



# **HISTORICAL REVIEW OF LANDING OPERATIONS OF THE JAPANESE FORCES**

**PREPARED BY  
MILITARY HISTORY SECTION  
HEADQUARTERS, ARMY FORCES FAR EAST**

**DISTRIBUTED BY  
OFFICE OF THE CHIEF OF MILITARY HISTORY  
DEPARTMENT OF THE ARMY**

## FOREWORD

Upon translation it was found that the title of this monograph was misleading. It is an academic discussion of the evolution of landing operations of the Japanese forces up to the time of the Malay landing during World War II, compiled from the personal notes and recollections of Lieutenant General Sakurai Shozo, Shipping Section, Army General Staff.

30 April 1952

TABLE OF CONTENTS

	<u>Page</u>
Review of Japanese Landing Operations. . . . .	1
Changes in Operational Methods. . . . .	6
Shipping Units (Sempaku Butai). . . . .	9
Transport Facilities. . . . .	13
Landing Equipment. . . . .	16
Training. . . . .	21
Embarkation. . . . .	24
Preparations for Landing Operations. . . . .	25
Movement of the Convoy and Naval Escort. . . . .	28
Anchorage. . . . .	31
Landing Schedule. . . . .	34
Landing Disposition. . . . .	35
Deception. . . . .	38
Fire Support. . . . .	38
Air Cover. . . . .	40
Communications. . . . .	41
Unloading Operations. . . . .	42
Establishment of a Beachhead. . . . .	45
Supply. . . . .	45
Medical Care. . . . .	47

APPENDIX

Agreement between the Commander of the Second Army and the Commander in Chief of the Combined Fleet at the Time of the Russo-Japanese War	....	49
-------------------------------------------------------------------------------------------------------------------------------------------------	------	----

CHARTS

No.

1 Organization of Japanese Shipping Force, August 1945 .....	12
2 Craft Used for Landing Operations, 1945 .....	19

## Review of Japanese Landing Operations

All operations launched by marine transportation against an enemy nation or enemy-controlled territory were regarded as landing operations. Landing operations were not regarded merely in the sense of the combat which takes place after the troops disembark as the actual transportation of the troops was an essential and vital part of a landing operation. A landing operation was considered to have begun at the time of embarkation.

There was always a great diversity of opinion as to the time a landing operation finished.

The operation conducted by the Second Army on Liaotung Peninsula in 1904 can be cited as an example. It was argued that the landing operation ended after the Second Army occupied the line connecting the hills north of Chinchou on 16 May; at the time the Second Army occupied the line connecting Antsushan and Taltzushan on 30 May, and again, at the time when the Second Army concentrated its main body on the line connecting Pulantien and Tashaho and the 3d Division concentrated its main body on the line connecting Antsushan and Taitzushan in early June.

On the other hand, the landing operation on Shantung Peninsula conducted by the 18th Independent Division in 1944 was definitely considered to have ended at the time the main body of the division completed its deployment in the vicinity of Chimo on 24 September.

In the Pacific War, in regard to landing operations carried out against isolated islands, the time of the termination of the

operations could be regarded either as the time the operational forces left the island or the end of the war, since the operational forces on isolated islands always maintained a direct relation to marine transportation. In contrast, operational forces which landed in China, after a certain period of time, could carry out operations without direct support from marine transportation.

Although landing operations were regarded as joint operations of the Army and the Navy in which all actions had to be carefully coordinated, history has proven that cooperation between the two services was always difficult. It was felt, however, that the dissension between the two services was the fault of individual commanders. Further, no supreme command of the Army and Navy was ever established.

Landing operations during the Russo-Japanese war were almost entirely a Navy responsibility and there was very little friction between the two services. This is clearly demonstrated in the agreement between the commander of the Second Army and the commander in chief of the Combined Fleet on the occasion of the Second Army's landing at Liaotung Peninsula. (See Appendix)

From the time of the Russo-Japanese war to the German-Japanese war, no noticeable progress was made in the tactics of landing operations.

About 1915, the Japanese revised their methods for landing operations. It was realized that, whereas prior to this time the main duty of the convoy escort was to destroy the enemy surface

fleet, with the advent of the submarine and airplane it was necessary to guard against dangers from under the water and in the air. This greatly increased the duties of the Navy and, at the same time, forced the Army to take proper measures to protect itself. At this time, expansion in the scale of operations and development of intelligence services made it more difficult to maintain secrecy of operational plans; the size and speed of land movement of troops greatly increased and it became necessary for the Army to land larger forces to combat stronger enemy resistance.

The old method of landing troops after a naval landing force had secured a position on the land was revised and it was decided to land troops at the beginning of an operation, and even, if necessary, to land in force.

At this particular time the Navy was in the process of expansion and the mechanization of warships. This made it extremely difficult for them to organize land combat units as a fleet component from among the crews. In consequence, the Army was forced to execute beachhead operations on its own. It was felt, however, that until a landing operation was completed, the Army troops were at the mercy of both the enemy naval and air forces, as well as the land forces, and during this period should have the protection of the Navy. It was not possible to have landing operations without the support and cooperation of the Navy.

The first instance of a unified command was during the Shanghai Incident in 1932, when the 24th Mixed Brigade was placed under the

command of the Third Fleet commander and used as reinforcements for the Shanghai Naval Special Landing Force.

During the China Incident, the Japanese Army carried out a series of landing operations along the China coast and along the banks of the Yangtze. Part of their success can certainly be attributed to the excellent cooperation they received from the Navy.

The Army did not feel that they received complete cooperation from the Navy during World War II. They felt the reason for this was that the Navy attached primary importance to brilliant naval actions and relegated combined operations to a secondary place.

During the landing operations in Malay, the Navy, because of lack of planes, was able to give air cover to only the first transports of the convoy. They were also compelled to order the escort fleet to return to escort follow-up transports as soon as the first transports reached their anchorage. The Army was forced to rely on the Navy for transportation and cover during landings. The Navy, however, being responsible for defense against the powerful naval and air forces of the United States and Great Britain, felt that their prime duty was large-scale naval actions.

One of the main essentials believed to have contributed to the success of the Japanese landings in December 1941 in Malay and the Philippines was the utmost secrecy with which the plans were guarded. The enemy was surprised and had no time to organize counter-attacks. In contrast, the landing operation against Midway Island in June 1942 failed because the enemy uncovered the plan while the



movement was still under way, and launched naval and air attacks against the convoy.

Great emphasis should be placed on sea and air supremacy, particularly at the time of the landing. In former times, the enemy's surface power was all that had to be contended with when a landing was planned. During the Russo-Japanese war, the Japanese Combined Fleet destroyed the Russian Fleet outside Port Arthur on 8 and 9 February 1904, and was then able to land the Special Korea Expeditionary Forces at Inchon. With the advent of the airplane and the submarine during World War I, Japan found herself confronted with new difficulties. In order to protect herself, it was decided to set up sheltered anchorages along the prospective main route of advance of a future war, that is, a series of harbors provided with anti-aircraft and antisubmarine defense facilities. It was not possible, however, to carry out this plan in peacetime due in part to the limitations set forth in the Washington Treaty and in part by the restrictions placed on the national budget for defense.

