jū-ibu (murasaki) (purple).
Intendance	Keiribu (gincha) (silver tea).

NOTE.—In all enumerations the Japanese habitually use the order MP, Inf., Cav., Arty., Engrs., Air Service, Transport, abbreviated sometimes to Ken, Ho, Ki, Hō Kō, Kōkū, Shichō.

152. Important military characters.—*a. Arms, services, and units.*

Infantry	Cavalry	Artillery	The first character alone means army (gun); with second character, corps (gundan).	Division	Brigade
Hohei	Kihei	Hōhei		Shidan	Ryodan
步兵	騎兵	砲兵	軍團	師團	旅團

Regiment	Battalion	Company (troop battery)	Platoon	Engineer
Rentai	Daitai	Chūtai	Shōtai	Kōhei
聯隊	大隊	中隊	小隊	工兵

近衛 Konoe, the Imperial Guards; used for units of the Imperial Guards Division.

航空兵 Kōkūhei, the air service.

b. Numbers.

One	Two	Three	Four	Five	Six
一	二	三	四	五	六

Seven	Eight	Nine	Ten	Hundred	Thousand
七	八	九	十	百	千

〇 Zero, used generally where our zero is used, though the character for 10 is sometimes used.

c. Grade of officers.—Characters showing officers' grades are given as follows:

(1) *Company officers.*

Captain Tai-i	First lieutenant Chū-i	Second lieutenant Shō-i
大尉	中尉	少尉

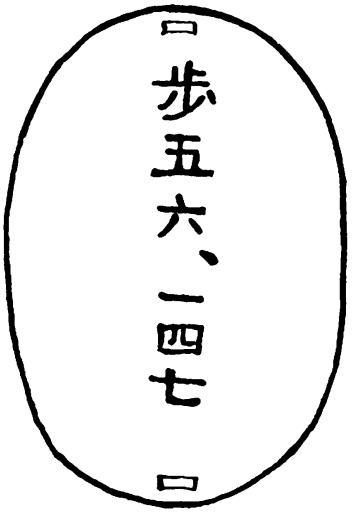
(2) *Field officers.*

Colonel	Lieutenant colonel	Major
Taisa	Chūsa	Shōsa
大	中	少
佐	佐	佐

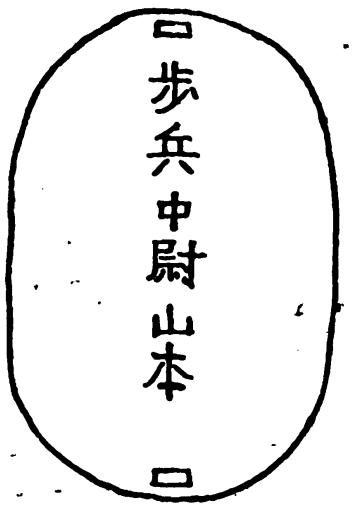
(3) *General officers.*

General	Lieutenant general	Major general
Taishō	Chūshō (or chūjō)	Shōshō
大	中	少
將	將	將

153. Characters on identification tags.—*a. Enlisted man.*—Following is an identification tag of an enlisted man. Reading from top to bottom the first character gives the arm or service, followed by regimental number, a small dash, and ending with the serial number of the man in his regiment. The following reads, "Infantry 56, No. 147."



b. Officer.—The following is an officer's identification tag which gives in order from top to bottom, arm or service, grade, and name. This tag reads, "Infantry, first lieutenant, Yamamoto."



c. Reading identification tags.—Japanese is read from top to bottom and from right to left. The characters here used are Chinese characters adopted by the Japanese. One, two, three, or more characters constitute a word. The dash on the enlisted man's tag separates the regiment number from the man's serial number in the regiment. The arm of service is frequently abbreviated and the first character only used. This is true on the enlisted man's tag. In case of Engineers, "battalion" is substituted for "regiment." A detailed explanation of the reading of tags follows:

(1) *Enlisted men.*

騎 One character here shown—ki, for kihei, cavalry.

二
三 One or more characters for number of regiment (in this case 23).

— Dash separating regimental number from serial number of man in regiment.