During the Shanghai and China Incidents, however, the Japanese forces were free to plan and carry out desired landing operations as China had practically no navy or air force.

It was only after Japan launched World War II that she realized the absolute necessity of achieving command of the sea and air. At the outset, Japanese forces were able to make successful landings as the Allied attacks from sea and air were weak but by the middle of 1942 the Allies had gradually gained mastery of sea and air in

the Pacific and it became extremely difficult for Japan to transport her troops. Japan was not able to hold the supremacy of sea and air long enough to establish and strengthen sheltered anchorages. It was found that, under the circumstances, in a danger zone adjacent to their destination, transports were compelled to travel by night and that it was necessary for them to navigate for about three hours after sunset before reaching their destination, and also to leave the danger area about three hours before sunrise. Regardless of the size of the ship, therefore, its use was limited.

#### Changes in Operational Methods

Methods used by the Japanese forces during landing operations may be divided into three phases: first, from the Sino-Japanese War through the Russo-Japanese War up to World War I, second, through the Manchurian Incident and China Incident to the early part of the Pacific War; and third, from the middle to the end of the Pacific War. These are not three definite phases but rather there was a gradual transition with the most marked development during these periods.

During the first phase, sea transportation was carried out by large transports with the Navy protecting the convoy from enemy surface forces. The naval landing force landed first and, under its cover, the army force went ashore. During this phase, command of the sea was constantly in Japanese hands and control of the air was not required.

During the second phase, sea transportation was conducted with large transports, but the Navy was called upon to defend the convoy against enemy aircraft, warships and submarines. The transports, themselves, were also required to take their own defensive measures. At this time, the landings were conducted entirely by the Army with the necessary cooperation from the Navy. Tactical aspects of the landing were entirely the Army's responsibility, the Navy being charged with the transportation. During this period, both sea and air control were generally in the hands of the Japanese forces.

During the third phase, it became almost impossible to use large transports in the forward areas and sea transportation was conducted by smaller craft. Very little, if any, naval escort was provided. The landings were carried out by the Army with very little, if any, naval or air support. The Army was charged with all tactical aspects of both the landing and sea transportation. Sea and air supremacy during this time was almost entirely in the hands of the Allies.

During this phase when it became necessary to use small craft to transport troops, the quality of the craft used was not good, and they were not available in sufficient numbers. Large barges were first used, but it was found they were slow and their carrying capacity was not adequate. With the idea of increasing the speed of the barges, the I-GO high-speed barges and the SB boats were then designed and built. Submarines were also used as transports to carry troops in order to evade the enemy. Although the submarines made several

successful trips to Leyte, Tokunoshima and Chichijima, the I-GO high-speed barges and SB boats were never satisfactory.

The barges were not only limited in the number of troops they could carry, but were forced to travel at night, often close to the shore, which extended the distances to be traveled. There was no naval air escort for this type of sea transportation and the Army, with no training in sea transportation, was forced to assume full responsibility for these movements.

An important factor in arriving at the strength and organization of a landing force has always been the availability of transportation and the escort duty involved. This has often made it imperative to divide the landing force into several echelons. Such being the case, a great deal of thought has always been given to the composition of the first echelon as, in all probability, it would be called upon to fight immediately after going ashore. Units with the greatest combat strength and which carry the least equipment have always been included in the first echelon. Horses have been excluded as far as possible, as they take up so much space. This method allowed the Japanese forces to cope with combat during and immediately after landings.

After World War I every effort was made to retain a fighting force similar to the marine divisions which had specialized training in landings. This was found to be impossible, but, as an alternative, designated divisions underwent landing operations training. The 5th, 10th and 12th Divisions first underwent this training

and gradually between the time of the China Incident and the Pacific War other divisions were added. From this time forward, the Japanese Army employed those specially trained divisions as the first echelon in landings.

#### Shipping Units (Sempaku Butai)

Units directly concerned with landing operations were known as shipping units.

From the time of the formation of the Japanese Army and Navy early in the Meiji era, the transportation of troops overseas was always the responsibility of the Army. Japan, in this respect, differed from all other countries in that they charged the Army with the responsibility of transporting expeditionary forces.

During the years, various changes and improvements were made in the title and functions of the Army organization in charge of sea transportation, but over the period from the Sino-Japanese and Russo-Japanese wars to the Manchurian Incident, the organization as shown below, generally sufficed to meet the requirements:

Peacetime Organization	Wartime Organization
Commander Army Trans- port Dept. <ul style="list-style-type: none"> <li>— Army Transport Dept.</li> <li>— Army Transport Dept: Branches</li> <li>— Army Transport Dept: Agencies</li> </ul>	Commander Shipping Transport Command <ul style="list-style-type: none"> <li>— Shipping Trans- port Command</li> <li>— Shipping Trans- port Command Detachment</li> <li>— Anchorage Hq. &amp; Detachments</li> <li>— Attached Units &amp; Personnel</li> </ul>

In peacetime this organization was required to inspect ships and to plan armament, fittings and supply of ships; to inspect harbors; to plan facilities at the sea transport base and installations at the base ports; to inspect and maintain sea transportation equipment; to examine shipping transport service personnel and to plan recruitment and training of assigned personnel. With the outbreak of war, the commander of the Shipping Transport Command ordered the organization placed on a wartime basis. The Shipping Transport Command supervised the converting of ships to transports. It also supervised the embarkation of troops and the loading of munitions and supplies. The port of Ujina was designated the sea transport base for all units going overseas and detachments were assigned to the principal base ports.

It was feared that the Army civilian personnel of the Army Transport Department (a government office in peacetime), especially those called upon to man the transports, might not maintain military discipline and fulfill their duties under enemy fire during a landing. It was requested, therefore, that the Army Transport Department be placed on a military basis and all-military shipping units be created. The Army refused to do this, but, as a temporary expedient in 1928, the 3d Company, 5th Engineer Regiment, 5th Division was given training in operating landing craft. This company was known as Company D and was later expanded into three companies which became the D Engineer Battalion. This marked the beginning of shipping engineer units.

At the beginning of the Pacific War, as Japanese naval and air strength was superior to that of the Allies, no reinforcement or reorganization of the shipping units was necessary. About July 1942, with the change in the war situation, it became necessary to strengthen and reorganize the Shipping Transport Command into the General Shipping Command. At the same time, other shipping units were reinforced and new shipping units were organized. The organization of the Japanese shipping force at the end of World War II was as shown on Chart 1.

According to Japanese Army standards, the quality of the shipping units was not good. The major reason for this was that the need for this type of unit had not been given serious consideration

Organization of Japanese Shipping Force, August 1945

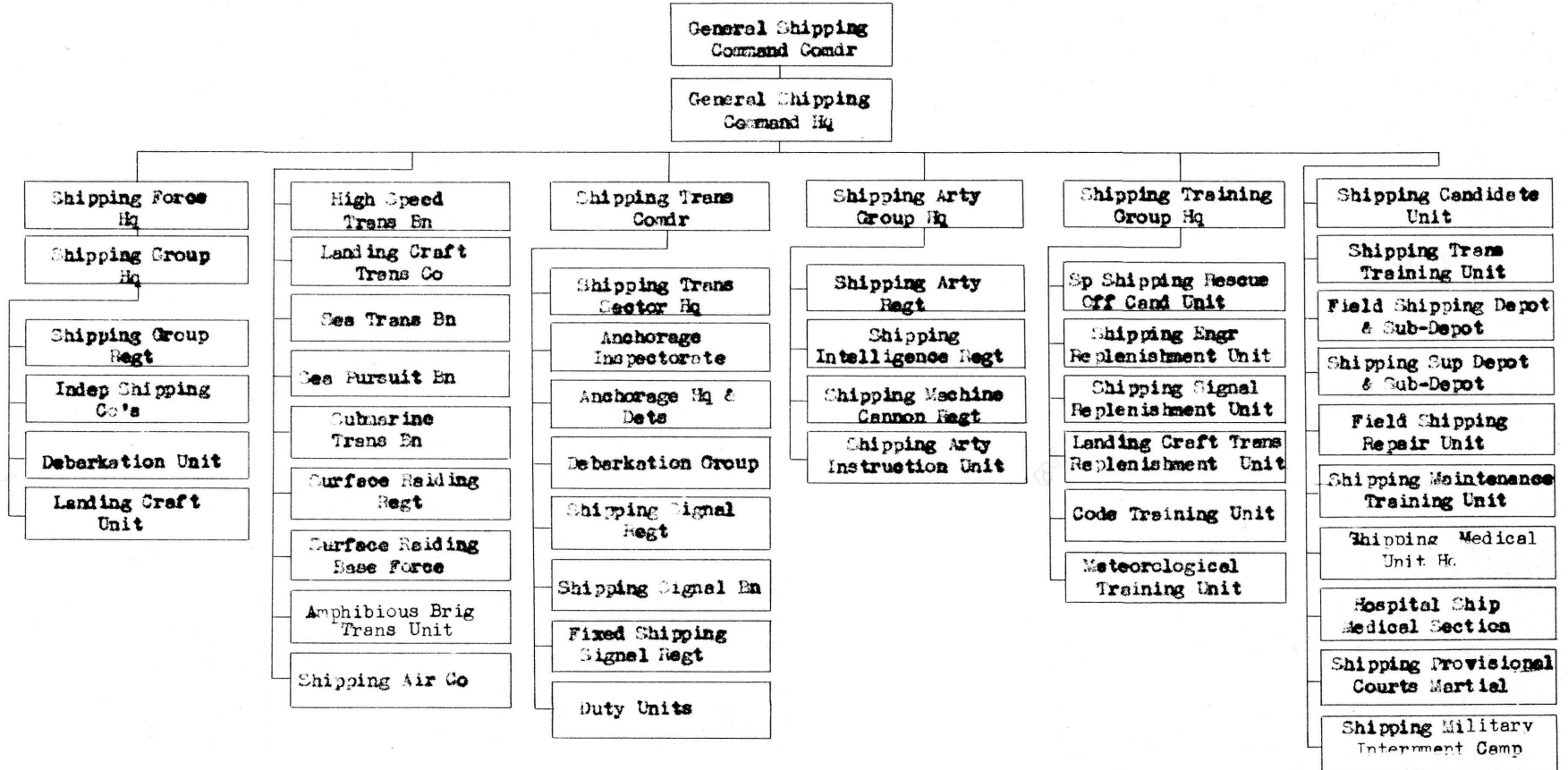


CHART NO 1  
12



prior to World War II. The Army held that sea transportation was not one of its functions, and, in consequence, most of those who enrolled in the shipping units lacked ability and physical strength and the training was not intensive. It was not until the middle of World War II that the great need for efficient shipping units was realized, and by then it was too late to improve their quality.

The personnel of these units was not given military status until toward the end of World War II, although many of the men who manned the transports, sailing boats and fishing boats were killed in action.

#### Transport Facilities

Wartime shipping was of the utmost importance. Not only could the quantity and quality of ships have a direct bearing on the outcome of operations, but it could become the deciding factor as to whether or not an overseas operation could be undertaken.

Normally, troops were carried on Army transports, but, during the Shanghai Incident, in order to relieve a critical situation, warships were used to transport the 11th Division and 24th Mixed Brigade. It was not possible to load the landing craft, heavy artillery or the horses aboard the warships; therefore, two Army transports were requisitioned to carry the landing craft and heavy equipment. The Army transports and warships arrived at the anchorage simultaneously, but many hours were lost in unloading the landing craft, loading them with troops and taking them ashore. It was,

therefore, decided to construct transports capable of carrying landing craft as well as troops. The "Shinshu Maru" was the first of the transports so constructed. This ship was also capable of carrying seaplanes which could be catapulted into the air. It was planned to construct eight more similar transports, but at the time of the outbreak of the Pacific War only one other, the "Akitsushima Maru," had been completed.

In order to stockpile sufficient material in peacetime to convert merchant ships into transports when required, the Japanese Army had enacted the Army Stockpile Regulation (GUNREI TEISU). This enabled them to acquire the necessary materials in peacetime and place them in the custody of the Army Transport Department.

At the time of the China Incident the stockpile of material to equip merchant ships as transports was sufficient for 300,000 tons of shipping. An average of 40,000 ship tons daily were converted at the base ports of Ujina, Osaka, Kobe, Moji, Keelung, Pusan and Canton during the months of September, October and November 1941 in preparation for the Pacific War.

Japan's shipping was always limited and so the number of ships available to the Army was always limited. In December 1941, Japan possessed approximately 6,300,000 steamship tons. This tonnage was divided between the Army, Navy and other government agencies. The total tonnage of shipping requisitioned during the Pacific War was:

December 1941	2,160,597
June 1942	1,796,450
December 1942	1,267,017
June 1943	1,145,318
December 1943	1,166,665
June 1944	887,696
December 1944	270,423
June 1945	211,789
August 1945	71,531

During the Pacific War speed became an increasingly vital factor and it was felt that one of the great advantages of possessing larger ships was that they could develop higher speeds and so evade the enemy. Further, being larger, fewer ships were required and this made it easier for the Navy to escort the transports in convoy.

Ships requisitioned by the Army were first classified, based on quality, as troop transports, munition ships, hospital ships, casualty evacuation transports and special vessels to be used as colliers, water tankers, repair vessels, refrigeration ships, etc. These ships were then equipped with the necessary fittings and armament to fulfill their respective requirements.

It was apparently peculiar to the Japanese Army that all transports had stables, as well as berths, built into the holds of the ships.

During the Pacific War, the shipping shortage compelled the reduction of tonnage requirements from five tons per man and ten tons per horse to three and a half tons per man and nine tons per horse. As the war continued further reductions in these space allocations became necessary.

Equipment was needed to protect the transports from hostile aircraft, submarines and mines. AA guns and machine cannons were used against hostile aircraft. They were so limited in number, however, that only one was allowed to every two transports. This was of little, if any, use. In an attempt to correct this, special anti-aircraft and defense ships (BOKUSEN) were commissioned to provide protective cover for convoys. These ships were each equipped with from five to ten AA guns and several cannons. Later, in place of field and mountain guns, the AA guns were also used as antisubmarine weapons.