四
一
九 Serial number of man in regiment. One or more characters (in this case 419).

(2) *Officers.*

工兵大尉田中

Generally two characters for arm of service (here engineer).

Two characters for rank (here captain).

One, two, three, or four characters for name of officer (here Tanaka).

d. Examples.—The following are examples of the translation of identification tags:

砲十八、五四

Artillery.

18th Regiment.

No. 54.

歩兵少将原

Infantry.

Major general.

Hara.

騎兵少尉川口

Cavalry.

Second lieutenant.

Kawa-guchi.

騎兵大佐内田

Cavalry.

Colonel.

Uchida.

工九、六〇

Engineer.

9th Battalion.

No. 60.

工兵中佐松野尾

Engineer.

Lieutenant colonel.

Matsunō.

歩七六、四四二	Infantry. 76th Regiment. No. 442.
砲十二、一八七	Artillery. 12th Regiment. No. 187.
歩一四一、二五一	Infantry. 141st Regiment. No. 1,251.
砲十、九	Artillery. 10th Regiment. No. 9.
騎兵少佐谷	Cavalry. Major. Tani.
歩九一、七六一	Infantry. 91st Regiment. No. 761.
工兵大尉中上川	Engineer. Captain. Nakami-gawa.
騎八、六四二	Cavalry. 8th Regiment. No. 642.
歩五二、五〇三	Infantry. 52d Regiment. No. 503.
歩兵中尉本西	Infantry. First lieutenant. Motonishi.

APPENDIX I

SUPPLEMENTAL DATA

1. Japanese year dates.

Year of Meiji	*Year of our Lord*	*Year of Meiji*	*Year of our Lord*
1st	1868	41st	1908
2d	1869	42d	1909
3d	1870	43d	1910
4th	1871	44th	1911
5th	1872	45th	1912
6th	1873	*Year of Taisho*	
7th	1874	1st	
8th	1875	2d	1913
9th	1876	3d	1914
10th	1877	4th	1915
11th	1878	5th	1916
12th	1879	6th	1917
13th	1880	7th	1918
14th	1881	8th	1919
15th	1882	9th	1920
16th	1883	10th	1921
17th	1884	11th	1922
18th	1885	12th	1923
19th	1886	13th	1924
20th	1887	14th	1925
21st	1888	15th	1926
22d	1889	*Year of Showa*	
23d	1890	1st	
24th	1891	2d	1927
25th	1892	3d	1928
26th	1893	4th	1929
27th	1894	5th	1930
28th	1895	6th	1931
29th	1896	7th	1932
30th	1897	8th	1933
31st	1898	9th	1934
32d	1899	10th	1935
33d	1900	11th	1936
34th	1901	12th	1937
35th	1902	13th	1938
36th	1903	14th	1939
37th	1904	15th	1940
38th	1905	16th	1941
39th	1906	17th	1942
40th	1907		

NOTE.—When Japanese year dates are given the year may be found as follows:
In the Meiji period, add the Japanese year date to 1867.
In the Taisho period, add the Japanese year date to 1911.
In the Showa (present) period, add the Japanese year date to 1925.
For example Meiji 13 is 1880, Taisho 13 is 1924, and Showa 13 is 1938.

2. Japanese weights, measures, and moneys.—*a. Distance and length.*

Ri=36 chō=2,160 ken=2.4403 miles=3.92727 kilometers.
Ri (marine)=1 nautical mile=1.85319 kilometers.
Ken=6 shaku=60 sun=5.965163 feet=1.81818 meters.
Shaku=10 sun=100 bu=0.994194 feet=0.30303 meter.
Shaku (cloth measure)=1.25 shaku.
Tan (cloth measure)=a roll of about 25 shaku.

b. Land measure.

Square ri=1,296 square chō=5.95516 square miles=15.52345 square kilometers.
Chō (area)=10 tan=3,000 tsubo=2.45065 acres=99.17355 ares.
Tsubo or bu=3.95369 square yards=3.30579 centiares.
Ko (Formosa)=2,934 tsubo.

c. Quantity capacity, and cubic measures.