A number of transports were equipped with antisubmarine weapons, depth charges, mortars and AA guns. Also, the development of submarine microphones (SO-GO, RA-GO) during the war made it possible to achieve some degree of success in antisubmarine warfare.

The lead transports of a convoy were equipped with ordinary paravanes for use against moored mines. Special equipment was devised for use against magnetic mines. It was planned to equip all transports with a speed of 14 knots or more, which were to be used in the Malay area, with this special equipment. Due to the shortage of copper and the inadequate dockyards, however, very few had been equipped at the war's end.

#### Landing Equipment

Landing equipment included the landing craft needed to disembark troops, horses and supplies, as well as pier-construction equipment,

marking flags, pilot lamps, landing lights, signal communications equipment and various other equipment. Of these, landing craft, was, of course, by far the most important.

Landing craft was required to meet the following specifications: it had to be able to approach the shore easily, but, at the same time, be sufficiently seaworthy to enable the troops to disembark at locations where there were no harbor facilities; it was required to be constructed to ensure convenient loading and unloading of troops, horses and supplies - especially horses and vehicles; it was required to have high speed, to carry a certain amount of protective armor, and to be so constructed as to be easily maneuverable when being lowered from the sides of transports, and it was also required to be so designed as to enable mass production.

Landing operations of the Japanese Army from the time of the Sino-Japanese War until World War I were accomplished by use of clumsy looking, simply constructed boats or barges, which were, for the most part, towed to the landing point by small steamboats. During World War I the necessity for powered landing craft was realized, and motors were installed in the barges. Iron barges began to replace the wooden ones, and a limited number of these were used effectively in the landing operations during the Shanghai Incident of 1932.

During the China Incident a goal of 120 landing barges had been set, but, with the expanding theater of operations and the possibility of sudden changes in the world situation, the goal was

raised to 600. In addition, it was planned to employ sea trucks and powered fishing boats in order to increase transportation capacity. Gasoline engines were replaced by diesel engines, which simplified the problem of supplying fuel.

These landing craft, especially the large landing barges, were employed effectively in all the landing operations carried out during the early phases of the Pacific War. As enemy aircraft, submarines and torpedo boat attacks increased, sea transportation became a combat action and various types of landing craft were designed and constructed to meet the changing situation.

The newly designed landing craft included a motorboat (SS, SB) designed for prompt disembarkation of tanks; a submarine for transport designed chiefly for secret transportation; a pursuit boat designed for antisubmarine patrol and destruction of enemy motor torpedo boats and a high speed transport boat designed for rushing troops to forward areas. In addition, during the final phase of the war, special attack boats, designed solely for suicide attacks at sea, were built. With the progress of the war, iron and steel shortage made it necessary to construct more and more landing barges of wood at a time when every effort was being made to replace wooden barges with iron. Specifications of the newly designed craft are shown on Chart 2. The large landing barges made of plywood proved unsatisfactory and their construction was later suspended.

Craft used for Landing Operations - 1945

Specification	Dimension		Draft		Engine		Speed			Tonnage Gross	Cruising Speed (knot - 110%)	Crew	Armament (A) and Loads (B)	Fuel Consumption (Litres/Hr)	Max Brake HP	RPM Low Gear	RPM High Gear	No of Cyl	Cyl Bore	Fuel Pump (Carb)	Oil Consumption	Eng. Wt
	Length	Beam	Empty	Full	Type	H.P.M	Empty	Full	Full Wt (Tons)													
Power Boat (Kido-tai)	59.00	9.60		4.00	Two 530 HP Diesel engine	290	14	12		750	3,000	208	(A) One AA gun, two AA machine cannons, one machine gun, one medium mortar. (B) 1 tank, 1 truck, 3 small landing barges	17 1/2	550							
Submarine Transport	40.90	3.90		2.90	Two 200 HP Besson shin engines One 75 kv (TW Sig) One 50 kv (TW Sig)		Surfaced 10	Submerged 5		346	Surface 1,500		(A) One 37-mm gun, one "Ra-Go" (B) 40 tons	200	300	1,000	6	17.8	Hasegawa Type			
Pursuit Boat (Kachiku Tei)	18.00	4.30		0.65	Two 800 HP 98-type aircraft engine	1,650	38	Cruising 18 7.5			135	21	(A) 1 AA machine gun, 2 machine guns, 2 depth charge releases, "Ra-Go", 1 radio set	270	850	600	1,850	12	16.0		7.5	1,000
High-speed Transport Boat	33.00	5.50		1.35	Three 800 HP 98-type aircraft engine	1,650	25		37	85	1,000	28	(A) 1 AA machine gun, 2 machine guns, 1 "Ra-Go", 1 radio set (B) 25 tons	350		600	1,850	12	16.0		7.5	1,000
Special Attack Boat	Basic requirements: Small size, light weight, seaworthiness, high speed, ability to carry 200 kg explosives.																					
Wooden Large Landing Barge	14.50	3.35	0.45	0.97	Two 45 HP Toyoda-type engine			8	7	10.7		39	6 - 7	(B) 70 men, 10 horses, 1 tank, 2 tons	7	75	500	2,000	6	8 1/4	0.6	400
Large Plywood Landing Barge	15.00	3.35	0.50	0.62	One 60 HP Diesel engine	1,500	9	8	7			6 - 7	(B) 70 men, 10 horses, 1 tank, 2 tons	8.5	66	500	1,500	6	110	Busch	0.4	690

## Training

It was only after World War I that the Japanese Army began to give serious thought to landing operations. Although the Field Duty Manual (YAGAI YOMUREI) dealt with sea transportation at great length, it dealt only with transportation problems. When it was decided, however, that the Army itself would conduct landing operations, it became necessary to give more detailed training instructions. For security reasons it was not possible to discuss full details of training and procedure in the manual, but the shipping chapter was revised and important information added. At this time, the Field Duty Manual became known as the Field Service Manual (JIN CHU YOMUREI). The Shipping Transport Duty Manual (SEMPAKU YUSO KIMMUREI) was revised simultaneously and a detailed description of matters relating to landing operations was added. The manual was far from being a guide for military training but served as a wartime reference book for personnel assigned to sea transportation.

About 1924, the first manual covering landing operations was published. This manual was known as the Landing and Landing Defense Operations Manual (JORIKU OYOBI JORIKU BOGYO SAKUSEN KOYO). The manual was rewritten in 1933. It was then known as the Landing Operation Manual (JORIKU SAKUSEN KOYO). The last named manual was a joint compilation by the Army General Staff and the Navy General Staff, It placed special emphasis on the responsibilities of commanders of all echelons of the Army and Navy. The Debarkation Manual (YORIKU



SAGYO KYOHAN) was published for the guidance of the shipping engineer units when they were first organized in 1928. At the same time as the Landing Operations Manual was issued the Joint Exercise Manual (RIKU KAIGUN ENSHUREI) was renamed the "Army-Navy Joint Order No. 1." This allowed coordinated planning and directing of joint operations of the Army and Navy. This was the only joint order issued by the two services.

The first landing operation exercises were held by the 3d Division on the coast of Ise Bay during the summer of 1921. At the Army War College, additional hours were scheduled for landing operations and efforts were made to bring the Army and Navy in close contact during the exercises.