Koku=10 to=100 sho={4.96005 bushels; 47.65389 gallons (liquid) U. S. A.; 5.11902 bushels (dry) U. S. A.}=1.80391 hectoliters.
Go=10th of a sho.
Koku (capacity of vessels)=10th of a shipping ton.
Koku (timber)=about 1 by 1 by 10 feet.
Koku (fish)=40 kwan (in weight).
Shakujime (timber)=about 1 by 1 by 12 feet.
Taba (fagot, etc.)=about 3 by 6 by 6 feet.

d. Weights.

Kwan (kan)=1,000 momme={8.26733 pounds avoirdupois; 10.04711 pounds troy}=3.75000 kilograms.
Kin=160 momme={1.32277 pounds avoirdupois; 1.60754 pounds troy}=0.60000 kilograms.
Momme=10 fun={0.13228 ounce avoirdupois; 0.12057 ounce troy}=3.75000 grams.

e. Moneys.

Yen (¥)=100 sen=1,000 rin___=
- 0.49846 U. S. dollars (at par).
- 0.23196 U. S. dollars (average rate of exchange, November 1941).

3. Method of numbering models.—*a.* Before 1926 the model or type number on weapons and equipment was usually indicated by the year of the reign in which the model was adopted. Since 1926 the type or model has been numbered from what is assumed to be the date of the founding of the Japanese Empire. The last two digits of this number are used, with the exception of 1940, the 2600th year in the history of the Japanese Empire, where "0" is preferred to "00." An item of equipment adopted in 1940 would therefore be designated as type 0 (zero). An item adopted in 1941 would probably be designated as type 01.

b. A comparative table indicating the western year, the Japanese year, and the type number corresponding thereto follows:

Western year	Japanese year	Model or type number
1930	2590	90
1931	2591	91
1932	2592	92
1933	2593	93
1934	2594	94
1935	2595	95
1936	2596	96
1937	2597	97
1938	2598	98
1939	2599	99
1940	2600	0
1941	2601	01
1942	2602	02

c. This method of marking equipment is in general use in the Army for numbering many types of equipment, including airplanes, tanks, ordnance pieces, etc.

4. Japanese field signal code.—*a.* The following is a list indicating Japanese kana code signals with the Morse equivalents thereto. The last two signals on the list (i, . . , nigori) and (un, . . — — . , hannigori) are not kana signals, but are used to change the initial consonant of certain kana from the values in column 2 to those of columns 3 or 4. They always follow the kana. For example: — . . . is ha, — . . . . . is ba, — . . . . . — — . is pa. Unless operators are trained in kana reception the above should be copied as follows: — . . . as b, — . . . . . as b i, and — . . . . . — — . as b un.

	(1) Morse	(2) Kana	(3) Nigori	(4) Hannigori
a	. —	i		
aa	. — . —	ro		
ar	. — . — .	n		
as	. — . . .	o		
au	. — . . —	wi		
aw	. — . — —	te	de	
b	— . . .	ha	ba	pa
bt	— . . . —	me		
d	— . — .	ni		
c	— . .	ho	bo	po
dm	— . . — —	yu		
dn	— . . — .	mo		
e	.	he	be	pe
f	. . — .	ti (chi)	di (ji)	
g	— — .	ri		
h	. . . .	nu		
id	. . — . .	to	do	
j	. — — —	(w) o		
k	— . —	wa		
ka	— . — . —	sa	za	
ki	— . — . .	ki	gi	
km	— . — — —	e		
kn	— . — — .	ru		
l	. — . .	ka	ga	
m	— —	yo		
mk	— — — . —	su	zu	
mm	— — — —	ko	go	
mn	— — — .	so	zo	
mr	— — . — .	si (shi)	zi (ji)	

	(1) Morse	(2) Kana	(3) Nigori	(4) Hannigori
mu	— — . . —	hi	bi	pi
mw	— — . — —	a		
n	— .	ta	da	
o	— — —	re		
p	. — — .	tu (tsu)	du (zu)	
q	— — . —	ne		
r	. — .	na		
s	. . .	ra		
t	—	mu		
u	. . —	u		
ua	. . — . —	mi		
ut	. . — —	no		
v	. . . —	ku	gu	
w	. — —	ya		
wi	. — — . .	(w) e		
wn	. — — — .	se	ze	
x	— . . —	ma		
y	— . — —	ke	ge	
z	— — . .	hu (fu)	bu	pu
i	. .	nigori		
un	. . — — .	hannigori		

b. The following is the list of code signals employed for the transmission of numerals. The normal signals, abbreviated signals, and the romanized rendering of the Japanese sound occasionally used for number representation during communication are listed, as well as Morse and kana equivalents:

	Morse	Kana	Normal	Abbreviated	Romanization
n	— .	ta—1	. — — — —	— .	hi
z	— — . .	hu (fu)—2	. . — — —	— — . .	hu (fu)
s	. . .	ra—3	. . . — —	. . .	mi
m	— —	yo—4	. . . . —	— —	yo
a	. —	i—5	. . . . .	. —	i
t	—	mu—6	—	—	mu
r	. — .	na—7	— — . . .	. — .	na
w	. — —	ya—8	— — — . .	. — —	ya
v	. . . —	ku—9	— — — — .	. . . —	ku
o	— — —	re—0	— — — — —	— — —	re

c. Following is a list of auxiliary signals used for punctuation, etc.:

Period	. . . . .
Paragraph	. — . — . .
Parenthesis (open)	— . — — . —
Parenthesis (closed)	. — . . — .
Long sound	. — — . —
End of message	. . . — .
Code or abbreviated numerals	— — . . — —
Error—will correct	. . . . .
End of part (interrogation)	. . — — . .
End of transmission	. . . — . —

d. Following is a list of some of the abbreviations and procedure signals:

	Morse	Kana	Meaning
ahr	. — . . . . — .	i nu na	Here is a message. (I shall continue transmission.)
as	. — . . .	o	Wait.
asmn	. — . . . — — — .	o so	Send slower.
awk	. — . — — — . —	te wa	Switch to telephone.
dq	— . . — — . —	ho ne	Break sign. (Body of message follows.)
eeeeeee	. . . . .		Error.
e a	. . —	he i	Close station.
gt	— — . —	ri mu	Government telegram.
gw	— — . . — —	ri ya	Will use abbreviations or code.
ar	. — . — .	i na	No, negative.
k	— . —	wa	Go ahead.
kas	— . — . . .	sa ra	Repeat entire message. (Will repeat.)
lar	. — . . . — . — .	kan	Readability.
larm	. — . . — . . — . — —	kan yo	Good readability, can read.
larmu	. — . . . — . — . — — . . —	kan hi	Poor readability, cannot read.
lart	. — . . . — . — . —	kan mu	Cannot hear.
mmar	— — — — . — . — .	kon	Jamming, interference, static.
m	— —	yo	Local.
rwni	. — . . — — — . . .	na se (na ze)	Why.

	Morse	Kana	Meaning
r	·—·	na	Understood, received.
mrmw	——·—·——·——	si a (shi a)	I have traffic.
mrr	——·—··—·	si na (shi na)	I have no traffic.
ur	··—·—·	u na	Urgent.
uy	··——·——	u ke	I have a message for you.
ud	··——··	u ho	Interrogation.
umm	··————	u ko	Receiver.
ve	···—·	----------	End of message.
x	—··—	ma	Relay message.
mmr	———·—·	yo si (yo shi)	Yes, affirmative.
zw	——···——	hu ya (fu ya)	Transmission is not clear.
zz	——·——··	hu hu (fu fu)	Code signal is not clear.

5. Current strength.—The hostilities in which Japan has been engaged since July 7, 1937 have caused a large increase in the personnel and number of units in the Army. A comparison of estimates of the number of some of the units follows:

Units	1936	January 1939	July 1942
Infantry divisions	17	56 to 60	72 to 82 [1]
Field artillery regiments	14	35	50 to 60
Mountain artillery regiments	3	5	18
Independent mountain artillery regiments	3	5	8
Medium artillery brigades	4	13	13
Fortress artillery regiments	6	11	11
Engineer communication regiments	2	4	6
Engineer railway regiments	2	6	6
Independent reinforced brigades		12 (1940)	23
Cavalry brigades	4	4	5
Antiaircraft artillery regiments	6	15	20
Tank regiments	4	6	15
Air squadrons	16 (1930)	114 (1940)	136

[1] Included in the total are some divisions probably not ready for combat.