The necessity to train personnel for wartime transportation was also recognized and the Department Training Section of the Army Transport Department was organized about 1929. This was reorganized and became known as the Shipping Training Department in 1943.

Because of the huge expenditure involved in chartering vessels to be used for exercises, it became necessary to train men without the aid of transports. Debarkation from transports to landing barges was practiced by climbing down rope ladders hung from the upstairs windows of barracks; and model motorboats were built in barracks squares to train soldiers how to fall to their knees on board barges, how to leap from the barges to the beach and how to shoot from pitching and rolling barges.

The success of the landing operation at Chiliaokou on the Yangtze River on 1 March 1932 fully justified the years of training for landing operations. All landing operations conducted during the China Incident were successful. This may have led to a certain amount of complacency as no great improvement in the methods of conducting landings was made for some time.

From the beginning of 1941, fresh interest was given to the study of and training in landing operations. Emphasis during study and training was placed on the methods of transportation and landing in the face of hostile air and sea forces, and in putting mechanized units ashore.

An attempt was made to use small craft about the size of a sea truck and to land advance foot troops by means of light, prefabricated bridges thrust out from the boats to the beach. This method had been employed to great advantage by the British when landing on the Belgian coast during World War I. It was not practical, however, during the Pacific War as the light, prefabricated bridges had been built for river crossings and could not be used over water with strong waves. Also, the cranes installed on the small craft were not sufficiently powerful and the craft was too slow to be effective.

Submarine transport was planned, but it was not until the war was half over that any of these submarines were built. The total number actually completed was very small and they contributed little toward the war effort.

Training continued during the Pacific War. In February 1943 the Shipping Training Department was set up to take charge of the advance training of the shipping units and toward the end of 1944 the Shipping Training Group Headquarters was organized to train replacements for the shipping units. However, to train soldiers to operate the motor boats and submarines in the short time available, proved impossible.

#### Embarkation

The order in which troops were transported was determined by the requirements of the landing and subsequent operations. Based on this, dates and ports of embarkation were fixed. Time was allowed to prepare the transports and to mobilize the troops. Consideration was given also to the carrying capacity of the railways and matters pertaining to harbor facilities and navigation routes. About 20,000 gross tons proved to be a good size for a convoy.

The commander of the Shipping Transport Headquarters allocated space aboard the transports according to the nature of the force to be embarked and the embarkation schedule, and, in compliance with the operations plan of the commanding general of the force to engage in the operation. In an operation of special importance, however, the Supreme Command would sometimes allocate the space. The commanding general of the force to engage in the operation was responsible for carrying out the embarkation according to schedule, the allocation of space and the embarkation regulations prepared by the

commander of the Shipping Transport Headquarters or the commander of the Anchorage Headquarters. The troop commander was required to give special attention to the load order at the time of embarkation.

This procedure was followed up to the time of embarkation with special attention being given to transport space and order of loading. Although the actual allocation of space was the duty of the commander of the Shipping Transport Headquarters or the commander of the Anchorage Headquarters, it was coordinated with the commanding general of the force after careful consideration had been given to the landing plan. Combat loading of the troops was essential to the success of the operation. Troops and material were so divided among the transports so that the loss of any one transport would not seriously affect the success of the operation.

It is interesting to note that among the many landing operations made by the Japanese Army in past wars, there is not a single instance in which trouble was encountered because of a poorly prepared load order.

#### Preparations for Landing Operations

In planning a landing operation, coordination between the Army and Navy had to work with clock-like precision in order to avoid waste of manpower and material. The operation had to be planned without precise knowledge of the enemy's strength or position and was usually based on an estimate at the time of the assembly of the

convoy, which might be days before the actual landing. It was, therefore, usual to have an alternate plan prepared. However, once a plan had been put into operation, regardless of the situation that arose, nothing was allowed to deflect the commanders from that plan.

As the element of surprise was the key to a successful landing, the landing was made where there was least likelihood of resistance and where a route of advance to the operational objective was easily accessible.

The Navy considered their responsibility in regard to the operation to be: minesweeping when the convoy entered the anchorage; protection of the convoy from enemy sea and air attacks, and supporting fire for the landing forces. Weather conditions Also played a big part in planning a landing.

Prior to the arrival of a convoy at the designated anchorage, the landing troops and the debarkation units completed all preparations for the landing. Upon arrival at the anchorage, the debarkation units, after lowering the landing craft over the side, promptly debarked the landing troops from the transports to the landing craft. An orderly and swift debarkation was an important step in a successful landing.

At the same time warships took up their stations to support the landing and the work units removed underwater obstacles and opened the route for the succeeding waves of landing troops.

Upon being informed by the transport commander that the debarkation had been completed, the troop commander then ordered the landing

and all landing craft left the anchorage simultaneously. Warships and armored barges protected the landing craft advancing to the shore. Aircraft also were used to protect this movement.

In the Pacific War, during the landing on Malay, emphasis was placed on the facilities for disembarking and advancing the forces inland, as enemy air and sea opposition was expected at all times. The date of the landing could not be altered from the standpoint of the over-all war situation. There was no alternate point of landing planned as the geographic features of Malay left no choice in the route of advance once the troops were put ashore.

Reconnaissance of a landing point was carried out not only some time before the landing, but, if possible, again almost immediately prior to the landing. Not only was it necessary to have full information in regard to the topography of the country surrounding the anticipated landing place but it was also necessary to have an estimate of the enemy situation both on the ground and at sea. Whatever methods were used to obtain this information, deceptive reconnaissance had also to be employed to prevent disclosure of the actual landing point. The collecting of this information was considered to be the joint responsibility of the Army and the Navy.

Prior to the China Incident peacetime surveys of potential landing points had been conducted to a certain degree but the information obtained was incomplete and of little value. During the Pacific War high-altitude aircraft was used for photo-reconnaissance from

which it was possible to estimate general conditions, but no detailed reconnaissance appears to have been carried out. Submarines were used to obtain information concerning underwater obstacles.

#### Movement of the Convoy and Naval Escort

The Japanese Landing Operations Manual stated that a convoy was completely under the control of the escort commander from the time it left the assembly point under naval escort until it took its scheduled place at the anchorage off the landing beach. The duty of the troop commander during this time was to take defense measures aboard the transports and any other action which would facilitate the work of the escort force.

The duty of the escort force was to protect the convoy from hostile warships, submarines, aircraft and mines. A guide for escort duty was issued which stated:

Normally indirect escort, in which hostile surface forces are cleared from the waters along the scheduled course of the convoy, is to be used in guarding the convoy against hostile naval forces. When hostile surface forces are considered far inferior in strength or when their exact location is unknown, direct escort, in which the escort directly guards the convoy, is adopted.

In guarding against enemy submarines, courses over water where enemy submarines are suspected to be, will be avoided, even to the extent of sacrificing time and distance. Movement of the convoy should be so scheduled as to pass over dangerous waters at night. If it is believed that hostile submarines are pursuing the convoy, the course should be drastically changed at dawn or at dusk.

The convoy will take defensive measures in regard to formation, employment of direct escort, evasive maneuvers, and defensive measures aboard each individual transport.

A convoy will be formed of two to four squadrons, each consisting of six transports, preferably of similar size and speed with each ship being assigned a serial number. When more transports are necessary they will be grouped into divisions. In waters suspected of hostile submarine activity the convoy will proceed in fanlike formation. Transports will keep approximately 400 meters apart and a distance of approximately 800 meters will be maintained between divisions. Important transports will be placed in the center of the formation and the transports with the highest speed in the outer positions.

The ideal method would be to assign one destroyer to each transport. In most cases this will not be possible, therefore, one destroyer and subchasers will be assigned to several transports. These naval craft will take their positions around the convoy at a distance of approximately 1,000 meters. In addition, a squadron of naval craft will precede the convoy to guard the route and, if necessary, aircraft will patrol the sea.

Should hostile submarines be spotted forward on the beam and at close range, they will be rammed at full speed. When hostile submarines are spotted at a distance, or to the side or rear, they will be evaded by high speed maneuvers. Anti-submarine firing and dropping of depth charges will be decided according to the circumstances.

Each transport was armed and equipped to navigate in formation and to defend itself but was almost helpless against hostile submarines. Radio silence, control of smoke and light, and the throwing of rubbish into the sea were all measures practiced to avoid detections.

Later, with the advent of radar, these methods became outmoded.

In both the Shanghai Incident and the China Incident, as with earlier operations, enemy sea and air power was practically non-existent and Japanese landing operations were boldly carried out. Escorting a convoy of warships in the face of enemy sea and air opposition was experienced by the Japanese for the first time during



the Pacific War. During the early days of the Pacific War, the Japanese successfully convoyed their transports and accomplished the planned landings. Later, however, with the limited Japanese naval strength, it was impossible to divert sufficient surface forces for convoy duty and the escorts were not adequate. It was found that in actual practice escorting a convoy was very different to the studies and maneuvers conducted during peacetime.

In the landing on Malay, an escort force was provided only for the troop convoy and this force was compelled to leave the convoy immediately the transports reached their debarkation point in order to escort succeeding convoys. It was necessary, therefore, to entrust the defense of the anchorage to a base force and to air units. Only first echelons of convoys were provided with air cover beyond French Indo-China.

Similar circumstances prevailed in regard to escorting convoys in other areas.

At the end of 1941 when the 5th Division with other minor units was being transported to Malay the huge convoy of 30 transports was escorted by only three destroyers.

From June 1942, enemy sea and air attacks made surface transportation increasingly hazardous. From the time of the battle of Midway the ever-increasing losses of warships with the inevitable reduction in escort strength made water transportation an increasingly difficult task and the losses in men and supplies tremendous.

In August 1944, the Navy launched an all-out attack against enemy submarines operating in the Bashi Channel. They stationed aircraft equipped with magnetic detectors in Formosa and the Philippines. Prior to this, it had been impossible for Japanese ships to pass through this channel, but, from this time forward no ships sailing under air escort were lost by enemy submarine action in this channel.

### Anchorage

The anchorage for transports should be as close to the shore as possible. Even in modern warfare, however, with its many means of detecting the approach of a convoy, the element of surprise plays a big part in the success of the landing. It is, therefore, necessary to select an anchorage sufficiently concealed to prevent the convoy being fully exposed to the enemy from the shore.

The Japanese frequently used the two-stage anchorage method whereby the landing boats and barges were lowered to the water some distance from the shore and the first wave debarked at this point. The convoy then moved to a second anchorage closer to the landing beach and, after the boats and barges from the first wave had been recalled, the second and succeeding waves were debarked and landed on the beach. Because of the high speed of modern landing craft, very little time was lost. One great disadvantage to this method of landing was that it meant a much greater area had to be swept of

mines before the landing; also it was found difficult to synchronize the movement of the convoy and the landing boats and barges.

Although it was customary for the convoy to follow the mine-sweepers, which cleared the water ahead, individual transports were equipped with low speed paravanes for their own safety.

In the Pacific War, the important transports of the convoy ordered to Malay were fitted with paravanes and they proceeded directly to the anchorages without waiting for the minesweepers, in order to initiate the landing as quickly as possible. The troops were landed at Kota Bharu but since this was very close to the enemy torpedo bomber base, protection from enemy air attack presented a very serious problem. It was, therefore, decided that the landing would be carried out under cover of darkness. At dawn the transports were withdrawn and returned to the anchorage after sunset to resume unloading. While this method was effective in avoiding enemy torpedo attacks, it also had a number of disadvantages, the major ones being:

- a. Suspension of unloading during daylight prolonged the time required for the unloading and kept the transports in operational waters.

- b. It was necessary to leave the landing boats and barges on the landing beach making them an easy prey to enemy aircraft. The resultant loss during this operation proved staggering.

c. Conditions were likely to change between the time the transports retired from their anchorage and their return.

d. The confusion of debarkation under an enemy night attack was far greater than in the daytime.

Although the landing at Kota Bharu was successfully carried out, most of the transports were lost.

With the progress of the Malay campaign, it was decided to put the 18th Division ashore at Mersing. The plan for this landing was unusual because of the great emphasis placed on minesweeping.

The plan stated that the convoy would enter the first anchorage after the completion of minesweeping and debark the first wave. The minesweepers were to continue their work and the convoy was to move to the second anchorage closer to the shore. The landing boats and barges, laden with troops, were then to follow the small craft sweeping the shallow waters. The time lost between the first and second waves was considered necessary in order to avoid enormous losses of men by hostile mines.

The landing at Lamon Bay, Luzon, during the Pacific War, also called for careful planning. The anchorage was selected very close to the shore, which was unusual during this war. This was necessary because, although the depth of Lamon Bay made it impossible for the transports to weigh anchor, tactically, it was necessary to achieve maximum efficiency in unloading troops and supplies. These troops were required to be put ashore as quickly as possible in order to

cross the Tayabas Range and secure favorable positions for the ensuing drive on Manila.

### Landing Schedule

Theoretically, a dawn landing had the most advantages as it helped to increase the element of surprise and lessened the likelihood of losses from enemy fire. Prior to the Pacific War the Japanese chose dawn landings, almost without exception.

During the Pacific War, night landings were first thought highly desirable as the danger of enemy air attacks was lessened, but it was found that to land at night, the convoy had to turn its course toward the anchorage during the day preceding the landing, and, in so doing, prematurely exposed the plan to the enemy. The time of the landings in the majority of cases was decided with a view toward entering the anchorage at midnight and putting the greater part of the combat unit ashore just before daybreak.

Prior to the Pacific War, a tentative landing date was fixed by the Japanese High Command but was subject to change. The main factor in deciding a landing date was not the enemy situation but weather conditions and tides.

During the Pacific War, the situation was entirely different and it was found necessary to give serious consideration to landing schedules. Landings on Guam, the Philippines, and Malay were carried out at almost the same time as the attack on Pearl Harbor in order to

gain the greatest results from surprise attacks. Regardless of the enemy situation or the weather, the attacks had to be carried out on the scheduled day, as it was feared that delay in landing would adversely affect the very basic plan of the war. This was the most revolutionary change in landing operations during the Pacific War. Another important feature was that the transports were not allowed to remain very long at the anchorage off the landing point but were ordered to return within a specified time to avoid enemy submarine attacks and also to hasten transportation of further troops. This was the first time that the date of a landing had been fixed and a time limit imposed.