The Army, including the Army Air Corps, has been expanded from 355,000 to probably more than 2,500,000 during the above period.

APPENDIX II

WARTIME CODE NAMES AND NUMBERS

The following incomplete list shows such information as is available regarding code names and numbers used by the Japanese as a wartime security measure, referred to in paragraph 9*b*.

Imperial Guards Division	MIYA (Shrine)	3800
4th Guards Infantry Regiment	do	3803
3d Division	KO (Good luck)	3701
5th Infantry Brigade	do	3702
6th Infantry Regiment	do	3703
68th Infantry Regiment	do	3704
29th Infantry Brigade	do	3705
18th Infantry Regiment	do	3706
34th Infantry Regiment	do	3707
3d Cavalry Regiment	do	3708
3d Field Artillery Regiment	do	3709
3d Engineer Regiment	do	3710
3d Transport Regiment	do	3713
5th Division	MATSU (Pine)	
11th Infantry Regiment	do	3
21st Infantry Regiment	do	5
42d Infantry Regiment	do	6
6th Division	MEI (Bright; clear)	9015
Division Infantry	do	9017
13th Infantry Regiment	do	9018
23d Infantry Regiment	do	9019
45th Infantry Regiment	do	9020
6th Mechanized Cavalry Regiment	do	9022
6th Field Artillery Regiment	do	9024
6th Engineer Regiment	do	9025
6th Transport Regiment	do	9027
(Signal unit)	do	9026

13th Division		6801
26th Infantry Brigade		6802
58th Infantry Regiment		6803
116th Infantry Regiment		6804
103d Infantry Brigade		6805
65th Infantry Regiment		6806
104th Infantry Regiment		6807
17th Cavalry Regiment		6808
19th Mountain Artillery Regiment		6809
13th Engineer Regiment		6810
13th Transport Regiment		6811
16th Division	KAKI (Fence)	65
9th Infantry Regiment	do	6553
20th Infantry Regiment	do	6555
33d Infantry Regiment	do	6554
16th Engineer Regiment	do	6556
(Medical unit)	do	6563
17th Division		7381
Division Infantry		7382
53d Infantry Regiment		7383
54th Infantry Regiment		7384
81st Infantry Regiment		7385
21st Cavalry Regiment		7386
23d Field Artillery Regiment		7387
17th Engineer Regiment		7388
17th Transport Regiment		7389
18th Division	KIKU (Chrysanthemum)	8918
23d Infantry Brigade	do	8901
55th Infantry Regiment	do	8902
56th Infantry Regiment	do	8903
35th Infantry Brigade	do	8904
114th Infantry Regiment	do	8905
124th Infantry Regiment	do	8906
22d Cavalry Regiment	do	8907

18th Division—Continued.		
12th (18th) Field Artillery Regiment (Mountain).	KIKU (Chrysanthemum)	8908
12th Engineer Regiment	do	8909
12th Transport Regiment	do	8910
21st Division		7115
Division Infantry		7116
62d Infantry Regiment		7117
82d Infantry Regiment		7118
83d Infantry Regiment		7119
Reconnaissance Detachment		7120
51st Mountain Artillery Regiment		7121
21st Engineer Regiment		7122
21st Transport Regiment		7123
22d Division		7930
Division Infantry		7931
84th Infantry Regiment		7932
85th Infantry Regiment		7933
86th Infantry Regiment		7934
Cavalry Regiment (Reconnaissance)		7935
52d Mountain Artillery Regiment		7936
22d Engineer Regiment		7937
22d Transport Regiment		7938
33d Division	YUMI (Bow)	6820
Division Infantry	do	6821
213th Infantry Regiment	do	6822
214th Infantry Regiment	do	6823
215th Infantry Regiment	do	6824
Reconnaissance Detachment	do	6825
33d Mountain Artillery Regiment	do	6826
33d Engineer Regiment	do	6827
33d Transport Regiment	do	6828
Ordnance or field ambulance	do	6832