#### Landing Disposition

A landing force must be disposed in width as well as depth—the debarkation units, the landing barges and the craft.

Prior to World War I the Japanese required the naval landing forces to spearhead the landing. The army units first objective was to relieve the Navy unit holding the beachhead. At that time, disposition in depth was the all-important factor and there was practically no need for disposition in width.

This method of troop disposition was demonstrated during the Russo-Japanese War when it was planned to land the Second Army at Houtushih. A naval landing force was to occupy the vicinity of Taishan and protect the initial Army landing. The 3d Division,

after relieving the naval landing force, was to move inland and secure the high ground extending from the vicinity of Maichiatus through Chouchiatun to Hsuchiatun, in order to protect the landing of the main body of the Second Army. Accordingly, on 5 May 1904 at 0530, the 7th Coast Defense Ship Division (nine warships and two torpedo boats) arrived at the landing beach. They shelled Chingtaishan, Pitauwo and Sankuanmiao and, at 0600, succeeded in putting ashore a naval landing force, composed mainly of two battalions of sailors and two light field pieces. The 1st Battalion, which was the vanguard of the naval landing force, tried to land at Houtushih, but, as the tide was low, the landing barges and craft ran aground about 1,000 meters from the shore, and the men had to wade ashore. The advance element reached the shore at 0730 and captured Chingtaishan at 0800. The 2d Battalion and an artillery unit were then put ashore. With the capture of Chingtaishan the signal was given from the Coast Defense Ship Fuso to commence landing the troops. The 3d Division landed. At 1130, the commander of the 17th Infantry Brigade arrived at Chingtaishan at the head of two infantry battalions and relieved the naval land combat units. The naval land combat units withdrew immediately and returned to their respective ships.

The method of landing the 11th Division at Chiliaokou, during the Shanghai Incident, was a departure from all previous landings. The troops were combat loaded and disposed in width as well as

depth. From the beginning the troops took the initiative and effected the landing. This method proved most effective and was used during practically all landings during the China Incident and the Pacific War. Too, with the rapid progress made in both the quality and quantity of landing craft and equipment, the interval between the landing of each succeeding wave was considerably shortened and the period during which the first wave had to serve as a covering force was greatly reduced.

During the Pacific War, the landing of troops in Malay followed this same principle. In preparation for this landing, a large number of landing craft was brought over on the transports making it possible to disembark the greater part of the combat units at one time. This enabled the armored units to be included in the first wave. However, it required time to move the armored units from the transports to the landing craft which delayed the advance of succeeding waves. The first wave, therefore, was divided into two phases with the armored units going in on the second phase. It was also the first time that AA defense units and railway units had been landed with the initial landing. The antiaircraft guns and machine guns were mounted on shore and a rapid advance was made possible by the railway unit.



## Deception

Deception in landing operations had always been used by the Japanese to a limited extent. The means most commonly used to conceal past landings were:

- a. Diversion of a number of warships and transports to a point other than the scheduled landing beach; minesweeping operations; shelling of the coast and even putting some troops ashore.
- b. Carrying out of reconnaissance by aircraft and warship.
- c. Seizing fishermen off a beach to feign a landing and later allowing some of the captured fishermen to escape.

Lt Gen Sakurai, Shozo states that: "Important as deception is in landing operations, it is doubtful if it has the same value in modern operations as it did in the past. Today, with modern means of reconnaissance and communications it is difficult to conceal the movement of troops. Nevertheless, the element of surprise is still highly important in any landing operation."

## Fire Support

Although naval bombardment was used during landing operations of the Japanese Army in both the Russo-Japanese War and the China Incident, it was not regarded as satisfactory. On the other hand, it was effectively used during the landing at Chiliaokou in the Shanghai Incident. At that time, the shells bursting on the ground 200 or 300 meters beyond the front line prevented the enemy from

counterattacking. When it became necessary to cease firing so that the troops could move forward, the order was promptly and accurately given by the Navy's radio-telegraph station which had been temporarily set up on the beach, and firing was halted immediately. In the same way, the enemy's counterattack against the left flank of the first wave was quickly repulsed by timely naval fire.

The Navy was unable to place much emphasis on training for shore bombardment since this was not one of its primary functions. Under the circumstances, it was inevitable that this type of gunfire was not sufficiently accurate to meet Army requirements. It seemed especially difficult for the naval guns to destroy enemy positions and units near the shore. In order to compensate for this, it was decided to install guns on Army transports and also to use the guns on the armored boats to pound the targets which escaped naval bombardment. In practice, however, this did not prove very satisfactory.

The effectiveness of naval gunfire was later greatly increased through aerial direction of fire and adequate communications.

As the element of surprise was a fundamental precept in the landing operations of the Japanese forces, naval bombardment was avoided as much as possible. Firing during the landing, too, was begun only when specifically requested by the commander of the ground forces. In many instances Army officers were assigned aboard the warships providing the supporting fire as liaison between

the Army and Navy in order to ensure accurate and quick transmission of the Army's orders.

### Air Cover

Air superiority was a very vital factor in the safe conduct of convoys and landing of troops.

The duties aircraft were called upon to perform during landing operations were manifold. They were required to give air cover to convoys; to perform reconnaissance on land and sea both before and during a landing; to bomb enemy positions; attack enemy planes; direct naval gunfire and lay smoke screens. As Japanese aircraft were limited, however, it was necessary to confine their duties to fighting off enemy aircraft and protecting transports and landing craft during actual landings.

In both the Shanghai and China Incidents, Chinese air strength was negligible and Japanese superiority in the air proved of great help during these landing operations.

During the Pacific War, the success of the early Japanese landings might be attributed partially to the element of surprise and partially to the weakness of the enemy's air strength. At that time, the main objective after landing was to seize enemy airfields. It was felt that to seize an island or land area close to a proposed landing beach and to construct an airfield prior to the landing greatly facilitated the landing. This was the method used

by the United States forces in their counteroffensives. At the same time, this resulted in premature disclosure of the intention to land and it was necessary to weight the advantages against the disadvantages before taking such action.

#### Communications

A study by the Japanese Army on the best methods of communication during landing operations resulted in their using visual signals and written or verbal liaison by messenger boats between landing forces and transports and among transports; radio or prearranged signals between landing forces and warships offering direct support; radio, message tubes, panel signals and flares or other prearranged signals between aircraft and landing forces or escort forces; radio, visual signals and written or verbal liaison by messenger boats between transports and escort forces; and visual signals, messenger boats and submarine telephones between debarkation work units on the beach and at sea.

All communications to warships or naval aircraft during a landing operation were made by the temporary naval radio station which was usually set up on the beach.

In addition, liaison officers were exchanged between the Army and the Navy.

The above mentioned methods were used during both the Shanghai and China Incidents with great success.

## Unloading Operations

During the Sino-Japanese War, the Russo-Japanese War and World War I, the unloading of Japanese troops and supplies was the responsibility of the Anchorage Headquarters. They were assisted by transportation units (YOSOTSU TAI) which were placed under their command. During the Shanghai Incident, however, these duties were assigned to a unit known as the debarkation working party (YORIKO SAGYO TAI). This unit was composed of the Anchorage Headquarters, shipping engineer units and also shipping units under the control of the commanding general of the landing forces.