34th Division	TSUBAKI (Camellia)	6840
Division Infantry	do	6841
216th Infantry Regiment	do	6842
217th Infantry Regiment	do	6843
218th Infantry Regiment	do	6844
34th Reconnaissance Regiment	do	6845
34th Mountain Artillery Regiment	do	6846
34th Engineer Regiment	do	6847
34th Transport Regiment	do	6848
35th Division		2935
Division Infantry		2936
219th Infantry Regiment		2937
220th Infantry Regiment		2938
221st Infantry Regiment		2939
Reconnaissance detachment (cavalry)		2940
35th Field Artillery Regiment		2941
35th Engineer Regiment		2942
35th Transport Regiment		2943
36th Division		3521
Division Infantry		3522
222d Infantry Regiment		3523
223d Infantry Regiment		3524
224th Infantry Regiment		3525
Reconnaissance detachment (cavalry)		3526
36th Mountain Artillery Regiment		3527
36th Engineer Regiment		3528
36th Transport Regiment		3529
37th Division		3540
Division Infantry		3541
225th Infantry Regiment		3542
226th Infantry Regiment		3543
227th Infantry Regiment		3544
Reconnaissance detachment (cavalry)		3545
37th Field Artillery Regiment		3546

55th Division—Continued.		
143d Infantry Regiment	TATE (Shield)	8416
144th Infantry Regiment	do	8417
55th Reconnaissance Regiment	do	8418
55th Mountain Artillery Regiment	do	8419
55th Engineer Regiment	do	8420
55th Transport Regiment	do	8422
(Ordnance or field ambulance)	do	8427
56th Division	TATSU or RYU (Dragon)	6733
Division Infantry	do	6734
146th Infantry Regiment	do	6735
148th Infantry Regiment	do	6736
154th Infantry Regiment	do	6737
56th Reconnaissance Regiment	do	6738
Artillery Regiment	do	6739
56th Engineer Regiment	do	6740
56th Transport Regiment	do	6741
65th Division	NATSU (Summer)	98
Division Infantry	do	9851
122d Infantry	do	9852
141st Infantry	do	9853
142d Infantry	do	9854
104th Division		*8980
107th Infantry Brigade		8981
108th Infantry Regiment		8982
170th Infantry Regiment		8983
132d Infantry Brigade		8984
137th Infantry Regiment		8985
161st Infantry Regiment		8986
104th Cavalry Regiment		8987
104th Field Artillery Regiment		8988
104th Engineer Regiment		8989
104th Transport Regiment		8990

*Identification questionable due to duplication of numbers.

116th Division		2563
119th Infantry Brigade		2564
109th Infantry Regiment		2565
120th Infantry Regiment		2566
130th Infantry Brigade		2567
133d Infantry Regiment		2568
138th Infantry Regiment		2569
120th Cavalry Regiment		2570
122d Field Artillery Regiment		2571
116th Engineer Regiment		2572
116th Transport Regiment		2573
9th Independent Mixed Brigade	TANI (Valley)	4200
36th Independent Infantry Battalion	do	4201
37th Independent Infantry Battalion	do	4202
38th Independent Infantry Battalion	do	4203
39th Independent Infantry Battalion	do	4204
40th Independent Infantry Battalion	do	4205
14th Independent Mixed Brigade		7301
61st Independent Infantry Battalion		7302
62d Independent Infantry Battalion		7303
63d Independent Infantry Battalion		7304
64th Independent Infantry Battalion		7305
65th Independent Infantry Battalion		7306
19th Independent Mixed Brigade		*8980
66th Independent Infantry Battalion		8981
67th Independent Infantry Battalion		8982
68th Independent Infantry Battalion		8983
69th Independent Infantry Battalion		8984
70th Independent Infantry Battalion		8985
20th Independent Mixed Brigade	Yari (Lance)	2331
102d Independent Infantry Battalion		2332
103d Independent Infantry Battalion		2333
104th Independent Infantry Battalion		2334
105th Independent Infantry Battalion		2335
106th Independent Infantry Battalion		2336

*Identification questionable due to duplication of numbers.

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[A. G. 062.11 (7–29–42).]

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