During both the Shanghai and China Incidents, this unit was usually under the command of the commander of the Anchorage Headquarters, who ranked highest among the commanders of the units involved. During the Pacific War, however, it was often under the command of the commander of the Shipping Engineer Regiment, as this regiment had expanded and its commander had become the ranking officer.

As the debarkation working party grew into a large organization, the Debarkation Group Headquarters (YORIKUDAN SHIREIBU) was created and located at strategic points and the debarkation working parties were placed under the command of the commanding general of this headquarters.

In other countries, debarkation was usually regarded as a Navy or Marine Corps responsibility, but in Japan, during the Meiji era, this work became the responsibility of the Army. These Army units

became so specialized that, in a sense, they could be regarded as a type of marine corps.

The commander of the debarkation working party was responsible for determining the plan to get the troops and supplies ashore promptly and in a proper sequence. It was necessary to coordinate this plan with the troop commander's plan for landing.

The debarkation working party's plan included the prompt and orderly unloading of landing craft from transports, their assignment and operation; installation of landing markers; construction of piers; establishment of communications stations, assembly points and munition dumps; marking of dangerous waters with buoys and, if necessary, marking the channel and mooring areas with buoys. It covered the period from the commencement to completion of the debarkation of troops and supplies.

Whereas the landing plan was mainly concerned with the debarkation of troops, with the debarkation plan greater emphasis was placed on the landing of supplies. At the same time, these two plans had to be carefully coordinated. In addition, a certain margin of flexibility had to be allowed in the debarkation plan to cope with the changing situation of combat on landing, losses of landing craft, and unfavorable weather and sea conditions. This was made necessary by the fact that the debarkation plan was made several days prior to the actual landing.

During the Shanghai Incident, lightly equipped troops were transported aboard warships and successfully landed by well-trained debarkation units. Joint reconnaissance, conducted under cover of darkness, by the commander of the shipping engineer company in charge of debarkation and the commander of the naval supporting unit, determined the point of landing, and the plan was carried out according to schedule.

At Chauangshachen, during the China Incident, the 11th Division's troops landed from warships. These troops were lightly equipped and were quickly and efficiently landed. However, difficulty was encountered in landing supplies due to enemy air attacks and to shortage of landing craft. The troops went ashore without horses or vehicles, and supplies could not be moved forward to the front. The following day, the location for unloading supplies was shifted to Keuiyao Bay and the unloading completed. From this operation it was learned that while it was easy to debark lightly equipped troops, it was necessary to give more thought and planning to the unloading of supplies.

In order to increase unloading efficiency, it was necessary to provide a large number of landing craft. In 1940, research was begun on special barges, submarine transports and amphibious trucks. Although a number of these were produced, at the time of the outbreak of World War II, they were still in short supply. It was, therefore, necessary during the Malay landing to employ old-type landing barges,

and to supplement these with fishing boats and sea trucks in order to compensate for the insufficient quantity of large barges.

Unlike earlier landing operations, the landing on Malay during World War II was carried out in the face of enemy air and submarine resistance. It was, therefore, necessary to cut the time required for debarkation to a minimum and to conduct the unloading during the night. In consequence, the strength of the landing force and the quantity of supplies had to be cut, and the debarkation personnel and number of barges increased.

#### Establishment of a Beachhead

As soon as a landing was made, it was necessary to establish facilities both on land and at sea in order to continue unloading at the landing point or in the vicinity. These facilities constituted the beachhead. It was customary to charge the Debarkation Group Headquarters with the responsibility of establishing the beachhead in conjunction with naval base forces.

#### Supply

In the various wars prior to the China Incident there was little danger of sea communications being disrupted by the enemy as the distances were not very great. At that time, the main problem was the availability of materiel with transportation receiving secondary consideration. In the Pacific War, while materiel was still very important, much greater importance was attached to the problem of



transportation. It was realized that the quantity of materiel meant nothing unless it could be supplied on time to the troops engaged in a particular operation. From the very beginning of the Pacific War, supply was a serious problem as not only was it necessary to contend with the danger of sea communications being broken but it was impossible to leave transports anchored for any length of time near the landing points because of possible loss from enemy air and submarine attacks.

During the landing on Malay, because the first echelon was forced to complete its landing in three nights and two days, loading of materiel was limited to one month's supply of weapons and ammunition and one week's supply of provisions. It was necessary to place similar limitations on the materiel for the second and later echelons.

To minimize losses from enemy action, supply bases were established in French Indo-China and materiel was transported in small lots by sea trucks and fishing boats. Another precaution taken was to order a repair ship to Singora immediately after the landing for the purpose of repairing the landing barges. The repair ship sailed with the convoy as far as Bandon but, because of its lack of speed, was forced to continue from there alone. It arrived one day after the landing operations had begun.

With the progress of the Pacific War the activity of enemy planes and submarines was greatly increased and the Japanese supply problem became more and more difficult, until finally it was impossible to continue.

## Medical Care

From the time of the Sino-Japanese war until the China Incident with the exception of the landing at Wusung, landing operations were conducted with little if any enemy resistance. It was, therefore, unnecessary to include medical care as part of the plan of operations. Medical personnel were simply called upon to rescue men from the sea during the landings and administer emergency treatment on board the lifeboats provided by the debarkation work unit or the Navy. Casualties which occurred immediately after landing, before medical facilities had been established on the beach, were evacuated on the empty landing craft returning from unloading the landing units.

Hospital ships were rarely included in the first echelon. Casualties were taken care of on board the warships which had adequate facilities for administering medical treatment. The landing operation at Hangchou Bay during the China Incident was probably the first instance of a hospital ship being included in the first echelon by the Japanese. During the Pacific War, however, hospital ships were dispatched to the major areas with the convoys.

## APPENDIX

### Agreement Between the Commander of the Second Army and the Commander in Chief of the Combined Fleet at the time of the Russo-Japanese War

The landing site will be Houtushih and vicinity.

In conformity with the Army's intention to shift its base of operations to Dairen Bay immediately after completion of the landing operations, the Combined Fleet will clear the bay as quickly as possible. Elements of the fleet will then execute divisionary movements along the coast between Yingkou and Kaiping. Should the enemy move to the south of Pulantien, the Fleet will threaten the rear of the enemy from the direction of Dairen Bay. Should elements of the Army advance to the line connecting Antzushan and Chikuanshan from the direction of Chinchou, the decision as to whether any action will be taken to facilitate the Army's advance from the direction of Dairen and Chinchou Bays will depend upon the results of the Combined Fleet's operation. In consideration of the preparations to be made by the Combined Fleet, the Army transport convoy will depart from Tatungchiang on 3 May.

The Combined Fleet will be charged with escorting all transports during the movement from the assembly point to the landing site and while the landing is in progress.

In order to avoid an excessively large convoy, the first echelon will be landed in two waves, while the remainder of the convoy will

be dispatched in three echelons from Tatungchiang.

Simultaneous with the landing of the Second Army, the Combined Fleet will begin laying submarine cables between Tatungchiang and the landing site. Should this project be delayed, the Fleet will assume the duties of maintaining communications between the landing site and the point where the cable ends.